The Performance of European Socially Responsible Fixed-Income Funds

Paulo Leite [a*], Maria Céu Cortez [b]

[a] Applied Management Research Unit (UNIAG), School of Management, Polytechnic Institute of Cávado and Ave, 4750-180 Barcelos, Portugal

Email: pleite@ipca.pt

Tel: + 351 253 802500

Fax: + 351 253 821111

[b] NIPE – School of Economics and Management, University of Minho, Gualtar, 4710-057 Braga, Portugal

Email: mccortez@eeg.uminho.pt

Tel: +351 253 604554

Fax: +351 253 601380

[*] Corresponding author

The Performance of European Socially Responsible Fixed-Income Funds

ABSTRACT

This paper evaluates the performance of European Socially Responsible Investment (SRI) fixed-income funds. Our results show that SRI balanced funds perform similar to conventional funds. With regard to SRI bond funds, empirical evidence is mixed. French SRI bond funds match the performance of their peers, German funds slightly outperform and UK funds underperform conventional funds. During expansions, SRI funds from the Euro-Area outperform their conventional peers, whereas during recessions they are able to perform at least as well as conventional funds. These results suggest that SRI funds investing in bonds seem to provide additional protection to investors in market downturns.

Keywords: Socially responsible funds; Fixed-income funds; Performance evaluation; Market crises.

EFM Codes: 380, 750

1. Introduction

Although the concept of Socially Responsible Investments (SRI) was initially aimed at equity selection, the proportion of portfolio managers applying SRI criteria to bonds has grown significantly over the last years. According to the European Sustainable Investment Forum (EUROSIF, 2014), by December 2013 investments in socially responsible bonds were already representing 40% of the total SRI assets under management (21.3% were invested in corporate bonds, 16.6% in sovereign bonds and 2.1% in supra-national or local / municipal bonds). These figures illustrate the vast potential for SRI in the fixed-income area, especially in the continental European markets, which are traditionally more focused on fixed-income investments.

By the end of 2013, European bond funds accounted for 28% of the total net assets in the UCITS market (EFAMA, 2014). In the SRI segment the relative weight of bond funds on European SRI assets under management was similar, reaching 29% (Vigeo, 2014). However, the proportion of SRI bond funds varies considerably across Europe and is already very significant in several markets, like Austria (69%) and France (46%). Hence, evaluating the performance of European SRI fixed-income funds can bring new insights to this field and help to develop this segment in other markets. Investigating the performance of SRI fixed-income funds is also relevant because it allows a better understanding of SRI for other asset classes besides equity, thus contributing to more informed asset allocation decisions within these types of investments. Moreover, SRI bond funds are financial vehicles that meet the needs not only of a more risk-averse socially responsible type of investors, who wish to incorporate their social concerns in their investment decisions without having to invest in higher-risk securities, but also of those who wish to invest in companies which are socially responsible but are not publicly traded.

The debate of how SRI strategies impact fund performance is largely focused on diversification issues. In the case of bonds, these instruments are often perceived as a homogeneous asset class, whose returns depend mainly on the variation of a few non-diversifiable risk factors, leaving limited room for managing idiosyncratic risk or exploiting active management. However, Derwall and Koedijk (2009) call attention to the fact that in some cases (for example, high-yield corporate bonds) a significant proportion of the risk of corporate bonds may be firm-specific and, therefore, can be significantly reduced through diversification or exploited by active management. In this context, SRI strategies can have a significant impact on corporate bond fund performance. In fact, active bond managers can

perform credit analysis to be able to select corporate bonds that are likely to suffer future changes in their credit quality, in order to benefit from bonds that will yield higher premiums than those corresponding to their risk or credit ratings (Derwall and Koedijk, 2009). Since most of the Environmental, Social and Governance (ESG) criteria applied to equities can also represent constraints or opportunities in the context of bond investing, the screening of these securities does not seem to create many additional challenges for analysts. So, the application of both positive (including "best-in-class" approaches) and negative screens to corporate bonds is straightforward (EIRIS, 2006).

SRI principles have also been extended to the context of sovereign bond markets, which represent the most significant proportion of the overall European bond market. When dealing with government debt, the SRI approach is more focused on sustainability and environmental criteria. The objective is to evaluate a country's performance in relation to these criteria and then compare it with other countries' performance or against international norms and conventions (EIRIS, 2006). In this case, as Derwall and Koedijk (2009) point out, the incorporation of SRI indicators in asset management decisions may be justified by the influence that these may have in a countries' long-term economic development and political stability, which in turn can impact default risk. In fact, some empirical studies that examine the determinants of sovereign credit ratings find that these are significantly influenced by social, political and economic factors (e.g., Cantor and Packer, 1996; Mellios and Paget-Blanc, 2006).[1]

Moreover, the financial turmoil that has recently affected the European sovereign debt market reinforces the relevance of considering governance indicators when managing sovereign bond portfolios. Although ESG indicators can be applied to both emerging and developed countries, in the case of the latter the approach may be more about changing the weights of a bond portfolio, in order to overweight or underweight certain country's bonds rather than avoiding them (EIRIS, 2006; Novethic, 2007). In this context, the SRI approach to investing is much more based on "best-in-class" screening strategies than on applying negative / exclusionary screens.

Furthermore, in a relatively recent investigation on the impact of socially responsible indicators (more precisely, the Vigeo sustainability country ratings) on the efficient frontier of sovereign bond portfolios, Drut (2010) shows that socially-screened sovereign bond portfolios can be built without a significant loss of mean-variance efficiency. Therefore, asset managers

[1] For example, Mellios and Paget-Blanc (2006) found that both corruption and the quality of governance of a country have a strong influence on ratings.

can create sovereign bond portfolios with a higher than average socially responsible rating without significantly forgoing the potential for diversification. Nevertheless, further research is needed to determine whether SRI fixed-income portfolios do allow investors to satisfy ESG concerns without sacrificing financial returns.

In fact, the vast majority of the empirical literature on SRI funds concentrates on the equity segment, whereas the performance of SRI fixed-income funds has received far less attention. To the best of our knowledge, there are only two studies that address the performance of SRI bond funds, both focusing the US market and with dissimilar results. Goldreyer, Ahmed and Diltz (1999) show evidence suggesting that SRI fixed-income funds significantly underperform conventional funds, whereas the more recent and more robust study of Derwall and Koedijk (2009) documents that US SRI fixed-income funds perform as well as (in the case of pure SRI bond funds) or significantly better (in the case of SRI balanced funds) than their conventional peers. For the European market, we are not aware of any investigation on the performance of SRI bond funds. Hence, the main objective of this paper is to fill this gap.

We contribute to the SRI mutual fund performance literature by conducting the first comprehensive investigation on the performance of European SRI fixed-income funds, which is compared relative to characteristics-matched conventional funds. Our sample includes 63 SRI fixed-income funds domiciled in the leading European markets (France, Germany and the UK), and covers the period of 2002 to 2014. To evaluate performance we use robust conditional multi-factor models, with both time-varying alphas and betas.

Furthermore, we also evaluate how European SRI fixed-income funds perform over different market regimes, i.e., during recession and expansion periods, in order to analyse if the more long-term perspective and social characteristics of SRI funds enables them to provide additional protection in market downturns relative to their conventional peers.[2] The behaviour of bond fund performance in times of turmoil is even more pertinent considering the European sovereign debt crisis that escalated in 2010, when several countries like Portugal, Spain, Greece and Ireland undergone downgrading of their sovereign debt ratings. Considering that bond funds investing in the European and global markets may have targeted bonds from countries suffering the severe impact of the recession, the behaviour of socially constrained bond funds versus their unconstrained peers in periods of crisis is clearly in need of research. As far as we are aware of, this is the first investigation worldwide to address this

[2] In relation to equity funds, the hypothesis that socially responsible funds may perform better in crisis periods relative to non-crisis periods is supported by Nofsinger and Varma (2014) and Becchetti *et al*. (2015).

research topic in the context of SRI fixed-income funds. Lastly, we also investigate if SRI benchmarks are as powerful as conventional benchmarks in explaining SRI fixed-income fund returns, an issue that has not yet been assessed in the context of SRI bond indices.

The paper is organised as follows: Section 2 presents an overview of the relevant literature and Section 3 describes the performance evaluation models used. Section 4 describes the data. Section 5 presents and discusses our empirical findings. Finally, Section 6 summarises our main results and presents some concluding remarks.

2. Prior Research

There are two main arguments to explain the impact of using social screens on the financial performance of investment portfolios. Following portfolio theory, constructing portfolios on the basis of a socially screened universe of stocks will lead to diversification costs and, consequently, lower risk-adjusted returns (Rudd, 1981). However, another viewpoint claims that the practice of using social screens allows funds to identify and select companies with better management skills (Bollen, 2007), thereby benefiting from improved financial performance. In general, empirical studies on equity SRI funds show that there are no statistical differences in the performance of both types of funds and are thus in line with what is typically found in the conventional mutual fund literature in the sense that mutual funds engaging in active strategies do not outperform the market.

Considering the fact that the performance of conventional bond funds is far less explored than the performance of conventional equity funds,[3] it is not surprising that SRI bond funds are also under-researched compared to SRI equity funds. To the best of our knowledge, Goldreyer *et al.* (1999) were the first to assess the performance of SRI fixed-income funds.[4] The authors study the performance of a sample of 9 US SRI bond funds, during the period of January 1981 to June 1997, using the traditional performance evaluation measures of Treynor (1965), Sharpe (1966) and Jensen (1968). Although Treynor ratios

[3] It is also important to mention that the majority of empirical studies on the performance of conventional bond funds have focused on the US market (e.g., Blake, Elton and Gruber, 1993; Elton, Gruber and Blake, 1995; Ferson, Henry and Kisgen, 2006; Chen, Ferson and Peters, 2010). Some of the few exceptions are Ayadi and Kryzanowski (2011) in relation to Canadian funds, and Silva, Cortez and Armada (2003) and Dietze, Entrop and Wilkens (2009) in relation to European funds. In general, these studies report evidence of underperformance or neutral performance of conventional bond funds (e.g., Blake *et al.*, 1993; Elton *et al.*, 1995; Silva *et al.*, 2003; Ferson *et al.*, 2006; Dietze *et al.*, 2009). Nevertheless, recent studies by Chen *et al.* (2010) and Ayadi and Kryzanowski (2011) show that the performance of conventional bond funds seems to be significantly negative only on an after-expenses basis (i.e., using net returns), but significantly positive on a before-expenses basis (i.e., using gross returns).

[4] The first authors to address SRI from a fixed-income perspective were D'Antonio, Johnson and Hutton (1997), although they did not investigate SRI fixed-income fund performance. These authors compared the returns of bonds from firms represented in the Domini 400 SRI index with the return of the Lehman Brothers Corporate Bond Index. Although they concluded that the SRI portfolio had a significantly higher performance than its benchmark, a possible justification for this result can be attributed to differences in bond ratings.

favour SRI funds, Jensen's alphas and Sharpe ratios clearly favour conventional funds. In fact, the average alpha of the SRI funds is significantly negative, whereas conventional funds exhibit significantly positive alphas. In this way, the results of Goldreyer *et al.* (1999) seem to indicate that US SRI fixed-income funds significantly underperform conventional funds.

Also addressing the US market, Derwall and Koedijk (2009) investigate the performance of a sample of 24 SRI fixed-income funds (15 pure bond funds and 9 balanced funds) over the period of September 1987 to March 2003, using several unconditional multi-factor models that include benchmark asset returns and also macroeconomic variables, in the spirit of Elton *et al.* (1995). The performance of the SRI funds is compared to that of characteristics-matched portfolios of 5 conventional funds, according to fund age, end-of-period fund size and investment objective/style. Their results show no significant differences between the performance of SRI bond funds and their conventional peers, but SRI balanced funds significantly outperform their matched-peers by more than 1.3% per year, on average. In addition, when addressing the relationship between fund alphas and fund-specific attributes, the authors find a significant negative relation between expense ratios and fixed-income fund performance, but no significant relationships (at the 5% level) between performance and fund size or turnover rates.

Outside the US market, we are not aware of studies on the performance of SRI bond funds. However, there are two European SRI studies that include balanced funds in their samples. For the Spanish market, and based on a multifactor regression model with style benchmarks, Fernandez-Izquierdo and Matallin-Saez (2008) observe no significant differences between the performance of 13 SRI funds (including 9 funds classified as "mixed fixed-income") and 2051 conventional funds over the 3-year period of June 1998 to June 2001.

Cortez, Silva and Areal (2009) evaluate the performance of 27 SRI balanced funds from six European markets (Austria, Belgium, France, Germany, Italy and the Netherlands), during the period of August 1996 to February 2007. Based on both unconditional and conditional single-factor models, they find that European SRI balanced funds exhibit neutral performance, both with SRI and conventional benchmarks. Similarly to the most commonly studied equity funds, the authors also find that European SRI balanced funds are more exposed to conventional indices than to SRI indices.

The studies mentioned above suffer from important limitations. Goldreyer *et al.* (1999) only use traditional portfolio performance evaluation measures, so their results should be interpreted with caution, given the well-known limitations of these methodologies. The

study of Fernandez-Izquierdo and Matallin-Saez (2008) is a country-specific study that considers a very short sample period and although they compare the performance of SRI funds with that of conventional funds, these are not characteristics-matched. In fact, the construction of an appropriate control group of conventional mutual funds is crucial to assess the performance of SRI funds; otherwise the results may be influenced by specific fund characteristics. In turn, Cortez *et al.* (2009) make no comparisons between SRI and conventional funds and evaluate fund performance only with (unconditional and conditional) single-factor models. Finally, Derwall and Koedijk (2009) do not use conditional performance evaluation models, so their results may be biased due to the assumption of constant measures of risk and performance over the evaluation period.

3. Performance Evaluation Models

To account for the fact that fixed-income funds in our sample can diverge in terms of their investment style, we evaluate fund performance using multi-factor models that include both bond and stock indices, in the spirit of Blake *et al.* (1993) and Elton *et al.* (1995). Following Derwall and Koedijk (2009), our base model is a four-factor model, which incorporates a bond market variable, a default spread variable, an option variable and a stock market variable. The first variable intends to capture funds' exposure to investment-grade bonds (corporate or corporate and government), while the second variable is included to account for funds' exposure to high-yield instruments and capture default risk compensation. The third variable is used as a proxy for the returns of mortgage-backed securities that, unlike ordinary bonds, have an uncertain maturity and, consequently, have returns that typically exhibit option-like characteristics. The fourth variable is included to allow for the possibility that bond fund performance can, at least partially, be explained by variation in equity returns and also because bond funds may hold convertible debt. In addition, a considerable part of our sample is composed by balanced funds, which will likely be exposed to the stock markets. Thus, this model can be written as:

$$r_{p,t} = \alpha_p + \beta_{1p}\, Bond_t + \beta_{2p}\, Default_t + \beta_{3p}\, Option_t + \beta_{4p}\, Equity_t + \varepsilon_{p,t} \qquad [1]$$

where $r_{p,t}$ represents the excess returns of portfolio p over period t, $Bond_t$ and $Equity_t$ represent the excess returns of the relevant bond and equity market indices,

respectively, $Default_t$ is a return spread between a high-yield bond index and a government bond index, $Option_t$ is the return difference between a mortgage-backed securities index and a government bond index and $\varepsilon_{p,t}$ is a residual term. A statistically significant positive alpha indicates superior performance, whereas significantly negative alphas show inferior performance.

The above model is an unconditional one in the sense that it assumes that bond fund returns and risk are stationary over time regardless of market conditions. It is well known that when fund managers exhibit market timing abilities or follow dynamic investment strategies, unconditional models may generate biased estimates of performance (e.g., Jensen, 1972; Dybvig and Ross, 1985; Grinblatt and Titman, 1989). This concern is even more pertinent for bond than for equity funds. On the one hand, bond fund managers tend to be more market timers than security pickers, because their performance relies mostly on the ability to predict future interest rates and adjust the fund's duration accordingly. On the other hand, a lot of bond fund managers invest in derivative securities with time-varying betas (Ayadi and Kryzanowski, 2011).

Considering the limitations of unconditional models, we extend the previous multi-factor model to a conditional framework by incorporating conditioning information. To avoid biased estimates of conditional betas, the model will be estimated with both time-varying alphas and betas, as suggested by Ferson, Sarkissian and Simin (2008). In this conditional model, both alphas and betas are allowed to vary over time as linear functions of a vector of predetermined information variables, Z_{t-1}, which includes the public information available at time *t-1* relevant for predicting returns at time *t*, as suggested by Ferson and Schadt (1996) and Christopherson, Ferson and Glassman (1998). Therefore, our conditional multi-factor model can be expressed as:

$$r_{p,t} = \alpha_{0p} + A_p' z_{t-1} + \beta_{1p} Bond_t + \beta_{1p}'(z_{t-1} Bond_t) + \beta_{2p} Default_t + \beta_{2p}'(z_{t-1} Default_t) +$$
$$+ \beta_{3p} Option_t + \beta_{3p}'(z_{t-1} Option_t) + \beta_{4p} Equity_t + \beta_{4p}'(z_{t-1} Equity_t) + \varepsilon_{p,t} \qquad [2]$$

where z_{t-1} is a vector of the deviations of Z_{t-1} from the (unconditional) average values, β_{1p}, β_{2p}, β_{3p} and β_{4p} are average betas (which represent the unconditional mean of the conditional betas), β_{1p}', β_{2p}', β_{3p}' and β_{4p}' are vectors that measure the relationship between conditional betas and the information variables, A_p' is a vector that measures the relationship

between conditional alphas and the information variables and α_{0p} is the average (conditional) alpha.

4. Data

4.1 Fund Dataset

Our database for identifying existing European SRI fixed-income funds was Vigeo, the leading European ESG ratings agency. Since our main objective is to investigate the differences in performance between SRI and conventional fixed-income funds in the main European markets, our analysis is focused on retail funds domiciled in France, Germany and in the UK.[5] Considering that most SRI fixed-income funds have started in the 2000s, our sample period goes from February 2002 to December 2014.[6]

To be included in our sample, funds must meet the following criteria: (1) have records available on Datastream, (2) have at least 24 monthly observations across the sample period, and (3) have an investment policy focused on Euro-denominated or Sterling-denominated bonds. Besides, since our analysis is focused on diversified, actively managed retail funds, we excluded all funds of funds, index/exchange-traded funds and institutional funds. For the remaining funds, we collected their respective inception dates and International Securities Identification Numbers (ISIN). Then, we used each country's Morningstar website to determine the Morningstar category of each fund.

Our overall sample can be further divided into two sub-samples: SRI funds that invest in bonds (SRI bond funds) and SRI funds that invest both in bonds and stocks (SRI balanced funds). SRI bond funds were selected from the following Morningstar categories, which are clearly the most representative ones: "Euro Corporate Bond", "Euro Diversified Bond", "Sterling Corporate Bond" and "Sterling Diversified Bond". "Euro Corporate Bond" funds invest primarily in Euro-denominated corporate bonds, while "Sterling Corporate Bond" funds invest predominantly in corporate-issued securities denominated in UK pounds. According to Morningstar (2014), funds classified as "Euro Diversified Bond" or "Sterling Diversified Bond" invest mainly in investment grade corporate and government issued bonds

[5] By June 2014 these three markets alone accounted for 60% of the European SRI fund industry in terms of assets under management (Vigeo, 2014).
[6] The time series start in February, and not in January 2002, due to the availability of one of the indices used in our performance evaluation model (more precisely, the BofA Merrill Lynch € Asset-Backed and Mortgage-Backed Securities index).

denominated in (or hedged) into Euros / UK Pounds. The vast majority of our bond fund sample is constituted by funds investing in intermediate-term debt, with an average maturity greater than 3 years and lower than 10 years, although we also include a few short-term funds, with an average maturity lower than 3 years.[7]

In relation to balanced funds, we selected funds from the "Euro Cautious Allocation", "Euro Moderate Allocation" and "Sterling Moderate Allocation" categories.[8] According to Morningstar (2014), in the "Cautious Allocation" categories the equity component does not exceed 35% in the normal running of the fund, while in the "Moderate Allocation" categories the proportion of equity and bond investments should be almost evenly distributed. Therefore, our sample of balanced funds incorporates funds that invest mainly in bonds or in similar proportions of bonds and equities.

To create the matched-portfolios, we identified all fixed-income conventional funds available to investors in each country within the same Morningstar category of each of the SRI funds. Afterwards, we collected their inception dates and ISIN. After taking into consideration the same selection principles as in the SRI fund sample, we began our matching procedure based on the following criteria: domicile country, investment style / category and fund age.[9] In this way, we control for the possible influence of these specific fund characteristics on fixed-income fund performance. We did not match on size, because we were not able to obtain the funds' Total Net Assets for all funds involved and also because that would have involved a trade-off with the other criteria. However, both Derwall and Koedijk (2009), for US fixed-income funds, and Dietze *et al.* (2009), for European corporate bond funds, do not find a statistically significant relationship between size and fixed-income fund performance. On the other hand, Dietze *et al.* (2009) find a significant positive relation between fund age and performance, which means that older European bond funds tend to have higher performance than newly established ones, probably due to better cost structures (i.e., a greater operating efficiency). Consequently, each SRI fund is matched with a portfolio of three conventional funds from the same country, with the same Morningstar category (i.e., with the same investment universe and style), and inception dates that had to be within 12 months of that of the SRI fund with which they were matched.[10]

Our final sample consists of 63 SRI fixed-income funds (36 SRI bond funds and 27 SRI balanced funds) and 189 characteristics-matched conventional funds (108 bond funds and

[7] These funds belong to the "Euro Corporate Bond Short Term" (2 funds) and the "Euro Diversified Bond Short Term" (4 funds) categories.
[8] It is worth to mention that we had no funds from the "Sterling Cautious Allocation" category fulfilling our selection criteria.
[9] Derwall and Koedijk (2009) use similar matching criteria, although they also match on fund size.
[10] Although this was the procedure used for the vast majority of the SRI funds, in some cases we had to relax the inception date restriction to 18 months to be able to find characteristics-matched conventional funds.

81 balanced funds).[11] In relation to SRI funds, as described in Appendix 1, 37 are domiciled in France, 14 in Germany and 12 in the UK. In terms of SRI fund categories, our sample includes 16 funds from the "Euro / Sterling Corporate Bond" categories, 20 funds from the "Euro / Sterling Diversified Bond" categories, 17 funds from the "Euro Cautious Allocation" category and 10 funds to the "Euro / Sterling Moderate Allocation" categories.

4.2 Fund Returns and Factors

For each fund in our sample, we began by collecting the end of month total return index from Datastream. Then, all fund returns, net of operating expenses but gross of any sales charge, were continuously compounded (including reinvestment of dividends and income distributions). These returns were all denoted in local currency, i.e., Euros for the French and German funds and UK Pounds for the UK funds.

Our main set of benchmark indices corresponds to the iBoxx Total Return (TR) bond index family, developed by International Index Company (IIC) Ltd. These indices are appropriate for representing the Euro-denominated and the Sterling-denominated investment grade bond markets, as supported by the fact that banks are already offering exchange-traded funds based on iBoxx indices (Dietze *et al.*, 2009).[12] As bond indices we use the iBoxx € Overall index for the French and German funds and the iBoxx £ Overall index for the UK funds. Excess returns for fund returns and benchmarks were computed using the 1-month Euribor for the Euro-denominated funds and indices and the 1-month Libor for the Sterling-denominated funds and indices.

Since the iBoxx € High Yield index does not cover our entire sample period,[13] the default spread for the Euro-Area funds was computed as the difference in returns between the BofA Merrill Lynch € High-Yield TR index and the iBoxx € Sovereign TR index. In a similar way, the UK default spread corresponds to the return difference between the Merrill Lynch £ High-Yield and the iBoxx £ Gilts TR indices.

[11] Since we were not able to identify non-surviving fixed-income funds, we have to recognise that both our SRI and conventional fund samples may suffer from survivorship bias. Nevertheless, since fund age is one of the matching criteria, both types of funds will have similar life spans, meaning that this shortcoming should not significantly affect our analysis. In addition, studies on conventional funds seem to indicate that survivorship bias has less impact in fixed-income than in equity funds, since the former have a greater stability in their performance than the latter.

[12] The iBoxx indices are capitalization-weighted indices that are rebalanced monthly. For the TR indices, the monthly adjustment involves the reinvestment of coupon payments at the beginning of the month. Further details on the iBoxx Index construction methodology, including the specific criteria for inclusion in the indices, are available in IIC (2014a) for the Euro-denominated indices and IIC (2014b) for the Sterling-denominated indices.

[13] This index, which represents the sub-investment grade fixed-income market for Euro denominated corporate bonds, is only available since 31 December 2002.

The option variable for the French and German funds was computed as the difference in return between the BofA Merrill Lynch € Asset-Backed and Mortgage-Backed Securities TR index and the iBoxx € Sovereign TR index. For the UK funds we used the return difference between the iBoxx £ Collateralized Mortgage-Backed Securities TR index and the iBoxx £ Gilts TR index.

The stock market variable is measured by the excess returns of the FTSE AW Europe TR index for the Euro-Area funds and the excess returns of the FTSE All-Share TR index for the UK funds.[14] Data on all benchmark indices was collected from Datastream (in Euros and UK pounds). Since correlations between the four factors are relatively low (ranging from -0.5865 to 0.7253 for the Euro-denominated factors and from -0.3115 to 0.6036 for the UK factors), multicollinearity will not significantly influence our results.

4.3 Information Variables

The conditional models we employ make use of a set of four 1-month lagged instruments that several studies in the literature have shown useful in predicting bond returns. These include a term spread / slope of the term structure (e.g., Fama and French, 1989; Ilmanen, 1995; Silva *et al.*, 2003; Gebhardt, Hvidkjaer and Swaminathan, 2005; Ayadi and Kryzanowski, 2011), the inverse relative wealth (e.g., Ilmanen, 1995; Silva *et al.*, 2003; Ayadi and Kryzanowski, 2011), a real bond yield (e.g., Ilmanen, 1995; Silva *et al.*, 2003; Ayadi and Kryzanowski, 2011) and a dummy variable for the month of January (e.g., Keim and Stambaugh, 1986; Silva *et al.*, 2003). We use the same instrumental variables as Silva *et al.* (2003) because this is the only study we are aware of that analyses the predictability of European bond returns.[15]

Since our samples contain funds from two Euro-Area countries and also funds from the UK, we use both Euro-Area variables and UK variables. Alternatively, we could use global information variables, in line with Barr and Priestley (2004), who find that three quarters, approximately, of the total expected excess returns on government bonds is related to world bond market risk, whereas the remainder is due to local market risk. However, recent

[14] We have also used similar indices provided by MSCI (i.e., the MSCI AC Europe and the MSCI UK TR indices, respectively) and the results were almost the same. In fact, correlations between the FSTE and the MSCI indices for our sample period were very close to 1.

[15] Our analysis of predictability, using both simple and multiple regressions, confirmed the predictive power of all these variables in explaining bond and balanced fund returns. For bond funds, the most important variables were the term spread, the real bond yield and the inverse relative wealth. For balanced funds, the variables with highest explaining power were the inverse relative wealth, the January dummy and the real bond yield. The results of the return predictability tests are not reported here for the sake of brevity, but are available upon request from the authors.

studies on the European bond market have provided evidence that using global variables might not be appropriate. In fact, after comparing the differences in the relative importance of world and Eurozone systemic risk on government bond returns, over the period of January 1999 to June 2008, Abad, Chuliá and Gómez-Puig (2010) show that Eurozone bond markets are less vulnerable to the influence of world risk factors and more vulnerable to European and Monetary Union (EMU) risk factors. Furthermore, in an investigation focused on volatility spillovers in European bond markets, Christiansen (2007) also finds that, for EMU countries, regional effects have become dominant over both own country and global effects, with these last being almost negligible. On the other hand, for non-EMU countries their own country effects are stronger.

Hence, for the French and German funds the term spread variable is measured by the annualized yield spread between a 10-year Euro-Area government bond yield and the 3-month Euribor rate. For UK funds the same variable corresponds to the annualized yield spread between 10-year UK government bonds and 3-month UK Treasury bills.

The inverse relative wealth variable, which is used as a proxy for time-varying risk aversion, corresponds to the ratio of past to current real wealth. The past real wealth for the Euro-Area is estimated by an exponentially weighted average of past levels of the FTSE AW Europe index deflated by the Euro-Area Consumer Price Index (CPI). For the UK, we use the exponentially weighted average of past levels of the FTSE All-Share index deflated by the UK CPI. Therefore, the inverse relative wealth variable is defined as:

$$IRW_t = ewaW_{t-1}/W_t = \left(W_{t-1} + coef \cdot W_{t-2} + coef^2 \cdot W_{t-3} + \ldots\right) \cdot \left(1 - coef\right)/W_t$$

where *ewa* W_{t-1} is the exponentially weighted average of the real wealth level up to time *t-1*, W_t is real wealth level at time *t* and *coef* is the smoothing coefficient. Although we use a smoothing parameter of 0.90 and a 36-month window, as in Ilmanen (1995), Silva *et al.* (2003) and Ayadi and Kryzanowski (2011), our results are robust to alternative weighting structures. In addition, it is important to mention that the CPI indicators are 1-month lagged, in order to take into account publication lags and, therefore, consider only publicly available information.

The real bond yield variables correspond to the difference between the annualized yield on a 10-year Euro-Area / UK government bond and the year-on-year Euro-Area / UK

inflation rate lagged 1-month.[16] Data on all information variables was collected from Datastream. Additionally, to accommodate possible seasonality effects in returns and risk, we also use a January dummy variable, which takes a value of 1 if the next month is the month of January and 0 otherwise.

In order to avoid spurious regression biases, as well as to solve non-stationarity problems associated with the first three variables, they were stochastically detrended by subtracting a 12-month trailing moving average, as in Ferson, Sarkissian and Simin (2003). Following Ferson and Schadt (1996) and Ayadi and Kryzanowski (2011), the information variables were also demeaned in the conditional tests, in order to allow an easier interpretation of the estimated coefficients and reduce scale problems.[17]

5. Empirical Results

5.1 Fund Performance and Investment Style

Table 1 presents the results of applying our conditional multi-factor model to equally-weighted portfolios of SRI fixed-income funds and characteristics-matched conventional funds. To further enhance comparability, and allow us to explore differences in performance and investment styles in more detail, we also estimate the results for a "difference" portfolio, constructed by subtracting the returns of the conventional funds from the returns of the SRI funds.[18]

[Insert Table 1 here]

First, the results of the Wald tests reinforce the appropriateness of using conditional models in evaluating fixed-income fund performance. At the usual significance levels, all fund portfolios (SRI and conventional) exhibit time-varying betas. Additionally, all bond fund portfolios, as well as German balanced funds, present time-varying alphas and no portfolio rejects the joint time-variation of alphas and betas. The adjusted R^2's obtained for both bond

[16] Therefore, as in Silva *et al.* (2003), the inflation rate of January is used to compute the real bond yield for February and this will be used to predict bond returns in March, and so forth.
[17] It is also important to mention that correlations between the instruments are reasonably low, ranging from -0.2002 to 0.6964 for the Euro-Area variables and from -0.3885 to 0.2079 for the UK variables.
[18] This procedure is also used by Derwall and Koedijk (2009) and follows most recent studies on SRI equity mutual funds (e.g., Muñoz, Vargas and Marco, 2014; Nofsinger and Varma, 2014; Leite and Cortez, 2015).

and balanced funds (all around or above 90%) indicate that the conditional model performs well in explaining fund returns.

Second, in comparison with the (unreported) results obtained with the unconditional version of this model, the incorporation of the lagged information variables increases the explanatory power of the models substantially. In fact, in relation to the unconditional version, the conditional model provides higher adjusted $R^{2'}$s for all SRI and conventional fund portfolios, with increases that range up to 3.54%, and also for all but one of the "difference" portfolios (in this case, increases in adjusted R^2's reach a sizeable 21.80%).

As we can observe in Table 1, the performance of both SRI and conventional bond funds is, on average, negative and statistically significant. Balanced French and German funds also show negative performance, but the UK portfolios exhibit neutral performance. These results are thus consistent with most studies on conventional bond fund performance (e.g., Blake *et al.*, 1993; Elton *et al.*, 1995; Maag and Zimmermann, 2000; Silva *et al.*, 2003; Ferson *et al.*, 2006; Dietze *et al.*, 2009), which report evidence of underperformance or neutral performance. In addition, they are also consistent with the results of Derwall and Koedijk (2009), who report significantly negative alphas for US SRI and conventional bond funds. On the other hand, while both Cortez *et al.* (2009) and Derwall and Koedijk (2009) find evidence of neutral performance for European and US SRI balanced funds, respectively, European SRI balanced funds in our sample tend to exhibit significantly negative alphas.

Differences in performance between SRI and conventional funds vary considerably between fund categories and, in the case of bond funds, also from one country to another. In fact, while German SRI bond funds slightly outperform conventional funds, UK SRI bond funds significantly underperform their peers. On the other hand, French SRI and conventional funds exhibit no statistically significant performance differentials. As to balanced funds, in all three markets considered SRI and conventional funds show similar performance. Therefore, our results for SRI bond funds are consistent with the findings of Derwall and Koedijk (2009) only within the French market, but substantially differ when we consider the German or the UK markets. On the other hand, while US SRI balanced funds significantly outperform conventional funds, we find no significant differences in performance for European balanced funds.

A possible justification for an underperformance of SRI fixed-income funds in relation to conventional funds could be related to the expenses they charge.[19] In fact, since SRI funds

[19] The relationship between expense ratios and performance has received considerable attention in conventional bond mutual fund studies, which have been mainly conducted in the US market. For this market, several studies (e.g., Blake *et al.*, 1993; Khan and Rudd, 1995) found a

incur in additional costs by acquiring information on ESG aspects of the companies and countries in which they invest and, subsequently, spend time converting that data into investment decisions, they could have higher expense ratios than their peers, as documented by Bauer, Koedijk and Otten (2005) for SRI equity funds. Nevertheless, Derwall and Koedijk (2009) found that the expenses charged by US SRI fixed-income funds match those charged by conventional funds.

In terms of market sensitivities, and turning to pure bond funds first, Panel A of Table 1 shows that practically all portfolios have statistically significant exposures to the bond, default and option factors. On the other hand, significant loadings on the equity factor are found only for French and German SRI bond funds most probably because, according to Morningstar,[20] bond funds in our sample invest the majority (at least 80%) of their assets in bonds. The statistical tests for differences in investment styles between SRI and conventional bond funds show significant differences mostly for the default and option factors but differ between the Euro-Area funds and the UK funds. In fact, while French and German SRI bond funds are significantly less exposed than conventional funds to the default factor and significantly more exposed to the option factor, UK SRI bond funds exhibit a significantly higher exposure to the default factor than their peers and very similar exposures to the option factor.

In relation to balanced funds, Panel B of Table 1 clearly shows the relevance of not only the bond and equity factors, for which all portfolios exhibit statistically significant exposures, but also of the remaining factors, although to a lesser extent. When compared with pure bond funds, balanced funds exhibit lower exposures to the bond factor and higher exposures to the equity factor, as expected. If we compare our factor loadings with those obtained by Derwall and Koedijk (2009), we can conclude that European balanced funds are more invested in bonds and less invested in equities than their US counterparts. Furthermore, statistically significant differences in risk exposures between SRI and conventional balanced funds vary considerably from one market to another and are clearly more pronounced for the French funds.

5.2 Fixed-Income Fund Performance during Recessions and Expansions

significant negative relation between expense ratios and performance. However, conclusions seem to differ in the European market, where the few studies conducted report an insignificant relation between these parameters (e.g., Maag and Zimmermann, 2000; Dietze *et al.*, 2009).

[20] Available at http://www.morningstar.com/InvGlossary/morningstar_category.aspx.

In this section we aim to assess if the more long-term perspective of SRI fixed-income funds in relation to conventional funds as well as their social characteristics provides investors additional protection in market downturns. Recent research on the performance of SRI equity funds has found that they tend to perform better during recessions / crisis periods than during periods of expansion (Areal *et al.*, 2013; Nofsinger and Varma, 2014; Leite and Cortez, 2015), in line with the results obtained for conventional equity mutual funds (Wang, 2010; Glode, 2011; Kosowski, 2011). However, we are not aware of studies that investigate if the performance and investment styles of fixed-income funds, both SRI and conventional, varies considerably across different market states.

In order to fill this gap, we begin by identifying the different market states across our sample period. For the French and German funds, which invest in Euro-denominated bonds issued by several European countries, we use the Euro-Area business cycles provided by the Centre for Economic Policy Research (CEPR).[21] From February 2002 to December 2014, the CEPR identifies two recession periods for the Eurozone: June 2008 to April 2009 and July 2011 to March 2013. For the UK funds, we use the UK business cycles provided by the Economic Cycle Research Institute (ECRI),[22] that identifies two recessions: May 2008 to January 2010 and August 2010 to February 2012. The remaining periods are considered periods of expansion.

To compare the performance and risk estimates of SRI and conventional fixed-income funds, during expansion and recession periods, we follow Nofsinger and Varma (2014) and Leite and Cortez (2015) and incorporate two dummy variables in our (unconditional) 4-factor model, in order to obtain the coefficients for each market state. The dummy variable approach to estimate fund performance according to different market regimes can be considered an alternative way of conditioning information in performance models and considering the time-variability of performance and risk estimates.[23] We incorporate the dummy variables not only with respect to alphas (as in Nofsinger and Varma, 2014), but with respect to alphas and the coefficients of the risk factors (as in Leite and Cortez, 2015). This enables us to compare both fund performance and risk exposures in different states of the market. Consequently, our next model for evaluating bond fund performance is given by the following regression:

[21] Available at http://www.cepr.org/content/euro-area-business-cycle-dating-committee.
[22] Available at https://www.businesscycle.com/ecri-business-cycles/international-business-cycle-dates-chronologies.
[23] The conditional models of Ferson and Schadt (1996) and Christopherson *et al.* (1998) evaluate fund managers taking into account the public information available to investors at the time the returns were generated, on the basis of a set of lagged and continuous public information variables. In turn, the dummy variable approach includes information about business cycles that is not available at the time the returns are generated, since they are only announced several months later. For this reason, these two alternative approaches of considering the time-variability of performance and risk estimates may be viewed as mutually exclusive.

$$r_{p,t} = \alpha_{EXP} D_{EXP,t} + \alpha_{REC} D_{REC,t} + \beta_{1EXP}\, Bond_t D_{EXP,t} + \beta_{1REC} Bond_t D_{REC,t} + \beta_{2EXP} Default_t D_{EXP,t} + \beta_{2REC} Default_t D_{REC,t} +$$
$$+ \beta_{3EXP}\, Option_t D_{EXP,t} + \beta_{3REC}\, Option_t D_{REC,t} + \beta_{4EXP}\, Equity_t D_{EXP,t} + \beta_{4REC}\, Equity_t D_{REC,t} + \varepsilon_{p,t} \quad [3]$$

where $D_{EXP,t}$ is a dummy variable that takes a value of 1 for expansion periods and 0 otherwise and $D_{REC,t}$ is a dummy variable that takes a value of 1 for recession periods and 0 otherwise. This methodology allows us to separate the recession and expansion coefficients using the entire monthly time series of returns for the 2002-2014 period. In this model, α_{EXP} is the expansion period alpha and α_{REC} is the recession period alpha. The loadings on the bond, default, option and equity factors during expansion periods are given by β_{1EXP}, β_{2EXP}, β_{3EXP} and β_{4EXP}, respectively, while β_{1REC}, β_{2REC}, β_{3REC} and β_{4REC} represent the same factor loadings during recession periods.

The results of applying equation [3] to the SRI and conventional fixed-income fund portfolios are presented in Table 2. As we can observe, there are several significant shifts in performance between recession and expansion periods and the contrast between the results obtained for bond and balanced fund categories is also interesting.

[Insert Table 2 here]

The performance of French and German bond funds, both SRI and conventional, is negative and statistically significant in expansion periods and neutral during recessions. Therefore, SRI bond funds from the Euro-Area countries tend to perform better during recessions than during expansions, in line with the results obtained both for SRI (Areal *et al.*, 2013; Nofsinger and Varma, 2014; Leite and Cortez, 2015) and conventional equity funds (Wang, 2010; Glode, 2011; Kosowski, 2011). SRI and conventional bond funds from the UK underperform both in periods of expansions and recessions. As to balanced funds, the results are mixed. French SRI funds underperform both in expansion and recession periods while for the UK fund performance remains neutral during both phases of the business cycle. In relation to Germany, SRI balanced funds' performance deteriorates during recessions, in contrast with previous findings on bond funds.

Comparing SRI and conventional funds, during expansions both French and German SRI bond funds significantly outperform conventional funds, while UK SRI bond funds

match the performance of their peers. During recessions, only German SRI bond funds continue to significantly outperform their peers, whereas UK SRI bond funds slightly underperform conventional funds and no significant differences are found for the French funds. In this way, only German SRI bond funds seem to provide investors some additional protection during recessions. In relation to balanced funds, we find little evidence of significant differences in performance between SRI and conventional funds during both recession and expansion periods. In fact, the only significant difference we find is that German SRI balanced funds outperform conventional funds during expansions.

In terms of investment styles, we only find a few significant differences between SRI and conventional fixed-income funds across different market states. Turning to pure bond funds first, Panel A of Table 2 shows that the outperformance of French SRI bond funds, in relation to conventional funds, during expansions seems to be related to a significantly lower exposure to default risk. The same can be concluded in relation to the significant outperformance of German SRI balanced funds, compared to their conventional peers, during expansions, as shown in Panel B of Table 2.

5.3 SRI vs. Conventional Benchmarks

Several studies on SRI equity funds have shown that conventional benchmarks have a higher explaining power of SRI fund returns than SRI benchmarks (e.g., Bauer *et al.*, 2005; Bauer, Derwall and Otten, 2007; Cortez *et al.*, 2009, 2012). This is a puzzling result since SRI indices, just as SRI funds, are built on the basis of social screens. However, to the best of our knowledge, this topic has never been addressed in the context of SRI fixed-income funds, i.e., using SRI bond indices. Therefore, in this section we aim to investigate whether SRI benchmarks, including bond and equity indices, are as powerful as conventional benchmarks in explaining SRI fixed-income fund returns.

Our main set of SRI benchmarks comes from E. Capital Partners (ECPI). Due to the unavailability of an appropriate SRI bond index for the UK funds, this analysis will be restricted to the French and German funds, which comprise a total of 51 SRI fixed-income funds (28 SRI bond funds and 23 SRI balanced funds).

The SRI bond index we use is the ECPI Ethical Euro Composite Bond TR[24] and the SRI equity index is the ECPI Ethical Euro Equity TR.[25] Excess returns were computed using the 1-month Euribor as the risk-free rate. Data on all SRI benchmark indices was collected from Datastream.

The results of our analysis, presented in Table 3, show that SRI indices are as powerful as conventional indices in explaining SRI fixed-income fund returns. Given that, in most cases, the use of SRI benchmarks leads to a slight decrease in the explanatory power of the models, conventional benchmarks are somewhat better than SRI benchmarks in explaining fund returns. However, differences are quite small and clearly not as high as those obtained by previous studies (e.g., Bauer *et al.*, 2005; Cortez *et al.*, 2009). Furthermore, the average conditional betas of the bond and equity factors are higher with the conventional benchmarks, but differences are also marginal.

[Insert Table 3 here]

In terms of performance estimates, SRI benchmarks lead to slightly higher average conditional alphas than conventional benchmarks in all cases but, once again, differences are of a very small magnitude.

6. Conclusions

Although there are many empirical studies on the performance of SRI equity funds, the performance of SRI funds investing in fixed-income securities is far less explored. In fact, there are only a couple of studies on this subject and both focused on the US market. In the European market, to the best of our knowledge, there are no studies on the performance of SRI bond funds. This paper fills this gap by investigating the performance of 63 SRI fixed-income funds, from the three main European markets (France, Germany and the UK), over the period of 2002 to 2014. Our sample includes pure bond funds (SRI bond funds), as well as

[24] Although the ECPI Ethical Euro Composite Bond index was discontinued in March 2012, we were able to complete the time series until the end of our sample period because this index was composed by the following three sub-indices: the ECPI Euro Government Bond index (50%), the ECPI Euro Corporate Bond index (30%) and the ECPI Euro Agency and Supranational Bond index (20%). ECPI Total Return indices involve the reinvestment of coupon payments at the beginning of the month, as with the iBoxx indices. In fact, the ECPI index construction methodologies, whose details are available in ECPI (2015), have many similarities with those used by iBoxx.

[25] We also used the FTSE4GOOD Europe TR index as our SRI equity benchmark and obtained very similar results. In fact, for our sample period, the correlation between this index and the ECPI Ethical Euro index was 0.9911.

balanced funds investing predominantly in bonds or in similar proportions of bonds and equities (SRI balanced funds).

Our results show that differences in performance between SRI and conventional funds differ significantly between fund categories and, in the case of bond funds, also among fund markets. Indeed, while German SRI bond funds slightly outperform conventional funds, UK SRI bond funds significantly underperform their peers. French SRI and conventional funds show no statistically significant differences in performance. With regard to balanced funds, SRI and conventional funds exhibit similar performance in all three markets studied. In this way, our results for European SRI bond funds are consistent with the findings of Derwall and Koedijk (2009) for US funds only within the French market. On the other hand, while these authors find that US SRI balanced funds significantly outperform conventional funds, we find no significant differences in performance for European balanced funds.

When analysing fund performance and investment styles across different market states, we find several significant shifts in performance between recession and expansion periods. With regard to bond funds, our results show that the performance of French and German funds (both SRI and conventional) is negative during expansions and neutral during recessions, while UK bond funds underperform both in expansion and in recession periods. In this way, SRI bond funds from the Euro-Area countries perform better during recession than during expansion periods, in line with the results obtained for both SRI (Areal *et al.*, 2013; Nofsinger and Varma, 2014; Leite and Cortez, 2015) and conventional (Wang, 2010; Glode, 2011; Kosowski, 2011) equity funds. In contrast, German balanced funds perform worse during recessions than during expansions.

Focusing on the differences in performance between SRI and conventional funds across different market states, we find interesting results and, once again, considerable contrasts between countries and fund categories. Turning to pure bond funds first, we find that during expansions French and German SRI funds significantly outperform conventional funds, whereas UK SRI funds match the performance of their peers. During recessions, only German SRI bond funds significantly outperform their peers, with UK SRI bond funds slightly underperforming conventional funds and French SRI and conventional bond funds exhibiting similar performance. Thus, only German SRI bond funds seem to provide investors some additional protection during market downturns. With regard to balanced funds, the results show little evidence of significant differences in performance between SRI and conventional funds during both recession and expansion periods. Additionally, we only find a

few significant differences in investment styles between SRI and conventional fixed-income funds across different market states.

Furthermore, our results also showed that SRI indices are as powerful as conventional indices in explaining SRI fixed-income fund returns. Therefore, unlike previous studies on SRI equity funds (e.g., Bauer *et al.*, 2005; Bauer *et al.*, 2007; Cortez *et al.*, 2009, 2012), which have shown that conventional equity benchmarks have a higher explanatory power of SRI fund returns than SRI benchmarks, our results show that SRI bond indices perform at least as well as conventional indices in explaining the returns of SRI fixed-income funds.

Overall, empirical evidence is mixed and conclusions significantly differ from one country to another and also between SRI fixed-income fund categories. With regard to SRI bond funds, German SRI funds slightly outperform conventional funds, UK funds significantly underperform their peers and for French funds we find no significant differences in performance. On the other hand, during expansions SRI bond funds from the Euro-Area countries significantly outperform conventional funds. Besides outperforming in periods of expansion, German SRI bond funds also outperform conventional funds in recessions. As to balanced funds, in most cases we find no statistically significant differences in performance between SRI and conventional funds, both during our overall sample period and also during recession and expansion periods separately.

In sum, socially responsible investors do not seem to bear additional sacrifices in financial performance for diversifying their investments in order to include fixed-income securities of the Euro-area. Even during the recent European sovereign debt crisis, SRI fixed-income funds performed at least as well as conventional funds. Accordingly, SRI in the fixed-income area seems to provide investors with additional protection in turmoil periods.

References

Abad, P., Chuliá, H., & Gómez-Puig, M. (2010). EMU and European Government Bond Market Integration. *Journal of Banking and Finance, 34* (12), 2851-2860.

Areal, N., Cortez, M.C., & Silva, F. (2013). The Conditional Performance of US Mutual Funds Over Different Market Regimes: Do Different Types of Ethical Screens Matter? *Financial Markets and Portfolio Management*, 27 (4), 397-429.

Ayadi, M., & Kryzanowski, L. (2011). Fixed-Income Fund Performance: Role of Luck and Ability in Tail Membership. *Journal of Empirical Finance*, *18* (3), 379-392.

Barr, D., & Priestley, R. (2004). Expected Returns, Risk and the Integration of International Bond Markets. *Journal of International Money and Finance*, *23* (1), 71-97.

Bauer, R., Derwall, J., & Otten, R. (2007). The Ethical Mutual Fund Performance Debate: New Evidence from Canada. *Journal of Business Ethics*, *70* (2), 111-124.

Bauer, R., Koedijk, K., & Otten, R. (2005). International Evidence on Ethical Mutual Fund Performance and Investment Style. *Journal of Banking and Finance*, *29* (7), 1751-1767.

Becchetti, L., Ciciretti, R., Dalò, A., & Herzel, S. (2015). Socially Responsible and Conventional Investment Funds: Performance Comparison and the Global Financial Crisis. *Applied Economics*, *47* (25), 2541-2562.

Blake, C., Elton, E., & Gruber, M. (1993). The Performance of Bond Mutual Funds. *Journal of Business*, *66* (3), 371-403.

Bollen, N.P. (2007). Mutual fund attributes and investor behavior. *Journal of Financial and Quantitative Analysis*, *42* (3), 683-708.

Cantor, R., & Packer, F. (1996). Determinants and Impact of Sovereign Credit Ratings. *Economic Policy Review*, *2* (2), 37-53.

Chen, Y., Ferson, W., & Peters, H. (2010). Measuring the Timing Ability and Performance of Bond Mutual Funds. *Journal of Financial Economics*, *98* (1), 72-89.

Christiansen, C. (2007). Volatility-Spillover Effects in European Bond Markets. *European Financial Management*, *13* (5), 923-948.

Christopherson, J., Ferson, W., & Glassman, D. (1998). Conditioning Manager Alphas on Economic Information: Another Look at the Persistence of Performance. *Review of Financial Studies*, *11* (1), 111-142.

Cortez, M.C., Silva, F., & Areal, N. (2009). The Performance of European Socially Responsible Funds. *Journal of Business Ethics*, *87* (4), 573-588.

Cortez, M.C., Silva, F., & Areal, N. (2012). Socially Responsible Investing in the Global Market: The Performance of US and European Funds. *International Journal of Finance and Economics*, 17 (3), 254-271.

D'Antonio, L., Johnsen, T., & Hutton, R.B. (1997). Expanding Socially Screened Portfolios: An Attribution Analysis of Bond Performance. *Journal of Investing, 6* (4), 79-86.

Derwall, J., & Koedijk, K. (2009). Socially Responsible Fixed-Income Funds. *Journal of Business Finance and Accounting, 36* (1), 210-229.

Dietze, L.H., Entrop, O., & Wilkens, M. (2009). The Performance of Investment Grade Corporate Bond Funds: Evidence from the European Market. *European Journal of Finance, 15* (2), 191-209.

Drut, B. (2010). Sovereign Bonds and Socially Responsible Investment. *Journal of Business Ethics, 92* (1), 131-145.

Dybvig, P., & Ross, S. (1985). Differential Information and Performance Measurement Using a Security Market Line. *Journal of Finance, 40* (2), 383-399.

E. Capital Partners – ECPI (2015). *ECPI Euro Bond Index Family*. Retrieved July 1, 2015, from http://www.ecpigroup.com.

Elton, E., Gruber, M., & Blake, C. (1995). Fundamental Economic Variables, Expected Returns, and Bond Fund Performance. *Journal of Finance*, *50* (4), 1229-1256.

Ethical Investment Research Services – EIRIS (2006). *Responsible Investment Approaches to Non-Equity Investments*. Retrieved December 23, 2010, from http://www.charitysri.org.

European Fund and Asset Management Association – EFAMA (2014). *Annual Report 2013*. Retrieved June 25, 2015, from http://www.efama.org.

European Sustainable Investment Forum – EUROSIF (2014). *European SRI Study 2014*. Retrieved April 18, 2015, from http://www.eurosif.org.

Fama, E., & French, K. (1989). Business Conditions and Expected Returns on Stocks and Bonds. *Journal of Financial Economics*, *25* (1), 23-49.

Fernandez-Izquierdo, A., & Matallin-Saez, J.C. (2008). Performance of Ethical Mutual Funds in Spain: Sacrifice or Premium? *Journal of Business Ethics*, *81* (2), 247-260.

Ferson, W., & Schadt, R. (1996). Measuring Fund Strategy and Performance in Changing Economic Conditions. *Journal of Finance, 51* (2), 425-461.

Ferson, W., Henry, T.R., & Kisgen, D.J. (2006). Evaluating Government Bond Fund Performance with Stochastic Discount Factors. *Review of Financial Studies*, 19 (2), 423-455.

Ferson, W., Sarkissian, S., & Simin, T. (2003). Is Stock Return Predictability Spurious? *Journal of Investment Management, 1* (3), 1-10.

Ferson, W., Sarkissian, S., & Simin, T. (2008). Asset Pricing Models with Conditional Betas and Alphas: The Effects of Data Snooping and Spurious Regression. *Journal of Financial and Quantitative Analysis, 43* (2), 331-354.

Gebhardt, W.R., Hvidkjaer, S., & Swaminathan, B. (2005). The Cross-Section of Expected Corporate Bond Returns: Betas or Characteristics. *Journal of Financial Economics, 75* (1), 85-114.

Glode, V. (2011). Why Mutual Funds 'Underperform'? *Journal of Financial Economics, 99* (3), 546-559.

Goldreyer, E., Ahmed, P., & Diltz, J. (1999). The Performance of Socially Responsible Mutual Funds: Incorporating Sociopolitical Information in Portfolio Selection. *Managerial Finance, 25* (1), 23-36.

Grinblatt, M., & Titman, S. (1989). Portfolio Performance Evaluation: Old Issues and New Insights. *Review of Financial Studies, 2* (3), 393-421.

Ilmanen, A. (1995). Time-varying Expected Returns in International Bond Markets. *Journal of Finance, 50* (2), 481-506.

International Index Company – IIC (2014a). *Markit iBoxx EUR Benchmark Index Guide*. Retrieved June 30, 2015, from http://www.markit.com/Documentation/Product/IBoxx/Rules_Benchmark.

International Index Company – IIC (2014b). *Markit iBoxx GBP Benchmark Index Guide*. Retrieved June 30, 2015, from http://www.markit.com/Documentation/Product/IBoxx/Rules_Benchmark.

Jensen, M. (1968). The Performance of Mutual Funds in the Period 1945-1964. *Journal of Finance, 23* (2), 389-416.

Jensen, M. (1972). Optimal Utilization of Market Forecasts and the Evaluation of Investment Performance. In G. Szego and K. Shell (Eds.). *Mathematical Methods in Investment and Finance* (pp. 310-335). Amsterdam: North-Holland.

Kahn, R., & Rudd, A. (1995). Does Historical Performance Predict Future Performance? *Financial Analysts Journal, 51* (6), 43-52.

Keim, D.B., & Stambaugh, R.F. (1986). Predicting Returns in the Stock and Bond Markets. *Journal of Financial Economics, 17* (2), 357-390.

Kosowski, R. (2011). Do Mutual Funds Perform When it Matters Most to Investors? US Mutual Fund Performance and Risk in Recessions and Expansions. *Quarterly Journal of Finance, 1* (3), 607-664.

Leite, P., & Cortez, M.C. (2015). Performance of European Socially Responsible Funds during Market Crises: Evidence from France. *International Review of Financial Analysis, 40*, 132-141.

Maag, F., & Zimmermann, H. (2000). On Benchmarks and the Performance of DEM Bond Mutual Funds. *Journal of Fixed Income*, 10 (3), 31–45.

Mellios, C., & Paget-Blanc, E. (2006). Which Factor Determine Sovereign Credit Ratings? *European Journal of Finance, 12* (4), 361-377.

Morningstar (2014). Morningstar Category Definitions - Europe/Asia and South Africa Morningstar Methodology Paper. Retrieved June 25, 2015, from http://hk.morningstar.com/ods_images/Category_EN_final.pdf.

Muñoz, F., Vargas, M., & Marco, I. (2014). Environmental Mutual Funds: Financial Performance and Managerial Abilities. *Journal of Business Ethics, 124* (4), 551-569.

Newey, W., & West, K. (1987). A Simple Positive Semi-definite, Heteroskedasticity and Autocorrelation consistent Covariance Matrix. *Econometrica, 55* (3), 703–708.

Nofsinger, J., & Varma, A. (2014). Socially responsible funds and market crises. *Journal of Banking and Finance, 48*, 180-193.

Novethic (2007). *The New Frontiers of SRI: Mapping a Viable Approach to Fixed-Income SRI*. Retrieved December 23, 2010, from http://www.novethic.fr.

Rudd, A. (1981). Social responsibility and portfolio performance. *California Management Review, 23* (4), 55-61.

Sharpe, W. (1966). Mutual Fund Performance. *Journal of Business, 39* (1), 119-138.

Silva, F., Cortez, M.C., & Armada, M.R. (2003). Conditioning Information and European Bond Fund Performance. *European Financial Management, 9* (2), 201-230.

Treynor, J. (1965). How to Rate Management of Investment Funds. *Harvard Business Review, 43* (1), 63-75.

Vigeo (2014). *Green, Social and Ethical Funds in Europe – The Retail Market – 2014 Review.* Retrieved April 18, 2015, from http://www.vigeo.com.

Wang, X. (2010, June). *On Time Varying Mutual Fund Performance*. Paper presented at the 2010 Financial Management Association (FMA) European Conference, Hamburg, Germany.

Tables

Table 1 – Fixed-Income Fund Performance and Risk Estimates

This table presents estimates of performance (average conditional alphas expressed in percentage) and risk (average conditional betas) for equally-weighted portfolios of SRI and characteristics-matched conventional funds, using the conditional 4-factor model of equation [2]. *Difference* is a portfolio constructed by subtracting the returns of the conventional funds from the returns of the SRI funds. *Bond* corresponds to the monthly excess returns of the iBoxx € Overall TR index for the French and German funds and the iBoxx £ Overall TR index for the UK funds. Excess returns were computed using the 1-month Euribor as the risk-free rate for the Euro-denominated indices and the 1-month Libor for the Sterling-denominated indices. *Default* is a default spread variable, computed as the difference in returns between the Merrill Lynch € High-Yield TR index and the iBoxx € Sovereign TR index for the Euro-Area funds or the return difference between the Merrill Lynch £ High-Yield TR index and the iBoxx £ Gilts TR index for the UK funds. The *Option* variable for the French and German funds is the difference in return between the BofA Merrill Lynch € Asset-Backed and Mortgage-Backed Securities TR index and the iBoxx € Sovereign TR index. For the UK funds we used the return difference between the iBoxx £ Collateralized Mortgage-Backed Securities TR index and the iBoxx £ Gilts TR index. *Equity* corresponds to the monthly excess returns of the FSTE AW Europe TR index for the Euro-Area funds or the excess returns of the FTSE All-Share TR index for the UK funds. The predetermined information variables are a term spread, the inverse relative wealth, a real bond yield and a January dummy. The first three instruments are demeaned, lagged 1-month and stochastically detrended by subtracting a 12-month trailing moving average. W_1, W_2 and W_3 correspond to the probability values of the χ-square statistic of the Newey and West (1987) Wald test on the existence of time-varying alphas, time-varying betas and the joint time-variation in alphas and betas, respectively. R^2 *(adj.)* is the adjusted coefficient of determination. The asterisks are used to represent the statistically significant coefficients at the 1% (***), 5% (**) and 10% (*) significance levels, based on heteroskedasticity and autocorrelation adjusted errors (following Newey and West, 1987). Panel A presents the results for bond funds and Panel B for balanced funds.

Panel A: Bond Funds										
		α_{0p}	β_{1p} (BOND)	β_{2p} (DEFAULT)	β_{3p} (OPTION)	β_{4p} (EQUITY)	W_1	W_2	W_3	R^2 *adj.*
France	SRI	-0.0613 ***	0.7738 ***	0.0353 **	0.1847 ***	0.0098 *	0.0992	0.0000	0.0000	92.64%
	Conventional	-0.0964 ***	0.7602 ***	0.1166 ***	0.0452	0.0006	0.0201	0.0000	0.0000	89.45%
	Difference	*0.0351*	*0.0137*	*-0.0812 ******	*0.1395 ******	*0.0092*	*0.0190*	*0.0000*	*0.0000*	*69.50%*
Germany	SRI	-0.0485 ***	0.6679 ***	-0.0166 *	0.2532 ***	0.0083 **	0.0690	0.0000	0.0000	93.29%
	Conventional	-0.0832 ***	0.6655 ***	0.0095	0.1727 ***	0.0064	0.0460	0.0000	0.0000	89.88%
	Difference	*0.0347 **	*0.0024*	*-0.0260 ******	*0.0805 ******	*0.0019*	*0.5248*	*0.0000*	*0.0000*	*22.47%*
UK	SRI	-0.2639 ***	0.8787 ***	0.1762 ***	0.3014 ***	0.0269	0.0018	0.0000	0.0000	87.40%
	Conventional	-0.1974 ***	0.9328 ***	0.1228 ***	0.3308 ***	0.0138	0.0000	0.0000	0.0000	92.17%
	Difference	*-0.0665 **	*-0.0540 **	*0.0534 **	*-0.0293*	*0.0131*	*0.1165*	*0.0000*	*0.0000*	*42.85%*
Panel B: Balanced Funds										
		α_{0p}	β_{1p} (BOND)	β_{2p} (DEFAULT)	β_{3p} (OPTION)	β_{4p} (EQUITY)	W_1	W_2	W_3	R^2 *adj.*
France	SRI	-0.1064 ***	0.3475 ***	0.0369	-0.0375	0.2470 ***	0.4373	0.0000	0.0000	89.39%
	Conventional	-0.1010 **	0.2253 ***	0.1149 ***	-0.2129 ***	0.2844 ***	0.2049	0.0000	0.0000	93.52%
	Difference	*-0.0053*	*0.1222 **	*-0.0780 ******	*0.1754 ******	*-0.0374 ******	*0.0424*	*0.0000*	*0.0000*	*71.27%*
Germany	SRI	-0.1202 ***	0.6324 ***	0.0014	0.1574 ***	0.2237 ***	0.0001	0.0000	0.0000	92.56%
	Conventional	-0.0981 ***	0.6163 ***	0.0273 *	0.0415	0.2116 ***	0.0857	0.0000	0.0000	93.68%
	Difference	*-0.0221*	*0.0161*	*-0.0259*	*0.1159 **	*0.0121*	*0.0018*	*0.0001*	*0.0000*	*6.79%*
UK	SRI	-0.0499	0.3550 ***	0.0746 *	-0.0203	0.5147 ***	0.8128	0.0000	0.0000	92.03%
	Conventional	-0.0692	0.2327 ***	0.1336 **	-0.0576	0.3950 ***	0.1361	0.0000	0.0000	92.81%
	Difference	*0.0193*	*0.1223*	*-0.0590 **	*0.0373*	*0.1197 ******	*0.4913*	*0.0000*	*0.0000*	*36.58%*

Table 2 – Fixed-Income Fund Performance and Risk Estimates during Recession and Expansion Periods

This table presents estimates of performance (alphas expressed in percentage) and risk for equally-weighted portfolios of SRI funds, as well as for characteristics-matched portfolios of conventional funds, across recession and expansion periods, based on the CEPR Euro Area business cycles for the French and German markets and the ECRI business cycles for the UK market. Two dummy variables for identifying recession and expansion periods were included in our unconditional 4-factor model, as specified in equation [3]. *Difference* is a portfolio constructed by subtracting the returns of the conventional funds from the returns of the SRI funds. *Bond* corresponds to the monthly excess returns of the iBoxx € Overall TR index for the French and German funds and the iBoxx £ Overall TR index for the UK funds. Excess returns were computed using the 1-month Euribor as the risk-free rate for the Euro-denominated indices and the 1-month Libor for the Sterling-denominated indices. *Default* is a default spread variable, computed as the difference in returns between the Merrill Lynch € High-Yield TR index and the iBoxx € Sovereign TR index for the Euro-Area funds or the return difference between the Merrill Lynch £ High-Yield TR index and the iBoxx £ Gilts TR index for the UK funds. The *Option* variable for the French and German funds is the difference in return between the BofA Merrill Lynch € Asset-Backed and Mortgage-Backed Securities TR index and the iBoxx € Sovereign TR index. For the UK funds we used the return difference between the iBoxx £ Collateralized Mortgage-Backed Securities TR index and the iBoxx £ Gilts TR index. *Equity* corresponds to the monthly excess returns of the FSTE AW Europe TR index for the Euro-Area funds or the excess returns of the FTSE All-Share TR index for the UK funds. R^2 *(adj.)* is the adjusted coefficient of determination. The asterisks are used to represent the statistically significant coefficients at the 1% (***), 5% (**) and 10% (*) significance levels, based on heteroskedasticity and autocorrelation adjusted errors (following Newey and West, 1987). Panel A presents the results for bond funds and Panel B for balanced funds.

Panel A: Bond Funds

		α_p		β_{1p} (BOND)		β_{2p} (DEFAULT)		β_{3p} (OPTION)		β_{4p} (EQUITY)		
		α_{EXP}	α_{REC}	β_{1EXP}	β_{1REC}	β_{2EXP}	β_{2REC}	β_{3EXP}	β_{3REC}	β_{4EXP}	β_{4REC}	R^2 *adj.*
France	SRI	-0.0352 **	-0.0633	0.6946 ***	0.8218 ***	0.0334 ***	0.0050	0.0907 ***	0.1922 ***	-0.0001	0.0326 ***	91.38%
	Conventional	-0.0876 ***	-0.0978	0.7425 ***	0.7279 ***	0.1044 ***	0.0610 **	0.0980	-0.0373	-0.0007	0.0781 ***	88.36%
	Difference	0.0524 **	0.0345	-0.0479	0.0939	-0.0709 ***	-0.0560 ***	-0.0073	0.2295 ***	0.0006	-0.0455 **	65.13%
Germany	SRI	-0.0640 ***	0.0272	0.6539 ***	0.6153 ***	-0.0116	-0.0133 *	0.2024 ***	0.2228 ***	0.0042	0.0064	92.01%
	Conventional	-0.0968 ***	-0.0346	0.6662 ***	0.6434 ***	0.0064	0.0050	0.1638 ***	0.1244 ***	-0.0006	0.0170	89.44%
	Difference	0.0327 **	0.0618 **	-0.0123	-0.0281	-0.0180	-0.0183 **	0.0386	0.0985 ***	0.0047	-0.0106	20.86%
UK	SRI	-0.1730 ***	-0.3799 **	0.8517 ***	0.9234 ***	0.1523 ***	0.2053 ***	0.3738 ***	0.0921	0.0342 **	0.0234	84.79%
	Conventional	-0.1221 ***	-0.2875 **	0.8684 ***	1.0225 ***	0.0743 ***	0.1581 ***	0.4215 ***	0.1641 *	0.0279 **	0.0511	90.08%
	Difference	-0.0509	-0.0925 *	-0.0167	-0.0992	0.0780 ***	0.0471	-0.0478	-0.0720	0.0063	-0.0277	29.44%

Panel B: Balanced Funds

		α_p		β_{1p} (BOND)		β_{2p} (DEFAULT)		β_{3p} (OPTION)		β_{4p} (EQUITY)		
		α_{EXP}	α_{REC}	β_{1EXP}	β_{1REC}	β_{2EXP}	β_{2REC}	β_{3EXP}	β_{3REC}	β_{4EXP}	β_{4REC}	R^2 *adj.*
France	SRI	-0.1038 ***	-0.1675 **	0.2802 ***	0.4363 ***	0.0113	0.0192	-0.0332	-0.1046	0.2390 ***	0.2021 ***	87.95%
	Conventional	-0.1098 ***	-0.1816 *	0.2186 ***	0.2776 ***	0.0935 ***	0.1192 ***	-0.1365 **	-0.2805 ***	0.2866 ***	0.2123 ***	93.01%
	Difference	0.0060	0.0141	0.0616	0.1587 *	-0.0822 ***	-0.1000 ***	0.1033 **	0.1758 **	-0.0476 ***	-0.0102	72.20%
Germany	SRI	-0.0345	-0.1612 ***	0.5245 ***	0.6084 ***	-0.0233	0.0119	0.0468	0.0471	0.2108 ***	0.1988 ***	89.24%
	Conventional	-0.0793 ***	-0.0994 *	0.5428 ***	0.6516 ***	0.0034	0.0378 ***	0.0137	0.0021	0.2151 ***	0.1652 ***	92.63%
	Difference	0.0448 **	-0.0618	-0.0183	-0.0432	-0.0267 ***	-0.0259	0.0331	0.0450	-0.0043	0.0337	6.79%
UK	SRI	-0.0015	-0.1161	0.4713 ***	0.3028 ***	0.0606	0.0845 **	0.0691	-0.1098 *	0.5107 ***	0.5440 ***	91.94%
	Conventional	-0.0844	0.0265	0.3347 ***	0.3843 **	0.1543 **	0.1049 *	-0.1517	-0.2903 *	0.3846 ***	0.4970 ***	89.43%
	Difference	0.0829	-0.1425	0.1366	-0.0815	-0.0937 *	-0.0204	0.2207	0.1806	0.1260 ***	0.0470 **	24.52%

Table 3 – SRI Fixed-Income Fund Performance and Risk Estimates: SRI vs. Conventional Benchmarks

This table presents estimates of performance (average conditional alphas expressed in percentage) and risk (average conditional betas) for equally-weighted portfolios of SRI funds, using the conditional 4-factor model of equation [2], with SRI and conventional benchmarks. *Bond* corresponds to the monthly excess returns of the iBoxx € Overall TR index (conventional benchmark) or the ECPI Ethical Euro Composite Bond TR index (SRI benchmark). *Equity* corresponds to the monthly excess returns of the FSTE AW Europe TR index (conventional benchmark) or the ECPI Ethical Euro Equity TR index (SRI benchmark). Excess returns were computed using the 1-month Euribor as the risk-free rate. *Default* is a default spread variable, computed as the difference in returns between the Merrill Lynch € High-Yield TR index and the iBoxx € Sovereign TR index. *Option* is the difference in return between the BofA Merrill Lynch € Asset-Backed and Mortgage-Backed Securities TR index and the iBoxx € Sovereign TR index. The predetermined information variables are a term spread, the inverse relative wealth, a real bond yield and a January dummy. The first three instruments are demeaned, lagged 1-month and stochastically detrended by subtracting a 12-month trailing moving average. R^2 *(adj.)* is the adjusted coefficient of determination. The asterisks are used to represent the statistically significant coefficients at the 1% (***), 5% (**) and 10% (*) significance levels, based on heteroskedasticity and autocorrelation adjusted errors (following Newey and West, 1987). Panel A presents the results for bond funds and Panel B for balanced funds.

Panel A: SRI Bond Funds											
		α_{0p}		β_{1p} (BOND)		β_{2p} (DEFAULT)		β_{3p} (OPTION)		β_{4p} (EQUITY)	R^2 *adj.*
France	SRI Benchmarks	-0.0468	**	0.7645	***	0.0251	*	0.1510	***	0.0055	93.36%
	Conv. Benchmarks	-0.0613	***	0.7738	***	0.0353	**	0.1847	***	0.0098 *	92.64%
Germany	SRI Benchmarks	-0.0328	**	0.6577	***	-0.0273	***	0.2248	***	0.0057	93.27%
	Conv. Benchmarks	-0.0485	***	0.6679	***	-0.0166	*	0.2532	***	0.0083 **	93.29%
Panel B: SRI Balanced Funds											
		α_{0p}		β_{1p} (BOND)		β_{2p} (DEFAULT)		β_{3p} (OPTION)		β_{4p} (EQUITY)	R^2 *adj.*
France	SRI Benchmarks	-0.0846	**	0.3443	***	0.0379		-0.0140		0.2338 ***	88.47%
	Conv. Benchmarks	-0.1064	***	0.3475	***	0.0369		-0.0375		0.2470 ***	89.39%
Germany	SRI Benchmarks	-0.0900	***	0.6189	***	0.0011		0.1586	***	0.2070 ***	90.63%
	Conv. Benchmarks	-0.1202	***	0.6324	***	0.0014		0.1574	***	0.2237 ***	92.56%

Appendices

Appendix 1 – SRI Fixed-Income Funds

This appendix describes our sample of SRI fixed-income funds. For each fund we indicate: fund name, Morningstar category, legal domicile country (DE = Germany; FR = France; UK = United Kingdom), inception date and International Securities Identification Number (ISIN). Panel A refers to bond funds and Panel B refers to balanced funds.

Panel A - SRI Bond Funds				
Fundname	**Domicile**	**Launch date**	**Morningstar Category**	**ISIN**
CSR Bond Plus OP	DE	2008-01-16	EUR Diversified Bond	DE000A0M6W36
KCD-Union Nachhaltig-RENTEN Inc	DE	2001-03-01	EUR Diversified Bond	DE0005326524
LBBW Nachhaltigkeit Renten	DE	2010-03-01	EUR Diversified Bond	DE000A0X97K7
LIGA-Pax-KUnion Inc	DE	1994-12-01	EUR Diversified Bond Short-Term	DE0009750141
LIGA-Pax-RentUnion Inc	DE	1989-12-28	EUR Diversified Bond	DE0008491226
terrAssisi Renten AMI P(a) Inc	DE	2009-04-22	EUR Diversified Bond Short-Term	DE000A0NGJV5
Allianz Euro Crédit SRI R C/D	FR	2009-03-05	EUR Corporate Bond	FR0010336560
ALM Oblig Euro ISR	FR	2006-08-07	EUR Diversified Bond	FR0007021324
Amundi Crédit Euro ISR	FR	2004-01-22	EUR Corporate Bond	FR0010035162
CM-CIC Obli ISR	FR	2010-10-01	EUR Diversified Bond Short-Term	FR0010941328
Confiance Solidaire	FR	2007-10-23	EUR Corporate Bond Short-Term	FR0010515601
Dexia Ethique Gest Oblig Classic C Acc	FR	2000-03-22	EUR Diversified Bond	FR0000934978
Epargne Ethique Obligations	FR	2011-05-11	EUR Corporate Bond	FR0011045145
Epargne Solidaire	FR	1987-02-06	EUR Corporate Bond Short-Term	FR0007413091
Federal Obligation Moyen Terme IR P	FR	1980-05-15	EUR Diversified Bond	FR0007394846
Federal Taux Variable IR	FR	2010-04-06	EUR Diversified Bond Short-Term	FR0010859785
Fédéris Crédit ISR	FR	2012-01-23	EUR Corporate Bond	FR0011152925
Fructi ISR Obli Euro R(C) EUR	FR	2003-12-04	EUR Diversified Bond	FR0010028985
Groupama Crédit Euro ISR N C/D	FR	2009-04-14	EUR Corporate Bond	FR0010702175
HSBC Oblig Développement Durable A	FR	2004-02-13	EUR Diversified Bond	FR0010061283
Label Euro Obligations A	FR	2010-12-24	EUR Diversified Bond	FR0010979922
LBPAM Responsable Obli Crédit E	FR	2010-11-10	EUR Corporate Bond	FR0010957860
LFP Obligations ISR C	FR	2003-05-19	EUR Diversified Bond	FR0010905281
OFI Oligations ISR	FR	2001-06-22	EUR Diversified Bond	FR0000975559
Regard Obligations Privées ISR	FR	2010-01-07	EUR Corporate Bond	FR0010822130
Schneider Energie SICAV Solidaire	FR	2010-01-15	EUR Diversified Bond	FR0010821017
SG Oblig Corporate ISR	FR	2002-08-23	EUR Corporate Bond	FR0007074844
Uni-MT	FR	2006-09-20	EUR Diversified Bond	FR0010370528
Alliance Trust Sustainable Future Corporate Bond	UK	2001-02-19	GBP Corporate Bond	GB0030028988
CIS Corporate Bond Income Trust Inc	UK	2003-09-29	GBP Corporate Bond	GB0033583427
CIS Sustainable Managed Income Trust C Acc	UK	2012-12-07	GBP Diversified Bond	GB00B8HNKY10
F&C Ethical Bond 1 Inc	UK	2007-10-01	GBP Corporate Bond	GB00B23YHT07
Kames Ethical Corporate Bond A Acc	UK	2000-04-28	GBP Corporate Bond	GB0005342646
Rathbone Ethical Bond Fund Acc	UK	2002-05-07	GBP Corporate Bond	GB0030957137
Royal London Ethical Bond A	UK	2007-01-31	GBP Diversified Bond	GB00B4WSJK27
Standard Life Ethical Corporate Bond Acc	UK	2005-11-02	GBP Corporate Bond	GB00B0LNNH51
Panel B - SRI Balanced Funds				
Fundname	**Domicile**	**Launch date**	**Morningstar Category**	**ISIN**
BERENBERG-1590-Stiftung	DE	2009-05-04	EUR Cautious Allocation	DE000A0RE972
BfS Nachhaltigkeitsfd Ertrag SEB Inv Inc	DE	2005-09-30	EUR Cautious Allocation	DE000A0B7JB7
BNY MellonWerteFonds	DE	2002-01-31	EUR Cautious Allocation	DE0007045148
Deka-Stiftungen Balance	DE	2003-04-28	EUR Cautious Allocation	DE0005896864
DWS Stiftungsfonds	DE	2002-04-15	EUR Cautious Allocation	DE0005318406

First Nachhaltig Balance PI 4 Acc	DE	2007-10-04	EUR Moderate Allocation	DE000A0M03X1
KCD-Union Nachhaltig MIX	DE	1990-12-17	EUR Cautious Allocation	DE0009750000
Sarasin FairInvest Universal Fds Inc	DE	2001-03-30	EUR Cautious Allocation	DE000A0MQR01
Agir avec la Fondation Abbé Pierre	FR	2008-07-17	EUR Cautious Allocation	FR0010626184
BNP Paribas Obli Etheis	FR	2003-11-24	EUR Cautious Allocation	FR0010076943
BNP Paribas Retraite 5 P	FR	2005-01-21	EUR Cautious Allocation	FR0010146837
Choix Solidaire Acc	FR	2000-03-01	EUR Cautious Allocation	FR0010177899
Diamant Bleu Responsable	FR	2010-05-31	EUR Cautious Allocation	FR0010896555
Ecofi Flexible	FR	1993-10-08	EUR Moderate Allocation	FR0007475504
Faim et Développement Equilibre Acc	FR	2000-11-02	EUR Moderate Allocation	FR0007048327
Hymnos A/I	FR	1989-05-26	EUR Moderate Allocation	FR0007447891
ID-Afer	FR	2010-01-12	EUR Moderate Allocation	FR0010821470
Insertion Emplois Equilibre Acc	FR	2006-04-04	EUR Cautious Allocation	FR0010303909
Insertion Emplois Modéré	FR	2009-01-15	EUR Cautious Allocation	FR0010673491
LBPAM Voie Lactée 1 Acc	FR	1997-09-10	EUR Cautious Allocation	FR0007014212
Libertés & Solidarité A/I	FR	2001-07-24	EUR Cautious Allocation	FR0000004962
Proclero	FR	2012-07-10	EUR Cautious Allocation	FR0011136563
RJ Déploiement Durable	FR	2010-06-09	EUR Moderate Allocation	FR0010883017
AXA Ethical Distribution R Acc	UK	2009-01-30	GBP Moderate Allocation	GB0005297980
CF 7IM Sustainable Balance A Acc	UK	2007-02-01	GBP Moderate Allocation	GB00B1LBFW55
CIS Sustainable Diversified Trust	UK	2009-07-24	GBP Moderate Allocation	GB00B3PXJV84
Kames Ethical Cautious Managed A Acc	UK	2007-03-01	GBP Moderate Allocation	GB00B1N9DX45