

## **A Study on Management Skills in Equity Ethical Mutual Funds in Spain**

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### **Abstract**

*Social Responsible Investment (SRI) Funds are a growing sub-sector within the European funds industry. At present, they seem to be unaffected by the current financial crises, however, some questions remain unanswered concerning the management of SRI funds. Have investors made a financial sacrifice so as to invest in SRI funds? Are the SRI mutual fund managers skilled? If we accept the common concept of splitting fund manager skills into stock picking and market timing, we find that managers of Spanish equity SRI funds are not involved in stock picking activities, but that some changed the amount of equities in their portfolios in accordance with the broad market performance. Nevertheless, they did not show significant market timing abilities. The use of an appropriate SRI index is important for the accurate measurement of management skills in this type of fund.*

**Keywords:** Mutual Fund, Social Responsible Investment, Market Timing and Selectivity.

**JEL-Code Classification:** G-11, G-23.

### **1. Introduction**

According to Friedman (1970) “The social responsibility of business is to increase its profits.” But recent studies, such as the McKinsey Global Survey of Business Executives (2005), have reported that most business executives concur that a firm should play a larger role in society. More than four out of five respondents agree that generating higher returns to investors should also be accompanied by broader contributions to the public good. These casual observations bring back an old debate: Is the aim of the firm to serve the general welfare of society or to increase its shareholders' profits?

Corporate Social Responsibility (CSR) has been in existence for many years, however it was not widely recognized until the last thirty years. It is during this period that the economical environment changed and that many major firms started applying the CSR principles. For example, the International Annual KPMG Report (2005) shows that 52 percent (129 companies) of the top 250 Global Fortune 500 companies and 33 percent (525 companies) of the top 100 companies in 16 countries published CSR information in a separate report.

The CSR is a broad and complex concept which comprises corporate governance, impact in developing countries, community involvement, moral issues, human resources management, environmental and social management and sustainability reports. Generally, CSR activities in firms are examined by means of a code of good practice which includes economical, environmental and social aspects. CSR observations sometimes imply independent supervision for institutions of the so-called third sector (non governmental organizations).

The increase of “green” movements and the growing importance of world economical sustainable development have triggered this trend. Furthermore, in response to the accounting and financial scandals which took place in some firms in the 2000s, many investors aimed to increase their stock of companies by applying CSR policies. Some professional investors have argued that these firms are a safer bet and guarantee a higher profit, in the broadest sense. The socially and environmentally responsible policies and methods put into practice by corporations provide investors with a good indication of the development of internal and external corporate management. For this reason, corporate social policies have become an important indication to many investors who, as a result, set broader corporate goals than those mentioned in the Friedman statement.

A number of empirical studies have been undertaken to investigate the extent and nature of Corporate Social Responsible (CSR) practices in developed nations (such as the UK, Australia, Canada and Germany), as reported in the annual reports of the companies (see for example Guthrie and Parker, 1989 and Gray *et al.*, 1995). Developing countries have also been included, although in a moderate way. CRS studies have been mainly concerned with the extent of corporate social disclosure (see for example Singh and Ahuja, 1983 and Teoh and Thong, 1984). Abu-Baker (2000) for instance, found that corporate social responsibility reporting and disclosure are clearly not an important part of the current corporate reporting and disclosure practices in large companies operating in Jordan.

The underlying philosophy behind the Social Responsible Investment (SRI) is that investment decisions take into account financial and non-financial considerations or moral concerns in the latter. The standard procedure when creating a SRI portfolio is to establish an overview of the investments and then applying a screening process, using non-financial criteria, to determine which investments are acceptable in terms of the investor's ethical, social, religious or other preferences. SRI has seen a significant growth in recent years. In the United States (U.S.), the assets managed with SRI screenings exceeded 2.7 billion of dollars in 2007<sup>1</sup> whilst in Europe it reached an amount of more than 50 000 million euros<sup>2</sup> in June 2009.

In the academic field some researchers have found economic evidence backing-up this tendency, while others have pointed out the cost of its financial return and its more inefficient behaviour on financial markets. Authors such as Girard *et al.* (2007) report, in a sample of 117 US SRI mutual funds, the existence of performance differential between conventional and SRI funds. Socially responsible fund managers show poorer timing regarding selectivity and market than its conventional counterparts. The ethical constraints of investing also imply a higher cost due to the lack of diversification. Geczy *et al.* (2005) build optimal portfolios for each SRI mutual funds. They then compare these portfolios with those determined by the broader universe of funds and find that imposing SRI constraints has a cost.

However, other authors find that SRI funds do not represent a financial sacrifice. For instance, Arbelaez *et al.* (2006) have reported no differences between European stocks with a high level of social performance and other stocks. Moreover, Derwall and Koedijk (2005) have found strong evidence that SRI bond funds are good, steady performers, yet insignificant performance differential is revealed between SRI funds and their conventional peers during the 1987-2003 period in the U.S.

According to papers relating to conventional Spanish mutual funds, Ferruz *et al.* (2008) have found that the Spanish SRI funds do not have stock picking or timing abilities. In order to measure performance they used models recommended by Treynor and Mazuy (1966), henceforth referred to as TM, and Henriksson and Merton (1981), henceforth referred to as HM, for example a significant number of former studies on management skills of portfolio managers in the Spanish market.

A key component of the use of the TM and HM models is the required selection of an assigned benchmark. Most pieces of research on SRI mutual fund performance have chosen a non-SRI benchmark. However, these studies expose them to criticism due to their limited results and implication. The limited results and implications expose these studies to criticism due to the fact that non-SRI benchmarks cannot comprise the real investment strategies a SRI portfolio manager can develop. Nevertheless, the choice of an appropriate benchmark, as is the case in conventional funds, is a complex matter. With regard to the choice of accurate indexes, some authors such as Arms (1999), Luck and Pilotte (1993) and Vermeir and Corten (2001) used SRI indexes in their research on performance. The emergence of financial indexes using the social responsibility selection criteria such as the Dow Jones Sustainability Index or the FTSE4 Good Index, have been shown to boost the development of SRI.

The main objective of this paper is to measure the management abilities of Spanish ethical equity mutual funds on their self declared benchmark or investment policy. In a study similar to Ferruz *et al.* (2008), we apply traditional parametric models (TM and HM), but we use SRI indexes based on a more recent sample of Spanish equity ethical funds. We also use a new nonparametric approach suggested by Jiang (2003) to evaluate timing abilities.

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<sup>1</sup> Social Investment Forum: "2007 Report on Socially Responsible Investing trends in the United States."

<sup>2</sup> Vigeo: "Green, social and ethical funds in Europe. 2009 Review". Vigeo is a French firm that is one of most important European CSR rating agency.

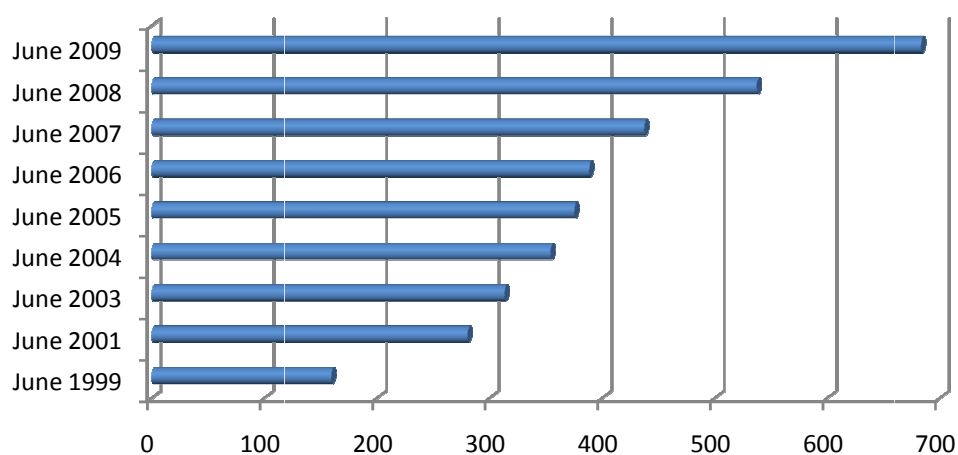
Islamic Economics and Finances induced us to publish this paper in an Arab country, as establishing ties between the rapidly growing Islamic financial and SRI/CSR communities – who share commitments to sustainability, prosperity, and justice – could help create opportunities for mutual understanding and collaboration. Furthermore, this is a subject of great importance nowadays, as Islamic Economics and Finances have become very similar to those of the Western World SRI (Salman, 2004), where ethics and social values are inseparable from economics and finance. The significance of this study is an attempt to fill the existing gap on SRI literature and advanced techniques for measuring mutual fund management skills in Islamic countries. Our empirical results suggest that Spanish equity ethical funds do not participate in large active management activities. Nevertheless, some of these funds use market timing strategies although, overall, Spanish ethical managers have poor timing skills. The findings have also provided favourable evidence relating to the use of ethical benchmarks and benchmarks in accordance with the self declared investment policies on evaluating management skills in Spanish ethical funds.

The remainder of the paper is organised as follows: the next section features the evolution of the SRI mutual funds in Europe and Spain and provides an overview on how SRI mutual funds operate. The introduction to the models is in section 3. Section 4 describes the data and section 5 presents the main empirical results and includes a robustness analysis for measuring timing skills. The final section provides the summary.

## 2. Characteristics of the SRI mutual funds in Europe and Spain.

The first SRI fund in Europe was launched in the United Kingdom for the Friends Provident Group in 1984. It followed an American trend that began in 1971 with the first ethical funds: the Pax World Fund, which negatively screened weapon companies. SRI constitutes the financial sub sector that has experienced the greatest boom in recent years in Europe. Figure 1 displays the rising number of ethical funds in Europe between December 1984 and June 2009. The dates mentioned are those published by Vigeo<sup>3</sup> in 2008 and 2009.

**Figure 1 Number of European SRI Funds.**

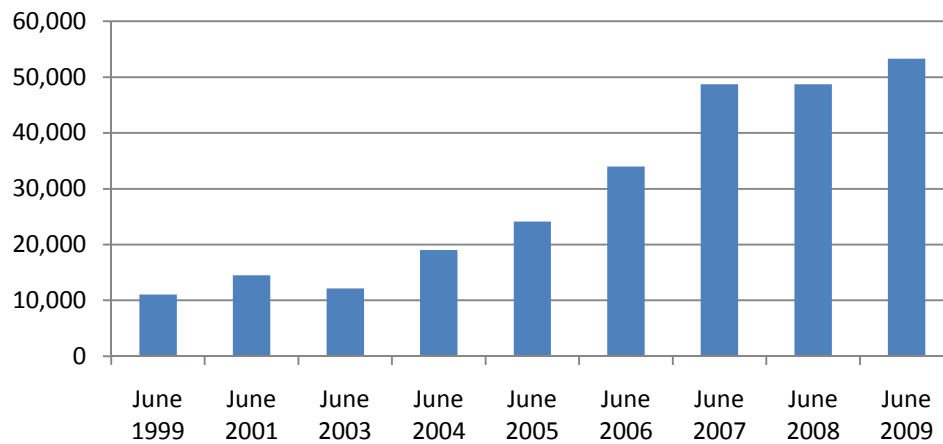


The number of European ethical funds exceeded 680 in June 2009 which accounts for an impressive growth rate of 27% in one year (from 537 to 683). This represents the largest percentage of growth since 2001. The historical data shows that the most significant rise occurred over the 1999-2001 period, during which the number of SRI funds increased from 159 to 280, hence a 76% growth rate in two years.

The amount of assets managed by European SRI Funds is reported in Figure 2. This figure shows that, after a slight decrease in 2008, the assets exceed 53.200 million Euros, rising by 9 percent in 2009, which implies that the present financial crises could make SRI more appealing.

<sup>3</sup> For a fund to be considered ethical, the following principles are used: the use of ethical, social or environmental screening for stock and bond issuer selection, its marketing as a socially responsible investment product and its availability to the public (retail funds). Vigeo does not account for funds which simply donate a part of their commissions or profits (solidarity funds), funds and other investment products which are only available to institutions or funds which apply one or multiple CSR screening processes not marketed as socially responsible products.

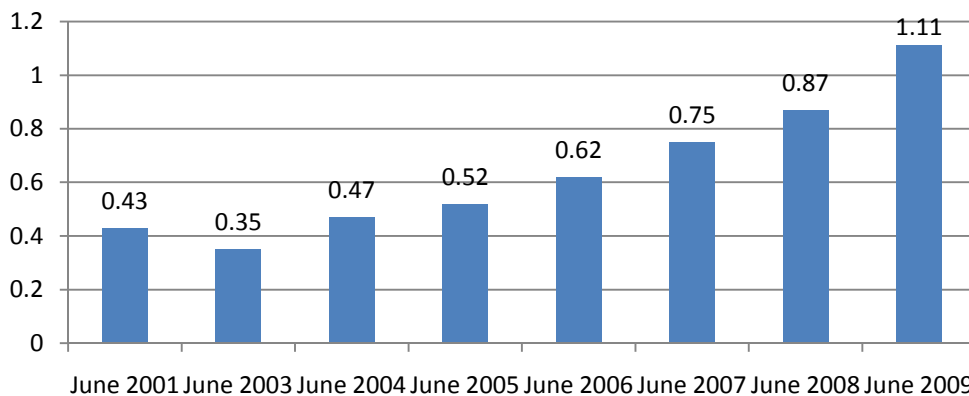
**Figure 2 Assets managed by European SRI Funds (million of Euros)**



With regard to the size of SRI in Europe, Figure 3 displays the percentage of SRI as compared to the total assets of UCITS funds.<sup>4</sup> The percentage in 2009 shows a very significant increase. This trend has remained unchanged since 2004. As mentioned in the 2007 Vigeo report, reasons for this trend have been influenced by the launch of new SRI products by key asset managers, or the re-design of existing traditional products, altered to include a socially responsible approach in their investment policies. Former figures generally show that the rise of SRI mutual funds in Europe has not been affected by the present financial crises as these funds had been suffering from financial trouble since the start of the 2000s (Ferruz *et al.*, 2008). On the contrary, figures from 2009 show that SRI funds seem to become a more valuable option for investors.

In June 2009, the most outstanding figures of assets per country were those of France, with 13.800 million euros, followed by the United Kingdom with 10.500 million euros, Belgium with 8.000 million euros and Switzerland and Germany whose investment amounted to 6 200 and 4 400 million euros, respectively.<sup>5</sup> The four largest markets represent 72% of European assets. The country ranking of total SRI assets managed by the European mutual fund underwent some changes in June 2009 as compared with the results in 2008. For instance, France overtook England as the country with the largest SRI amount and Germany, by means of its remarkable annual increase of 56% surpassed Sweden as the fifth European country with the largest SRI funds, all these amounts being measured by assets. However, when the total assets of all mutual funds were compared, Belgium held the largest proportion of SRI funds (9.5% of total assets are managed by Belgium SRI mutual funds).

**Figure 3 Percentages of SRI Funds in the European Fund Market (%).**



<sup>4</sup> UCITS funds can be sold in all European countries. Directive 85/611/EEC: “Undertaking for Collective Investment in Transferable Securities”

<sup>5</sup> Vigeo: “Green, social and ethical funds in Europe. 2009 Review.”

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Despite the high level of CSR in Spanish businesses, the development of SRI mutual funds in Spain is very insubstantial when compared with its European counterparts. Spain is one of the European countries with the lowest volume of capital invested in SRI mutual funds. Vigeo have reported that the amount of assets managed by SRI mutual funds dropped to just over 100 million Euros in 2009 and that there were 10 SRI funds in Spain when the report came out.

The first SRI mutual fund appeared on the Spanish retail market in 1997. This was Iber Fondo 2020 (Balaguer y Muñoz, 2002) which only invests in companies and sectors respecting the Catholic moral code. That same year, other SRI funds appeared: Iber Fondo 2000 and BCH Horizon, which were sold in Spain though they were incorporated in Luxemburg, and Ahorro Corporación Arcoiris, the first environmental or 'green fund'. On the Spanish financial market, it is a circular letter, issued by the Ethical Commission of INVERCO on November 15th 1999 that enforces SRI mutual funds regulations.<sup>7</sup> This pamphlet regulates the use, in the case of collective investments, of denominations such as "ethical", "environmental" and "any other term with a bearing on aspects of social responsibility". The regulations state that these ethical or environmental funds are free to determine the ethical, environmental or social responsibility criteria to be taken into account during the screening of their investment portfolios.

Generally, the SRI funds apply two types of screening processes. Firstly, a negative or exclusionary screening is applied, which is designed to exclude firms involved in products or processes considered undesirable. Examples include firms engaged in the production of armament, alcohol or tobacco, possessing a poor environmental performance record, partaking in offensive advertising or involving cruelty towards animals. Then, positive or inclusionary screenings can be applied, seeking to include firms with desirable products or processes. Examples include environmentally aware companies, such as firms seeking to reduce pollution, enforcing progressive hiring policies, possessing a sound human rights record and promoting good labour relations.

A particular characteristic of the Spanish SRI sector, which is currently being defined, is that the concept of SRI funds also covers solidarity funds. These funds donate part of their management fees to a chosen charitable or non-governmental organization (in some cases, like that of Santander Fondo Solidario, investors can choose their preferred organizations and the proportional gains are assigned to them). Moreover, Lozano et al. (2006) have found that Spanish ethical funds tend to use negative screening criteria.

### **3. The Models**

Most mutual fund research papers split performance into two components: market timing and stock selection. Market timing is the managers' ability to anticipate market movements and adjust the level of mutual fund risk accordingly. On the other hand, stock selection involves the managers' ability to include (remove) specific undervalued (overvalued) stocks in (from) the portfolio. Financial literature has used different models when measuring the portfolio manager's ability to time the market and select security. We found parametric models, such as those recommended by Treynor and Mazuy (1966) and Henriksson and Merton (1981), nonparametric approaches, proposed by Jiang (2003) and Abrevaya and Jiang (2005) for instance, and portfolio holding methodologies, as used in Ippolito (1989) and Jiang et al. (2007).

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<sup>6</sup> Vigeo: "Green, social and ethical funds in Europe. 2009 Review."

<sup>7</sup> INVERCO is the association of Collective Investment and Pension Funds Institutions, and is comprised of, as associate members, the majority of Spanish Collective Institutions (Mutual Funds and Companies), Spanish Pension Funds and foreign Investment Collective Institutions.

In this particular case, we chose the models suggested by Treynor and Mazuy (1966) and Henriksson and Merton (1981) due to their extensive use in academic research. We also consider that these models are the foundation for other studies on performance in Spanish conventional and SRI funds, hence facilitating the comparison of our result with conclusion provided by studies using other samples and benchmarks.

Treynor and Mazuy (1966) propose a model with a dynamic beta as the sum of a constant, a long term average beta and a  $\gamma_{tm}$  slope which measures market timing ability, following a strategy which increases (decreases) the beta when the excess market return is positive (negative). Considering that a fund can anticipate the market correctly, the space relation between the excess return of a fund (return of a fund minus the free risk return) and the excess return of market (return of market minus the free risk return) must be concave. Equation (1) shows the inclusion of a quadratic term in the Capital Asset Pricing Model (CAPM) (Sharpe, 1964) which is a preferred factor when assessing portfolio manager skills:

$$r_{p,t+1} = \alpha_p + \beta_p r_{m,t+1} + \gamma_{tm} [r_{m,t+1}]^2 + \mu_{p,t+1} \quad (1)$$

Where:  $r_{t+1}$  is the excess return of fund p regarding free risk return;  $\alpha_p$  measures the stock picking ability of fund p;  $\beta_p$  is the volatility of fund p with respect to the market return;  $r_{m,t+1}$  is the market return minus the free risk return;  $\gamma_{tm}$  is the parameter that reflects the shape of the relation between the market excess return and the fund excess return, consequently, it collects the timing abilities of a portfolio manager and a positive coefficient reveals timing skills and  $\mu_{p,t+1}$  is the error term in period t + 1 with  $E(\mu_{p,t+1}) = 0$ .

The Henriksson and Merton (1981) approach assumes that a fund manager forecasts the sign of the excess of market return  $r_{m,t+1}$  and buys (sells) equities before positive (negative) excess. The appropriate algebraic expression for this approach is:

$$r_{p,t+1} = \alpha_p + \beta_p r_{m,t+1} + \gamma_{hm} [r_{m,t+1}]^+ + \mu_{p,t+1} \quad (2)$$

Where: while the market excess return is positive  $[r_{m,t+1}]^+ = \text{Max}[0, r_{m,t+1}]$  and  $\gamma_{hm}$  is the Henriksson and Merton (1981) timing coefficient.

#### 4. The Data

We used a sample of SRI equity funds that were alive for a certain period of time during their analysis (from January 2002 to December 2009). The mutual funds examined met the requirements of the afore-mentioned pamphlet issued by the Ethical Commission of INVERCO. Having examined all the Spanish ethical mutual funds "alive" at any given time between 2002 and 2009, our sample is free of survivorship bias.

We only selected funds investing in equities and then compiled returns on a monthly basis, exclusively during their ethical mutual fund lifespan. In addition, as a risk-free asset, we took into account the 1 month Euribor rate acquired through the Banco de España. This rate is used by Ferruz *et al.* (2008) in their study of the SRI Spanish funds using the international equity investment style.

Table 1 features the Spanish SRI funds studied in our research. We also list the National Securities Market Commission (CNMV) fund registration number, the period analysed, the fund's investment policies or self declared ethical benchmark and comments on the changes underwent by each fund throughout its life-cycle.

Although some of the funds were created before, the first data taken into account is that of January 2002, as our analysis period covers January 2002 to December 2009. For each SRI equity fund, we consider their self declared benchmark or chosen investment policies an appropriate index. We used the Dow Jones Sustainability Index for funds that adopted this index as their benchmark or that were listed as global funds, and the Dow Jones Sustainability Index STOXX for ethical funds that adopted it as their benchmark or that were designated as European equity funds in their investment policies. Both indexes are based on the Euro currency, their original versions. The source is the Dow Jones Sustainability Group.<sup>8</sup>

<sup>8</sup> The Dow Jones Sustainability Group is a joint venture of the index supplier, The Dow Jones Company, and the Swiss sustainability consultant firm SAM.

Some funds, such as Morgan Stanley Fondo Activo Ético, Compromiso Fondo Ético, Foncaixa Cooperación, Cam Fondo Solidario and Urquijo Inversión Ética y Solidaria have investment policies which allow them to invest a bigger amount in debt. It can reach up to 50%. In these cases we mainly focussed on timing abilities as our benchmarks do not entirely comprise their investment styles.

Table 2 lists several statistics describing our Spanish ethical mutual funds sample. We deem it necessary to draw attention to the high standard deviation in our sample of funds. This volatility is also observed in the maximum and minimum yearly returns. This situation displays the substantial differences between investment policies in our sample. We suggest controlling this issue through the use of more accurate benchmarks.

**Table 1: Analysis of SRI Mutual Funds.**

<b>Fund Designation</b>	<b>Registration Number (CNMV)</b>	<b>Period Analyzed</b>	<b>Investment policies or self declared Benchmark</b>	<b>Comments</b>
BBVA Bolsa Desarrollo Sostenible	1172	October 2004-December 2009	Global fund	Has adopted ethical procedures since 2004.
Renta 4 Ecofondo		January 2002-June 2004	International Equity Fund	Merged in June 2004.
FONCAIXA Cooperación	1787	January 2002-December 2007	Spanish and International Equity, developing countries excluded	Merged with Foncaixa 133 in early 2008.
Morgan Stanley Fondo Activo Ético	1783	January 2002-December 2009	Spanish and International Equity	Named Foncaixa Privada Fondo Activo Etico since 2008.
Ahorro Corporación Arcoiris	1289	January 2002-October 2003	Global Fund	Merged in October 2003.
Urquijo Inversión Ética y Solidaria	2871	January 2004-December 2009	Global Fund	
Caixa Catalunya Europa Valor	1993	April 2004-November 2008	DJ Stoxx Sustainability	Merged with Caixa Catalunya Borsa Europea (Non-SRI fund) in November 2008
CAM Fondo Solidario	3222	October 2005-November 2009	Global Fund	Merged in November 2009
FONCAIXA 133 Socialmente Responsable	3269	October 2005-December 2009	FTSE4GOOD Europe	
Santander Dividendo Solidario	1836	December 2005-December 2009	European Equity Fund	It switched to equity investment in May 2005
Compromiso Fondo Etico	3385	April 2006-December 2009	Global Fund	

The Dow Jones Sustainability Index World (DJSI World) and Dow Jones Sustainability Index STOXX (DJSI STOXX) have a negative average return during the period analysed, but these results are influenced by their dreadful performance in 2002 and 2008.

**Table 2 Summary of the statistic of funds, benchmarks and free risk rates (1).**

	# funds	Mean Return (%)	Maximum Return (%)	Minimum Return (%)	Standard Deviation (%)	Mean DJSI World (%)	Mean DJSI STOXX (%)	Mean 1 month EURIBOR (%)
<b>2002</b>	4	-2.5	10.2	-14.9	5.4	-3.8	-3.7	0.3
<b>2003</b>	4	0.6	9.2	-6.9	3.0	0.8	0.8	0.2
<b>2004</b>	4	0.4	2.9	-2.9	1.2	0.2	0.5	0.2
<b>2005</b>	5	0.8	5.4	-7.4	2.1	1.7	1.7	0.2
<b>2006</b>	8	0.7	4.1	-6.5	1.7	0.6	1.1	0.2
<b>2007</b>	8	-0.2	3.8	-5.8	1.9	-0.2	-0.05	0.3
<b>2008</b>	8	-3.2	7.8	-15.4	4.9	-4.8	-5.4	0.3
<b>2009</b>	7	1.1	11.1	-10.6	3.9	1.9	1.85	0.1
<b>2002-2009</b>	<b>11</b>	<b>-0.3</b>	<b>11.1</b>	<b>-15.4</b>	<b>3.6</b>	<b>-0.45</b>	<b>-0.40</b>	<b>0.23</b>

(1) The table presents cross-sectional statistics on our mutual fund sample and the selected equity benchmark on a yearly basis.

## 5. Empirical Results

In annex 1, we report our findings. We display the results of applying the TM and HM models with the two selected benchmarks, but highlight, in each fund, the benchmark linked with the self declared investment style.

The R-squared adjustment is high for almost the entire sample. CAM Fondo Solidario and Compromiso Fondo Ético are the only two funds with an R-squared adjustment far below 0.8. Both the latter and the study of regression residuals confirm the reliability of our models.

A total of five funds have a beta coefficient below 0.5: Morgan Stanley Fondo Activo Ético, Compromiso Fondo Ético, Foncaixa Cooperación, CAM Fondo Solidario and Urquijo Inversión Ética y Solidaria. The above-stated funds are the same as those which decided to use a larger scale of debt in their investment.

The poor significance of alphas demonstrates that our sample of Spanish ethical funds does not engage in extensive selectivity strategies. The average results display the poor selectivity and large negative timing abilities of our funds when compared with ethical benchmarks. There are three significant funds below the 0.1 p.value in the timing parameter and one, Urquijo Inversión Ética y Solidaria, with positive coefficients in comparison with its self declared benchmark. CAM Fondo Solidario and Compromiso Fondo Ético both reveal negative and significant coefficients but these funds also display a lower value of their R-squared adjustment, which may denote the use of inadequate models.

### Robustness Test

In our sample, we study the market timing skills using a nonparametric model suggested by Jiang (2003). Considering that some funds in the sample (five in total) use a larger scale of debt, the alpha parameter is not highly reliable. Indeed, selection activities are possible when in debt and the equities benchmark can be irrelevant when measuring stock picking skills. However, portfolio managers with relatively low betas can engage in timing activities and change their position in debt when an increase in the stock market is forecast. We also deemed it relevant to compare the timing results of both low R-squared adjustment funds with another model.

The nonparametric method assumes that an informed market timer will maintain, for any triplet of market return observations  $\{r_{m,t_1}, r_{m,t_2}, r_{m,t_3}\}$  sampled from any three time periods with  $\{r_{m,t_1} < r_{m,t_2} < r_{m,t_3}\}$ , a higher exposure to the market in the  $[r_{m,t_2}, r_{m,t_3}]$  range than in the  $[r_{m,t_1}, r_{m,t_2}]$  range. We define the parameter  $\nu$  as follow (all returns are expressed in excess of the risk-free rate):



$$v = 2 \times \Pr (\beta_{t_2} > \beta_{t_2} | r_{m,t_2+1} > r_{m,t_2+1}) - 1 \tag{3}$$

Nonparametric beta estimates for both time ranges are  $\beta_{t_1} = (r_{i,t_2} - r_{i,t_1}) / (r_{m,t_2} - r_{m,t_1})$  and  $\beta_{t_2} = (r_{i,t_3} - r_{i,t_2}) / (r_{m,t_3} - r_{m,t_2})$ .  $E(v) = 0$  when managers do not have superior information, seeing as the probability ( $Pr$ ) of a correct forecast is equal to the probability of an incorrect forecast.  $v \in [-1,1]$  where the two extreme values represent perfect negative and perfect positive market timings, respectively.

The proposed sample statistic of a fund timing ability is:

$$\hat{\theta}_n = \binom{n}{3}^{-1} \sum_{r_{m,t_1} < r_{m,t_2} < r_{m,t_3}} \text{Sign} \left( \frac{r_{i,t_3} - r_{i,t_2}}{r_{m,t_3} - r_{m,t_2}} > \frac{r_{i,t_2} - r_{i,t_1}}{r_{m,t_2} - r_{m,t_1}} \right) \tag{4}$$

Where  $\text{Sign}(\cdot) = (1, -1, 0)$  for positive, negative and zero market timing respectively.  $\hat{\theta}_n$  is the average sign across all triplets taken from  $n$  observations.  $\hat{\theta}_n$  can be shown to be  $\sqrt{n}$  consistent and asymptotically normal (see Abrevaya and Jiang, 2005) with variance:

$$\sigma_{\theta_n}^2 = \left( \frac{9}{n} \right) \sum_{t_1}^n \left( \binom{n-1}{2}^{-1} \sum_{t_2, t_3} h(z_{t_1}, z_{t_2}, z_{t_3}) - \theta_n \right)^2 \tag{5}$$

Where:

$$h(z_1, z_2, z_3) = \text{Sign} \left( \frac{r_{i,t_3} - r_{i,t_2}}{r_{m,t_3} - r_{m,t_2}} > \frac{r_{i,t_2} - r_{i,t_1}}{r_{m,t_2} - r_{m,t_1}} | r_{m,t_1} < r_{m,t_2} < r_{m,t_3} \right) \tag{6}$$

Under the null hypothesis of no market timing

$$\tilde{\theta} \equiv \frac{\sqrt{n} \times \hat{\theta}_n}{\sigma_{\theta_n}} \xrightarrow{d} N(0, 1)$$

The nonparametric statistic can be interpreted as the probability of a manager taking relatively more systematic risks in a high return period than in a low one, which has many advantages when it comes to measuring timing skills in our sample.

Jiang (2003) points out that the nonparametric method has less stringent assumptions than the TM and HM models as traditional models assume that managers have a linear or binary response function. This can be important for measuring timing skills in funds with low betas.

The reason why the nonparametric model focuses on how often a manager correctly forecasts a market movement is because the sign function in (4) assigns a value of 1 (-1) if the argument is positive (negative) regardless of the size of the argument. This approach prevents aggressiveness from affecting the nonparametric statistic and mainly reflects the performance’s quality of information component.

Supported by simulation results, Jiang (2003) shows that the nonparametric measure is robust when it comes to testing timing skills among managers whose timing frequency may differ from the frequency of the sample data and/or whose timing frequency may not be uniform. The statistic in (5) investigates timing over all triplets of fund returns rather than just consecutive observations and, consequently, incorporates more information than parametric tests. Simulations carried out by this author also display the accuracy of the nonparametric measure behaviour when facing the possibility of spurious correlations between selectivity and timing coefficients in TM and HM models.

Moreover, Abrevaya and Jiang (2005) point out that, in most cases, the statistical power of the nonparametric test is indistinguishable from that of the parametric one, and furthermore, is superior to the traditional models when heteroscedasticity is present and heteroscedasticity-consistent standard errors are used.

**Table 3 Summary of the nonparametric approach with DJSI WORLD as a benchmark (1).**

Fund Designation	# of data records	Nonparametric Statistics	Significance
BBVA Bolsa Desarrollo			
Sostenible (2)	63	-0.01785	0.38
Renta 4 Ecofondo (2)	30	-0.00936	0.46
FONCAIXA			
Cooperación (2)	72	-0.05718	0.16
Morgan Stanley Fondo			
Activo Ético (2)	96	0.00054	0.49
Ahorro Corporación			
Arcoiris (2)	22	-0.08701	0.30
Urquijo Inversión Ética y Solidaria	68	0.03173	0.31
Caixa Catalunya Europa			
Valor	57	-0.06890	0.14
CAM Fondo Solidario (2)	50	-0.15551	0.06
FONCAIXA 133			
Socialmente Responsable	51	-0.00706	0.46
Santander Dividendo			
Solidario	48	-0.02266	0.36
Compromiso Fondo			
Etico (2)	46	-0.18076	0.07
Average	54	-0.05218	0.29

- (1) This table reports the market timing coefficients for our sample of Spanish domestic equity funds when the nonparametric approach is used.  $\hat{\theta}_n \sum_{r_{m,t_1} < r_{m,t_2} < r_{m,t_3}} \text{Sign} \left( \frac{r_{i,t_3} - r_{i,t_2}}{r_{m,t_3} - r_{m,t_2}} > \frac{r_{i,t_2} - r_{i,t_1}}{r_{m,t_2} - r_{m,t_1}} \right)$  Significance in a two-tailed test.
- (2) The asterisks refer to benchmarks in accordance with the self declared investment policies in the fund prospectus.

**Table 4 Summary of the nonparametric approach with DJSI STOXX as a benchmark (1).**

Fund Designation	# of data records	Nonparametric Statistics	Significance
BBVA Bolsa Desarrollo			
Sostenible	63	0.01967	0.37
Renta 4 Ecofondo	30	-0.03054	0.36
FONCAIXA			
Cooperación	72	-0.00382	0.47
Morgan Stanley Fondo			
Activo Ético	96	-0.02260	0.29
Ahorro Corporación			
Arcoiris	22	-0.11429	0.25
Urquijo Inversión Ética y Solidaria (2)	68	0.04414	0.24
Caixa Catalunya Europa			
Valor (2)	57	0.07430	0.15
CAM Fondo Solidario	50	-0.13041	0.08
FONCAIXA 133			
Socialmente Responsable (2)	51	0.06074	0.22
Santander Dividendo			
Solidario (2)	48	0.04984	0.20
Compromiso Fondo Etico	46	-0.19038	0.05
Average	54	-0.02212	0.24

- (1) This table reports the market timing coefficients for our sample of Spanish domestic equity funds when the nonparametric approach is used.  $\hat{\theta}_n = \binom{n}{3}^{-1} \sum_{r_{m,t_1} < r_{m,t_2} < r_{m,t_3}} \text{Sign} \left( \frac{r_{i,t_3} - r_{i,t_2}}{r_{m,t_3} - r_{m,t_2}} > \frac{r_{i,t_2} - r_{i,t_1}}{r_{m,t_2} - r_{m,t_1}} \right)$  Significance in a two-tailed test.
- (2) The asterisks refer to benchmarks in accordance with the self declared investment policies in the fund prospectus.

Tables 3 and 4 display the market timing result of our sample Spanish ethical funds using the nonparametric measure. The table 3 fund adopted DJSI World as its benchmark and that of table 4 adopted DJSI STOXX.

Similarly to traditional models results, we obtained negative and statistically insignificant timing abilities in our ethical funds sample. Two funds, CAM Fondo Solidario and Compromiso Fondo Ético, reveal negative and significant coefficients. This finding is in accordance with former results obtained by these funds when using traditional models. The third fund that displays a significant coefficient when using traditional models loses its statistical significance but the parameter maintains its positive sign.

Funds 7, 9 and 10, which adopted an investment policy focused on European stocks, see the sign of their parameters change when assessed by different benchmarks. Signs are positive when they are evaluated with the European ethical benchmark and negative when they are assessed with the world benchmark. These sign changes infer that analysing with different benchmarks could be very important for these funds.

## 6. Conclusion

The analysis of recent trends in financial markets displays the growing weight of SRI investment in the European area, yet many questions remain unsolved concerning the effects of SRI constraints in the yield of a portfolio. Many studies have found that, in the long term, SRI mutual fund investors have a higher yield than conventional ones. Authors link these results due to the fact that companies which are corporate social responsible in a more extensive manner have a better administration as their executives focus less on short term gain. However, other studies highlight that SRI constraints limit the investment universe which then affects the systematic risk in SRI portfolios and thus obliges managers to choose between various suboptimal portfolios. Furthermore, they state that investors are aware of the financial sacrifice implied when investing in SRI mutual funds which may consequently discourage portfolio managers from improving their records. This is why it is important to assess the abilities of SRI portfolio managers in a more accurate way.

We analysed management skills in Spanish SRI mutual equity funds by applying traditional models used in conventional fund samples. However, we used SRI equities benchmarks instead conventional indexes. We also applied a robustness test to measure market timing skills as traditional ones are allegedly biased and as it improves accuracy when funds have large investments in debt. Nevertheless, we found in our sample of Spanish ethical funds that portfolio managers do not have any stock picking or timing skills. Since the selectivity coefficient is very small in comparison with conventional fund results, some ethical funds appear as not involved in stock picking activities. This promotes beliefs that SRI may encourage portfolio mismanagement. Aside from that, our results are in accordance with most conclusions on conventional fund samples, yet a great number of these funds state that their aim is to beat the market.

## Appendix 1

The following table gives an overview of the result obtained by our sample Spanish SRI funds when applying the models suggested by Treynor and Mazuy (1966) and Henriksson and Merton (1981). Both models use two benchmarks: the Dow Jones Sustainability Index World and the Dow Jones Sustainability Index STOXX. The different models are listed in the first column. We indicate which model suits each fund should their stated investment policies be considered. The second column lists the alpha parameter measuring the stock picking skills in our sample and its statistical significance is displayed in the third. The fund's beta is listed in the fourth column and its statistical significance in the fifth. The sixth column presents the timing coefficients and the seventh its statistical significance. The last column shows the adjusted R square for each model.

Models	Alpha	Sig.	Beta	Sig.	Timing	Sig.	R adjusted
<b>Fund # 1 BBVA Bolsa Desarrollo Sostenible</b>							
TMWORLD(1)	-0.0017	0.23	0.98	0.0	0.4448	0.30	0.96
HMWORLD(1)	-0.0018	0.35	0.94	0.0	0.0596	0.49	0.96
TMEURO	-0.0026	0.16	0.90	0.0	0.5521	0.33	0.93
HMEURO	-0.0027	0.28	0.85	0.0	0.0825	0.48	0.93
<b>Fund #2 Renta 4 Ecofondo</b>							
TMWORLD(1)	0.0006	0.90	0.84	0.0	-0.5089	0.66	0.84
HMWORLD(1)	-0.0003	0.96	0.88	0.0	-0.0181	0.95	0.84
TMEURO	0.0006	0.90	0.78	0.0	-0.3916	0.67	0.84
HMEURO	0.0000	0.99	0.84	0.0	-0.08300	0.75	0.84
<b>Fund #3 Foncaixa Cooperación</b>							
TMWORLD(1)	-0.0017	0.20	0.49	0.0	0.5161	0.28	0.80
HMWORLD(1)	-0.0011	0.51	0.45	0.0	0.0128	0.89	0.80
TMEURO	-0.0021	0.08	0.44	0.0	0.1808	0.72	0.82
HMEURO	-0.0014	0.47	0.44	0.0	-0.0282	0.82	0.83
<b>Fund #4 Morgan Stanley Fondo Activo</b>							
TMWORLD(1)	0.0000	0.90	0.26	0.0	0.0957	0.65	0.79
HMWORLD(1)	0.0000	0.99	0.25	0.0	0.0178	0.71	0.79
TMEURO	-0.0001	0.84	0.24	0.0	0.0889	0.59	0.82
HMEURO	0.0000	0.97	0.24	0.0	0.0060	0.89	0.82
<b>Fund #5 Ahorro Corporación Arcoiris</b>							
TMWORLD(1)	0.0001	0.98	0.84	0.0	-0.6086	0.56	0.82
HMWORLD(1)	0.0056	0.57	0.98	0.0	-0.3132	0.27	0.82
TMEURO	-0.0016	0.85	0.76	0.0	-0.4012	0.73	0.73
HMEURO	0.0101	0.43	0.96	0.0	-0.5125	0.18	0.75
<b>Fund #6 Urquijo Inversión Ética y Solidaria</b>							
TMWORLD	0.0000	0.94	0.48	0.0	0.7666	0.19	0.82
HMWORLD	-0.0014	0.42	0.39	0.0	0.1775	0.17	0.82
TMEURO(1)	-0.0005	0.60	0.46	0.0	0.7676	0.04	0.86
HMEURO(1)	-0.0024	0.12	0.35	0.0	0.2106	0.04	0.86
<b>Fund #7 Caixa Catalunya Europa Valor</b>							
TMWORLD	0.0011	0.58	0.89	0.0	-1.5108	0.04	0.89
HMWORLD	0.0020	0.41	1.04	0.0	-0.2122	0.13	0.89
TMEURO(1)	-0.0024	0.17	0.99	0.0	0.4987	0.42	0.93
HMEURO(1)	-0.0034	0.12	0.92	0.0	0.1274	0.31	0.93
<b>Fund #8 CAM Fondo Solidario</b>							
TMWORLD(1)	0.0023	0.32	0.20	0.0	-2.4283	0.00	0.61
HMWORLD(1)	0.0055	0.07	0.47	0.0	-0.4966	0.0	0.58
TMEURO	0.0021	0.31	0.19	0.0	-2.0067	0.0	0.69
HMEURO	0.0059	0.02	0.45	0.0	-0.4852	0.0	0.64
<b>Fund #9 Foncaixa 133 Socialmente Responsable</b>							
TMWORLD	-0.0023	0.41	0.97	0.0	-0.6879	0.29	0.91
HMWORLD	-0.0027	0.44	1.02	0.0	-0.0607	0.70	0.91
TMEURO(1)	-0.0026	0.32	0.90	0.0	-0.5276	0.32	0.91
HMEURO(1)	-0.0029	0.43	0.95	0.0	-0.0607	0.71	0.91
<b>Fund #10 Santander Dividendo Solidario</b>							
TMWORLD	0.0014	0.63	0.97	0.0	0.3667	0.42	0.90
HMWORLD	-0.0002	0.96	0.90	0.0	0.1403	0.22	0.90
TMEURO(1)	0.0012	0.58	0.91	0.0	0.34	0.25	0.94
HMEURO(1)	-0.0002	0.95	0.85	0.0	0.1217	0.23	0.94
<b>Fund #11 Compromiso Fondo Ético</b>							
TMWORLD(1)	0.0012	0.47	0.22	0.0	-1.8191	0.02	0.65
HMWORLD(1)	0.0031	0.17	0.41	0.0	-0.3454	0.02	0.61
TMEURO	0.0012	0.47	0.20	0.0	-1.5604	0.00	0.72
HMEURO	0.0038	0.097	0.40	0.0	-0.3577	0.01	0.68
<b>Average</b>							
TMWORLD	0.0000	0.60	0.65	0.0	-0.4885	0.31	0.82
HMWORLD	0.0008	0.53	0.70	0.0	-0.0944	0.42	0.81
TMEURO	-0.0007	0.48	0.62	0.0	-0.2236	0.37	0.84
HMEURO	0.0006	0.44	0.66	0.0	-0.0890	0.40	0.83

(1) The asterisks refer to benchmarks in compliance with the self declared investment policies in the fund prospectus.

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