

The cost or benefit of socially responsible investment

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Abstract

This paper takes as its starting-point the traditional Treynor and Mazuy timing model and its conditional version and adapts them so as to be able to distinguish between the stock picking and Market timing abilities of ethical and conventional fund managers. Seven European countries are analysed and similar results are found for each country. In general, perverse stock picking and Market timing abilities are observed for conventional fund managers. With regard to ethical fund managers, we find they manage to match their benchmark both when it outperforms or underperforms the conventional benchmark. Furthermore in some cases a positive stock picking ability is found for ethical funds. The more restrictive the definition of the term *ethical fund*, the greater the cost of diversification for ethical managers. Moreover for best-in-class funds a negative stock picking ability is registered, and in relation with Market timing, we find that they are more influenced by their benchmark than the rest of the ethical funds.

Key words

Conventional mutual funds, diversification, ethical mutual funds, market timing, stock picking.

Resumen

Este artículo tiene como punto de partida el tradicional modelo de sincronización de Treynor y Mazuy y su versión condicional y los adapta para que sean capaces de distinguir entre las habilidades de sincronización y selección de los gestores de fondos convencionales y éticos. Se analizan siete países europeos y se obtienen resultados similares para cada país. En general, se observan habilidades negativas tanto en sincronización como en selección para los gestores de los fondos convencionales. En lo que se refiere a los gestores de fondos éticos, encontramos que persiguen seguir su *benchmark* tanto si este bate al *benchmark* convencional como si no lo hace. Adicionalmente, en algunos casos puede advertirse una cierta habilidad de selección en los fondos éticos. Cuanto más restrictiva es la definición de fondo ético, mayor es el coste de diversificación para los gestores éticos. Para los fondos *best-in-class* se distingue una selección negativa y, en relación con la sincronización, percibimos que están más influidos por su *benchmark* que el resto de fondos éticos.

Palabras clave

Fondos de inversión convencionales, diversificación, fondos de inversión éticos, sincronización, selección.

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Our model determines the diversification cost for ethical fund manager

1. Introduction

Socially responsible investment (SRI) is an old practice but has received little attention for the last two decades. Today, it plays a major role in the collective investment management industry. In fact, according to data from the *European Social Investment Forum* (Eurosif) published in its 2008 study, socially responsible assets managed professionally in Europe represent €2.7 trillion (\$3.7 trillion) at the end of December 2007, representing 17.6% of the total of professionally-managed assets in Europe. This corresponds to an impressive growth rate of 102% since December 2005 (a compound annual growth rate of 42%).¹

According to this Eurosif study, the major growth of SRI in Europe in recent years has been mainly due to the demand for this type of investments from institutional investors, for which responsible investment becomes a matter of risk management, particularly where climate change is concerned; this major growth has also been driven by greater consideration of environmental, social and governance issues in traditional financial services, and by the external pressure from NGOs and media. The European socially responsible investment Market is also still clearly driven by institutional investments, which represent 94% of the total of the European socially responsible investment Market. Investment funds are the second most commonly-used SRI vehicle, with 12%, after discretionary mandates (Eurosif, 2008). We should also highlight the growing interest from individuals in this type of socially responsible investment, particularly wealthy individuals.

Most SRI funds studies conducted to date are based on comparing the financial performance achieved by this type of funds with that of similar conventional funds.² Their results are mixed. Some studies do not find any significant differences between the performances of the two types of funds; these include the works of Derwall and Koedijk (2005), who analyse funds which invest in socially responsible bonds in the USA and condition alpha and beta to the economic cycle. Benson, Brailsford and Humphrey (2006), however, find significant differences in how managers of ethical and conventional funds allocate their portfolios to different industrial sectors. Fernández and Matallín (2008) analyse the Spanish Market and conclude that as SRI has a positive impact on the investor's utility function, investment in ethical funds is not a sacrifice; Bauer, Derwall and Otten (2007) obtain similar results for the Canadian Market. Other examples of previous studies with similar results are those by Hamilton, Jo and Statman (1993), Goldreyer and Diltz (1999), and Bauer, Koedijk and Otten (2005).

Besides the investment in mutual funds, similar results (i.e., no significant differences between the performance of SRI and conventional investment) are obtained in works conducted by Arbelaez, Cousin and Jemel (2006), who evaluate companies included in the ASPI (Advanced Sustainable Performance Indices) Eurozone index; Anderson and Myers (2007) analyse equities in the USA via SRI screens and conclude that this kind of ethical investment does not entail any extra cost. A philosophical examination of the possible price of ethical investment is provided by Hellsten and Mallin (2006).

Other studies, however, yield different results. For example, Girard, Stone and Rahman (2007) analyse US funds and obtain significant differences in net stock picking ability (considering the cost of less diversification arising from investment in ethical funds) between ethical and

¹ The growth rate is calculated for the nine countries analysed in studies carried out by Eurosif in 2006 and 2008: Austria, Belgium, France, Germany, Italy, Spain, Switzerland, the Netherlands and the United Kingdom.

² Although financial performance has been the topic most widely analyzed for SR mutual funds other aspects related with behavioral finance have also been studied for responsible investment. Thus, some studies analyzing the investor behavior are those conducted by Geczy, Stambaugh and Levin (2003), Renneboog, Horst and Zhang (2007, 2008, 2011) and Bollen (2007).

**According to
portfolio theory,
a social
responsibility
restriction
entails a cost**

conventional funds, the latter having greater ability. By analysing a UK fund initially established as a conventional fund that later adopts an SRI strategy, Mill (2006) concludes that its return increases when the new strategy is adopted. Jones, Van der Laan, Frost and Loftus (2008) conclude in their analysis of Australian investment funds that ethical funds yield a lower performance than that of the Market.

Other examples of studies that find a positive relationship between financial and social performance are Luther, Matatko and Corner (1992), Luther and Matatko (1994), Mallin, Saadouni and Briston (1995), and Statman (2000). The work of Geczy, Stambaugh and Levin (2003), for example, finds the opposite (a negative relationship between financial and social performance). These are just some of a huge number of studies that draw conclusions of both positive and negative relationships.

There is therefore a great dichotomy in previous research. Some studies reveal worse performance in socially responsible funds, backed up by the premise that ethical funds are marketed with the idea that they are based on ethical principles, so that an investor may be attracted to them if his/her personal values coincide with the philosophy underlying the funds. In such cases, the investor makes a deliberate choice to concentrate on a subset of assets in which to invest. In a theoretical mean-variance context, such a strategy results in a suboptimum portfolio.³ However, those who find better performance in socially responsible funds argue that the managers of this type of funds have better stock picking abilities than their peers, leading to better results. This would be consistent with the idea that these managers have fewer securities from which to choose, and therefore have greater knowledge of the specific investments in their potential investment set. Other studies, however, do not find any significant differences between the performances of both kinds of fund.

On the other hand, those who claim that socially responsible investment yields lower returns state that such portfolios may be a rational option if the investor obtains sufficient utility from collaboration with socially responsible activities, compensating for this worse result. Opponents of SRI also believe that when an ethical investment produces a better result, this is due to the sector in which it operates or to the investment style, rather than social issues.

This disparity of results may be due either to poor specification of the models used, such as the influence of relevant variables not considered or the use of inappropriate benchmarks, as reference indices only loosely related to the style of funds analysed are often used (e.g., when attempts are made to evaluate the performance of a group of ethical funds using a non-ethical benchmark, a very common problem in financial literature). This paper aims to overcome these inconsistencies.

However, there is a subject that has rarely been explored in previous studies: the cost of SRI. This cost includes both the stock picking cost and the diversification cost. The ability to pick undervalued stocks entails a cost given that the manager consumes resources when seeking for information about undervalued securities. The diversification cost is the result of restrictions imposed on the manager; according to Fama (1972), managers lose the ability to diversify in the process of picking undervalued stocks. This cost is outside the manager's control, which means that the manager would not have to report it, although it is a cost born by the investor.

³ Markowitz (1952) defines a portfolio as mean-variance efficient if it provides the major expected return for a given level of variance (risk), and the lowest variance for a given level of expected return. To maximise the risk/return relationship, investors make up their portfolio by selecting from the investment universe those investments that would make up the efficient portfolio. In theory, selecting from only a subset of the investment universe (for example, selecting from among socially responsible companies only) could result in a suboptimum portfolio.

Our work analyses various European investment fund Markets

Net stock picking ability is the difference between the stock picking ability and the diversification cost (it is a compensation for assuming specific risk).

This subject is well explored by Girard et al. (2007), who adopt the methods of Fama (1972) to measure stock picking, diversification, and net stock picking ability. In this study, we aim to analyse this issue in more detail, but from another perspective; our aim is to construct our own model that determines the diversification cost, which would translate into a lower stock picking ability for ethical fund manager than for conventional fund manager. Our model also goes further by measuring the other component of the manager's performance (apart from stock picking ability), which is Market timing ability. This ability has been measured many times in financial literature, but in other new model we attempt to divide it into two parts, based on the idea that conventional fund managers will try to time the Market using a financial criterion, while when ethical fund managers do so they will also incorporate socially responsible criteria.

In the first model we only use one benchmark (for the conventional Market) given that if we use two benchmarks (another for the ethical Market) it would make no sense to speak about loss of diversification for ethical fund managers, given that we would be measuring them in relation with their ethical Market and the conventional fund managers in relation with their own Market. However the second model includes both a conventional and a socially responsible benchmarks in order to solve the problem of measuring ethical mutual funds performance with a conventional Market index and because given that we expect the two benchmarks being highly correlated, the differences in their returns should be due to the restrictions imposed by the ethical benchmark to the firms (they have to fulfil the screening in order to be part of the benchmark), so when the Market rises, if both managers increase their Market exposure, the increases in their returns would be different and this difference would be due to the better/worse performance of companies following social policies.

Furthermore we run the first model (with one conventional benchmark) but considering also the public information. The second model (with two benchmarks) is not run in its conditional way since we do not think the minimal differences in the returns from the two benchmarks arise from the economic cycle, but rather from the different policies followed by firms which fulfil with ethical screens. Additionally, the influence of considering a more or less restrictive definition of the term *ethical investment funds* on both abilities of managers will also be analysed in this paper. Finally, a robustness test is conducted by considering the traditional Market timing model which is applied separately to both samples.

The remaining for the paper is organized as follow. Section 2 frames the issues analysed in this work and also stresses the aims of the study and the contribution to the literature. Section 3 describes the European socially responsible investment industry. Section 4 describes the database used in the empirical analysis. Section 5 explains the methodology applied in the work including robustness tests. Section 6 displays the results from the empirical analysis and, finally, section 7 remarks the main conclusions of the work.

2. SRI Background and Our Analytical Approach

The underlying philosophy behind SRI⁴ is that investment decisions take into account both financial and non-financial considerations, with the focus of non-financial matters given to

⁴ There is a huge amount of papers trying to define SRI, some examples are those conducted by Abbarno (2001), Benson et al. (2006), Brammer, Williams and Zinkin (2007), Cummings (2000), Glac (2008), Johnsen (2003), Laufer (2003), Lozano, Albarada and Balaguer (2006), McLachlan and Gardner (2004), Phillips, Eyres and Howitt (2001), Reynolds and Yuthas (2008), Schueth (2003), Sethi (2005), Sparkes and Cowton (2004) or Strudler (2003). Moreover, some of them deal with the topic in depth and study the demographic characteristics of socially responsible investors and those of the conventional investors.

France invests 23% of the total assets invested in ethical funds

ethical, environmental and moral concerns. The usual procedure for creating a socially responsible portfolio is to begin with the universe of investments and then apply 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. Two types of screen are generally applied. First, negative or exclusionary screens are applied, that exclude firms involved with products or processes considered undesirable, e.g., firms involved in the production of armaments, alcohol or tobacco; firms that pollute; or firms engaged in offensive advertising and practising cruelty to animals. Second, positive or inclusionary screens are applied that seek to include firms involved in desirable processes or products. Here for example, firms that are environmentally aware, have progressive hiring policies, are responsible corporate citizens, possess a good human rights record, or exercise good labour relations would be included.

Kinder, Lydenberg and Domini (1993), however, consider exclusionary and qualitative screens. The latter are screens that companies can fail, as well as screens that can be used to identify companies of merit. In addition, the latest generations of socially responsible funds point towards what are known as *best-in-class* screens. This approach is similar to positive screens, but positive screens should be evaluated within each sector, as firms face the same social and environmental challenges as their competitors.

There is a significant debate in financial literature as to whether the incorporation of these social screens into the manager's stock picking process implies the creation or destruction of financial return. Financial literature makes three assumptions: 1) that the Market incorporates information quickly and efficiently, 2) that observed returns on a portfolio reflect a fair compensation for the risk assumed, and 3) that the optimum portfolio is one that is efficiently diversified. These ideas suggest that SRI, consisting inherently of a subset of the whole investment universe, should face a financial penalty because it omits assets that might contribute to increasing the portfolio return. In addition, the process of compiling data on companies' social activities and ranking them may be costly, and therefore reduce returns. In other words, according to modern portfolio theory, a social responsibility restriction entails a cost in the form of lower compensation for the risk assumed, which may be seen as a contribution to the cause. However, if the cost is greater than can be theoretically justified by the social responsibility restriction, then the additional cost is the result of perverse management ability. Such a cost would be unnecessary and could not be justified by any ideology. In this paper, we therefore try to determine this cost and whether or not it is due to a poor management by examining the nature of the SRI cost.

However, there are also arguments in favour of better performance by SRI, which is that ethical funds are just another category of investment fund and provide the same diversification benefits as other funds. As a specialised investment product, their managers attempt to beat traditional benchmarks using their stock picking or Market timing decisions. Ethical fund managers may be better at picking undervalued stocks and timing the allocation of cash than conventional fund managers, as they work with a smaller investment universe, which allows them to know the companies within their opportunity subset in greater depth. Defenders of SRI also highlight that a company's social performance may be a determiner of long-term financial performance. This may be overlooked by investors who face short-term evaluations. As the Market corrects its errors in valuing corporate social responsibility, the price of relatively undervalued social responsible securities would be corrected upwards, and they would therefore obtain positive returns.

On the other hand, ethical fund managers trade in a smaller investment universe where there may be fewer undervalued stocks in absolute terms. Also, ethical funds have a smaller cost

There are no major differences between the return on ethical and conventional funds

structure, and investors may rescue their holdings often, which could lead to an excess of cash and, therefore, a potential lack of Market timing ability. It is also expected that ethical fund managers will place more emphasis on reducing the risk of diversification than on achieving better performance.

In this study, we examine whether specialising in socially responsible investment implies better stock picking and Market timing abilities in managers. We analyse the stock picking and Market timing abilities of a group of ethical fund managers and compare them with those obtained for another group of managers of similar conventional funds. However, we intend that certain deficiencies which, in our view, exist in many previous studies on SRI are overcome in this paper.

Based on the model by Treynor and Mazuy (1966), we first aim to create a model (with one conventional benchmark) that will allow us to evaluate the stock picking ability of both ethical and conventional fund managers at the same time, thus implicitly obtaining the cost of the lower diversification inherent in ethical funds, which translates into a lower stock picking ability on the part of ethical fund managers. This is logical, as ethical fund managers cannot pick certain stocks to include in their portfolio, even though they have the best returns, if they belong to companies that do not pass the ethical screening imposed by socially responsible investors. This subject has been addressed in one previous paper (Girard et al., 2007), but Girard et al. used the methodology of Fama (1972) to measure this cost, whereas this paper proposes different alternatives to measure it.

Previous studies also indicate that benchmark selection is a critical aspect when analysing the performance of socially responsible funds. For example, Lehman and Modest (1987), Grinblatt and Titman (1989), Rennie and Cowhey (1990) and Dellva, DeMaskey and Smith (2001) state that when the benchmark used is the S&P 500, few funds show stock picking ability, which indicates that managers cannot beat the risk-adjusted returns on investment in a fund that follows this index. However, Dellva et al. (2001) find that the closer the benchmark to the style of fund analysed, the more funds will show a positive stock picking ability. In this study, we aim to overcome this methodological deficiency by evaluating ethical funds using an ethical benchmark, and conventional funds using a conventional benchmark, which will also fit with the investment style of the fund analysed (global equity).

In this sense, we conduct a model with two benchmarks (one conventional and one ethical) which allows us to measure managers' Market timing ability, and furthermore allows us to differentiate between the Market timing of a manager with a financial purpose and that of a manager with both a financial and an ethical objective. It is understood that conventional fund managers time the Market solely with a financial purpose, i.e., they seek to increase their Market exposure when the Market rises in order to earn more, and decrease their Market exposure when the Market falls in order to lose less. However, we understand that ethical fund managers should time the Market with an ethical purpose as well as with a financial one. In other words, ethical fund managers should be more exposed to the Market when it rises but their set of investment options is composed of companies carrying out socially responsible activities, and this different Market exposure might lead managers to get higher returns if companies following social policies would do better than the others, which could be the result of its major acceptance by the society. As far as we know, this distinction between the ethical and the financial components of Market timing ability has not previously been covered by financial literature.

We also extend the first model (with one benchmark) to include public information variables, as we believe that both managers' stock picking and Market timing abilities are affected by

The standard deviation of return is very similar for the conventional and ethical fund portfolios

their possession and use of information on the economic cycle, regardless of whether the funds managed are ethical or conventional. By applying a conditional model, following Christopherson, Ferson and Glassman (1998) and Ferson and Schadt (1996), we assume that both abilities (stock picking and Market timing) are affected by the information on the economic cycle available to managers. We believe that what would be really interesting is to measure these abilities excluding the part that results from the use of public information, so as to measure only the value added by the manager via his/her search for and appropriate use of superior information. However we do not extend the second model to include public information since we do not think the higher returns that could earn the ethical fund manager by timing the Market, beyond the benefits of the conventional manager, are due to public information, but rather to the different policies of firms included in both benchmarks.

As an additional test, we then repeat the models but now considering only the ethical funds that pass the best-in-class screen.⁵ This results in funds that, within their sector of activity, not only do not invest in companies that do not pass ethical screening but also invest in companies that carry out more socially responsible activities than the other companies in the same sector. To accomplish this, we use the ethical screens published in the Social Investment Forum. Thus, we evaluate the influence of the intensity of screening on managers' stock picking and Market timing abilities, which is an innovation from this study, as only the effect of this on performance had been previously evaluated. Finally, a robustness test is to apply the traditional Market timing and stock picking model separately to ethical funds and to conventional funds.

As an additional contribution of this paper to the literature we highlight that most studies on socially responsible investment funds concentrate on the US and UK Markets, as stated by Arbelaez et al. (2006). Our work, however, aims to alleviate this shortcoming by analysing various European investment fund Markets: the United Kingdom, Germany, France, Spain, Italy, Portugal, and Ireland. Another advantage of our work therefore rests in the comparison of investment fund managers' performance between these European countries, which allows to compare the level of development of the SRI industry in various European powers, and also to establish a comparison between this and the level achieved by conventional investment.

3. Evolution of Socially Responsible Investment in Europe

The data used to analyse this section are obtained mainly from reports published under the heading *Green, Social and Ethical Funds in Europe* by the Sustainable Investment Research International (SiRi) Group and Vigeo. We therefore feel it appropriate to clarify the criteria required for the investment funds analysed in these regular reports, which are European benchmarks for providing information on the evolution of the socially responsible investment industry in Europe. In this section, we examine these investment funds, looking at characteristics such as trends of funds over time and by country.

The investment funds considered in this section meet the requirements of Directive 85/611/EEC of 20th December 1985, which coordinates the legal, regulatory and administrative provisions on particular Undertakings for Collective Investment in Transferable Securities (UCITS). They may

⁵ In the initial model, we include all the ethical funds in our database. These were selected on the basis of an ethical exclusion criterion so that funds only can fail up to two negative screens (for example, funds that invest in firms involved in the production of armaments, alcohol or tobacco and firms that pollute are excluded). According to the Social Investment Forum, there are 11 possible ethical screens: alcohol, tobacco, gambling, defence/weapons, animal testing, products/services, environment, human rights, labour relations, employment equality and community investment.

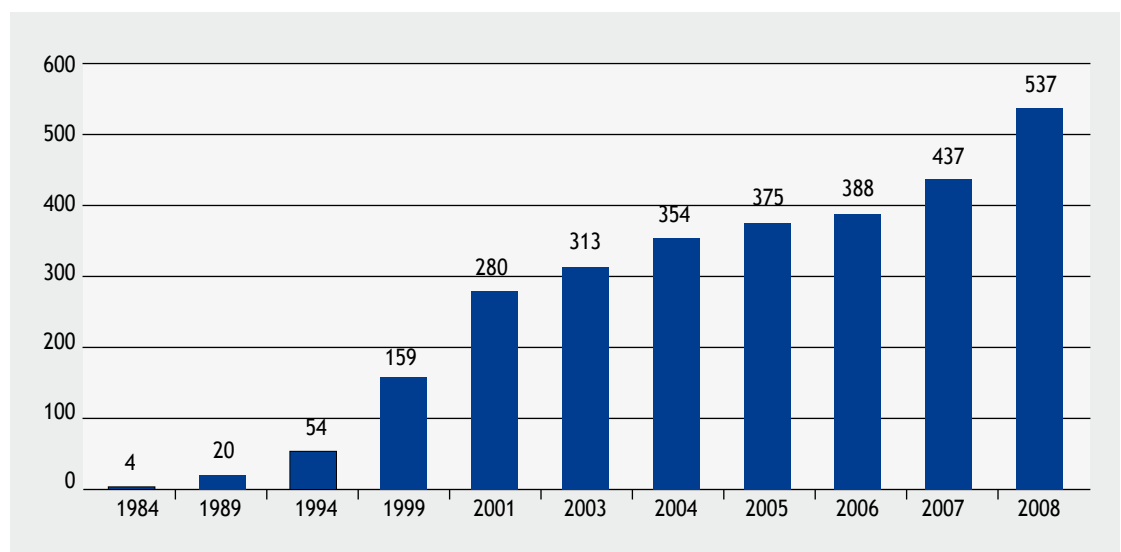
Conventional mutual fund managers do not show stock picking ability

therefore be commercialized in all countries within the European Union. All the investment funds considered use ethical, social or environmental criteria when picking stock for their portfolios and are advertised as socially responsible investment products. They are available to the public and domiciled in European countries, taking the country in which they are domiciled as their country of origin.⁶ However, the following funds are not considered in this section:

- Funds that simply give part of their commissions or profits to charitable works or other worthy causes;
- Funds that specialise only in investment in environmentally-friendly technologies or in the environmental industry (water treatment, waste treatment, etc.);
- Funds and other investment products that are available only to institutional investors;
- Funds that apply ethical, social and environmental criteria to select their products but are not marketed as socially responsible investment products.⁷

The evolution of the cumulative number of socially responsible investment funds in Europe between 1984 and 2008 is represented in chart 1. We see that there is a significant increase in the number of ethical investment funds in Europe in the period analysed, particularly between

Chart 1
Number of Funds



Notes:

- Chart 1 shows the evolution of the cumulative number of socially responsible investment funds in Europe between 1984 and 2008.
- Source: Reports by the SiRi Group (2001-2007) and Vigeo (2008).
- The data for period 2003-2008 are taken at 30th June. This is not the case for earlier data, so, for example, the cumulative number of funds in Europe at 31st December 2001 was 280.

⁶ This criterion may mean that an investment fund domiciled in Switzerland but which is actually marketed in Germany is considered to be a Swiss fund. This means that there may be distortions concerning the actual size of the ethical fund Market in each country. However, this study aims to provide an approximation to the reality of the ethical fund Market in Europe in order to show the current general trends. Our empirical analysis, in contrast, has considered investment funds registered for sale in each country, as stated below.

⁷ This criterion was introduced from the 2004 report onwards. This indicates how important it is that not only do investment funds follow ethical criteria when their portfolios are selected but also that investors are aware of this and therefore choose these funds on the basis of their personal ethical criteria.

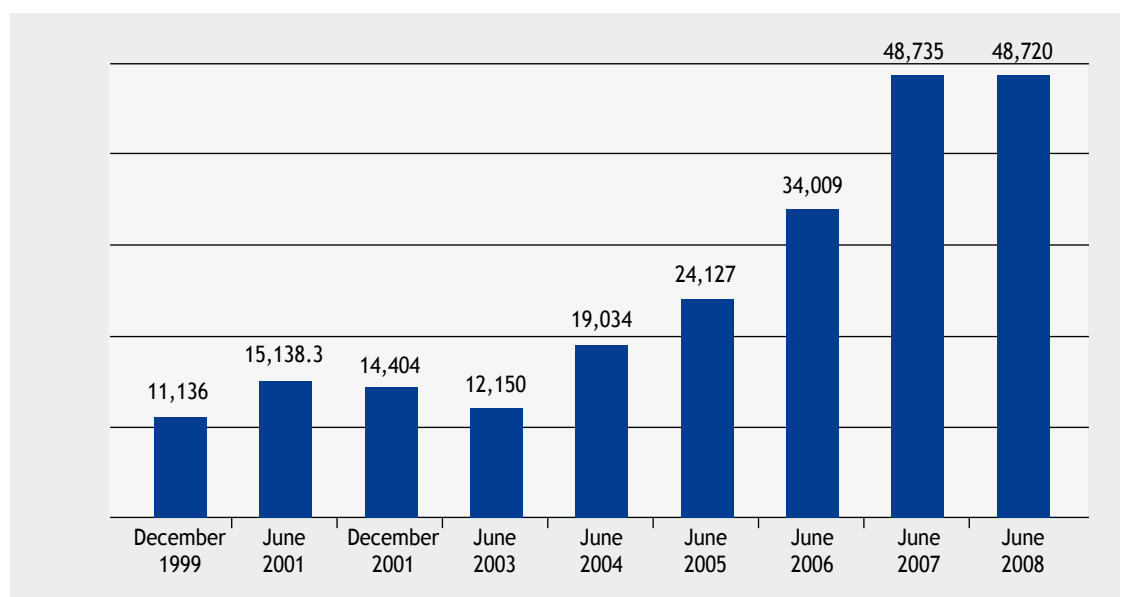
The diversification cost that ethical fund might bear, in general terms, does not exist

31st December 1999 (159 funds) and 31st December 2001 (280 funds). This represents a growth of 76.10% in two years. The increase in the number of ethical investment funds continued in the period after 2001, although at a slower rate. Nevertheless, the increase in 2007 is 12.63%, which is considerably higher than that for previous years. Strikingly, there is a 23% increase in this value during the last year, despite the crisis in the economy, with the number of ethical funds domiciled in Europe increasing from 437 to 537 in the middle of 2008.

The total net assets invested in ethical investment funds in Europe⁸ between 1999 and 2008 are shown in chart 2. Here we can see that there is growth trend in the total investment in ethical funds in Europe, although there was a decrease in 2003 due to the fall in yields of the financial Markets, which had a direct effect on equity and balanced assets and represented approximately 83% of the ethical investment fund portfolio that year. Similarly, the 56.66% growth between 2003 and 2004 is related to the recovery of the yields in the financial Markets and the existence of many socially responsible investment funds invested in equities in Nordic countries, which experienced great growth in that period. Since then, the trend has remained markedly bullish with growth of 26.76% between 2004 and 2005, 40.96% between 2005 and 2006, and 43.3% between 2006 and 2007.

Chart 2

Total Net Assets Invested in Ethical Investment Funds (million Euros)



Notes:

- Chart 2 shows total net assets invested in ethical mutual funds in Europe between 1999 and 2008.
- Source: Reports by the SiRi Group (2001-2007) and Vigeo (2008).

The total net assets managed via ethical investment funds actually increased from 34,009 million Euros in mid-2006 to 48,735 million Euros in the second quarter of 2007. As in the previous year, this increase is related to the financial yields of the various Markets, as a

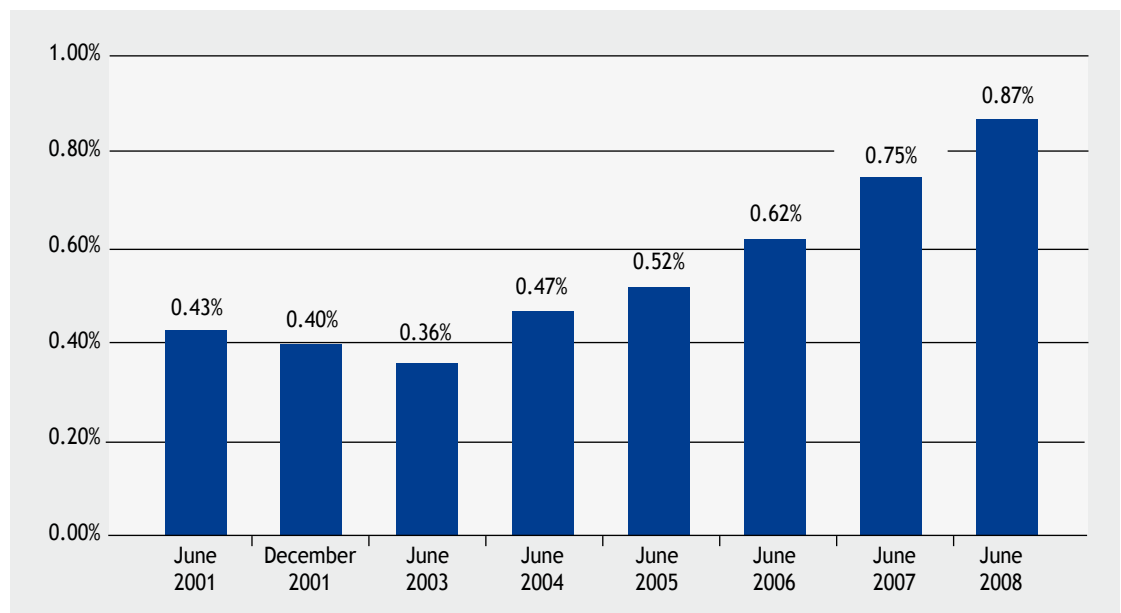
⁸ The study covers the following countries: Spain, Italy, Netherlands, Austria, Germany, Sweden, Switzerland, United Kingdom, Belgium and France.

**A perverse
Market timing
ability, with the
conventional
benchmark, is
shown**

result of the high proportion of equity and balanced assets within the portfolio (more than 65%). However, as stated by Bartolomeo, Dal Maso and Familiari (2007), around 40% of the growth is due to the appearance of new investment funds.

In the last year analysed, it can be seen that assets remain practically stable (48.72 billion Euros), despite the major turbulence on the financial Markets and the great exit of funds from financial investment products in recent months. Also, the relative weight of socially responsible investment in the whole investment fund industry is now greater. More specifically, the proportion of ethical and socially responsible investment funds has grown in comparison with UCITS funds, particularly from 2003 onwards. It reached 0.87% of the total in June 2008, as shown in chart 3.

Chart 3
SRI Funds as a Proportion of the Total of UCITS Funds



Notes:

- Chart 3 shows the evolution of the socially responsible mutual funds as a proportion of the total of UCITS Funds.
- Source: Report by the SiRi Group (2008).

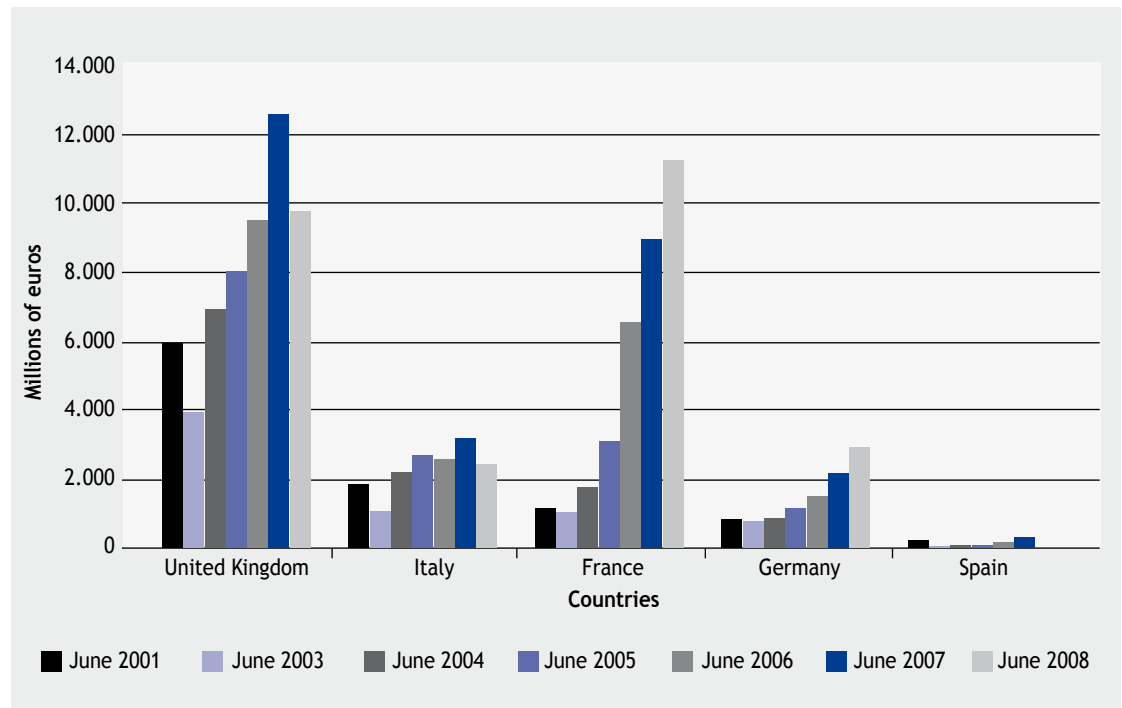
The SRI is consolidating over time in the European Market. Although this segment of the Market is still a niche with great potential for development, it is currently much more dynamic than the rest of the industry. According to the Vigeo report (2008), the most dynamic of all players is France, which showed the highest level of growth in its socially responsible investment industry in 2008. The evolution of Euros invested in ethical funds between June 2001 and June 2008 in some of the countries analysed in the empirical study is shown in chart 4.

As we can see, until June 2008, the United Kingdom leads in for the amount of assets invested in ethical funds, representing approximately 26% of investment in socially responsible funds at 30th June 2007, and accounts for approximately 20% of the total

Managers do not use public information properly

Chart 4

Net Assets of Investments Managed by Country (million Euros)



Notes:

- Chart 4 shows the evolution of Euros invested in ethical funds between June 2001 and June 2008 in some of the countries analysed in our empirical study (United Kingdom, Italy, France, Germany and Spain).
- Source: Own production according to reports by the SiRi Group (2001-2007) and Vigeo (2008).
- It should be pointed out that Portugal and Ireland, two of the countries included in our empirical study, are not included among the countries studied by the SiRi Group or Vigeo when they produce their reports on Socially Responsible Investment in Europe.

in June 2008. We can also see rapid growth in investment managed through this type of financial products by France, which moves into the top position in the 2008 ranking, with 23% of the total assets invested in ethical funds, followed by the UK, whose share is 20%. With respect to the evolution of this investment industry in Spain, it is worth noting that only 303 million out of the 48,735 million Euros belong to the total net assets of European socially responsible investment funds at the end of June 2007. There is no explicit data for Spain for June 2008.

It should be pointed out that Portugal and Ireland, two of the countries included in our empirical study, are not included among the countries studied by the SiRi Group or Vigeo when they produce their reports on Socially Responsible Investment in Europe. Finally, we must highlight that in our empirical study carried out on socially responsible investment funds in seven European countries, investment funds are selected on the basis of the country in which the funds were marketed. This allows us to expand the database of our empirical study greatly, while, as already stated, this section is constructed on the basis of the country in which funds were domiciled, rather than where they were marketed.

Conventional managers show a good stock picking ability using private information

4. Data

For our empirical analysis, the data are provided by Thomson Reuters. We collect data on investment fund returns in the United Kingdom, Germany, France, Spain, Italy, Portugal and Ireland on the basis of where they were registered for sale. In other words, these funds are registered for sale in these countries, not necessarily domiciled in these countries. We collect data both for conventional funds and for ethical funds. As stated before, ethical funds are those considered as such by Reuters on the basis of exclusionary screens.

Our database contains net monthly returns (management fees has been subtracted), and covers the period from August 2001 to December 2007.⁹ The funds included in our sample are global equity funds with data for at least 12 months. We include both funds that disappeared and those that merged during the sample period. We use MSCI Europe as the benchmark for the conventional Market and FTSE4Good Europe as the benchmark for the ethical fund Market.¹⁰ We also confirm that the funds in our sample are mainly invested in European Markets, which means that they require the use of European reference portfolios to evaluate their performance appropriately. 1 month-Euribor is selected as the proxy for the risk-free asset.

For each country analysed and each year within our sample, table 1 shows the maximum number of funds (ethical and conventional) in the year considered, the mean monthly return and the standard deviation of the mean monthly return on the equally weighted portfolio including conventional funds; and the same values for the equally weighted portfolio including ethical funds; finally the mean total net assets of the mutual funds are also shown. First, we can see that the number of conventional funds is far greater than the number of ethical funds, in all cases. The scant number of ethical funds registered for sale in Ireland is particularly striking. The country with most ethical funds registered for sale is Germany.

We can also see that the mean return on the equally weighted portfolio including conventional funds shows the same pattern for all countries. This is also the case for ethical funds. Moreover, there are no major differences between the mean return on the equally weighted portfolio of ethical funds and that on the portfolio of conventional funds. In general, conventional funds show a slightly higher mean return from 2001 to 2005, while ethical funds display a slightly higher mean return than their conventional counterparts in 2006 and 2007. The standard deviation of return is very similar for the conventional and ethical fund portfolios, and for all countries. Finally, with regard to the mean total net assets, we can realize how in all the Markets analyzed for all the years in our sample, conventional mutual funds are larger than ethical mutual funds.

⁹ The reason we have not extended our analysis to dates prior to August 2001 is that there is no data available for FTSE4Good Europe for earlier dates, and the reason we have not extended our analysis beyond December 2007 is that the financial crisis starting around 2008 could distort our results.

¹⁰ We have used price benchmarks, due to the differences between the periods covered by the Total return conventional and SR benchmarks. We consider that the use of price benchmarks do not modify significantly the empirical evidence reached since according to Sharpe and Cooper (1972) the omission of dividend payments in the calculation of returns has little effect on the calculation of betas. The opinion of Statman (1981) is in the same line.

Table 1

Summary statistics for investment funds registered for sale in various European countries

Year			2001	2002	2003	2004	2005	2006	2007
Germany	Conventional	No. of Funds	738	873	949	995	1,120	1,345	1,372
		Mean Return	-0.0126	-0.0330	0.0080	0.0025	0.0178	0.0046	-0.0033
		Standard Deviation	0.0788	0.0599	0.0399	0.0182	0.0308	0.0251	0.0256
		Mean TNA	187.19	140.89	115.25	118.70	129.45	140.56	137.88
	Ethical	No. of Funds	55	79	91	97	94	96	101
		Mean Return	-0.0178	-0.0344	0.0054	0.0024	0.0161	0.0064	-0.0011
		Standard Deviation	0.0715	0.0608	0.0386	0.0182	0.0286	0.0262	0.0271
		Mean TNA	41.71	23.54	16.88	21.08	28.48	45.23	70.51
Spain	Conventional	No. of Funds	321	395	447	483	564	746	765
		Mean Return	-0.0136	-0.0318	0.0070	0.0029	0.0171	0.0041	-0.0035
		Standard Deviation	0.0723	0.0599	0.0395	0.0170	0.0292	0.0239	0.0257
		Mean TNA	137.36	104.30	80.36	90.66	100.73	103.08	99.19
	Ethical	No. of Funds	21	36	39	44	48	59	62
		Mean Return	-0.0154	-0.0335	0.0051	0.0026	0.0154	0.0053	-0.0024
		Standard Deviation	0.0736	0.0613	0.0384	0.0159	0.0256	0.0246	0.0271
		Mean TNA	51.00	34.28	19.66	19.08	23.51	39.50	57.49
France	Conventional	No. of Funds	539	639	712	774	849	1,036	1,056
		Mean Return	-0.0127	-0.0320	0.0076	0.0028	0.0176	0.0043	-0.0037
		Standard Deviation	0.0755	0.0607	0.0395	0.0177	0.0300	0.0240	0.0252
		Mean TNA	129.91	97.25	75.72	86.67	97.23	109.70	110.33
	Ethical	No. of Funds	34	49	50	55	56	66	69
		Mean Return	-0.0170	-0.0336	0.0046	0.0021	0.0155	0.0060	-0.0030
		Standard Deviation	0.0715	0.0631	0.0392	0.0174	0.0252	0.0244	0.0278
		Mean TNA	39.41	23.41	16.40	16.78	26.81	44.64	57.81
Ireland	Conventional	No. of Funds	180	217	271	303	348	373	373
		Mean Return	-0.0132	-0.0306	0.0062	0.0034	0.0179	0.0043	-0.0036
		Standard Deviation	0.0691	0.0573	0.0389	0.0171	0.0303	0.0243	0.0256
		Mean TNA	223.96	248.30	104.15	120.65	120.85	142.15	166.80
	Ethical	No. of Funds	3	6	8	8	9	9	9
		Mean Return	-0.0153	-0.0355	0.0037	0.0014	0.0177	0.0041	-0.0027
		Standard Deviation	0.0598	0.0648	0.0390	0.0161	0.0292	0.0274	0.0252
		Mean TNA	20.03	17.12	21.21	21.29	23.87	28.60	29.66
Italy	Conventional	No. of Funds	322	339	449	497	565	657	661
		Mean Return	-0.0131	-0.0318	0.0058	0.0022	0.0162	0.0037	-0.0039
		Standard Deviation	0.0692	0.0582	0.0380	0.0162	0.0275	0.0231	0.0247
		Mean TNA	153.94	113.60	90.50	102.82	107.48	117.28	123.57
	Ethical	No. of Funds	22	32	34	39	40	44	45
		Mean Return	-0.0168	-0.0351	0.0053	0.0022	0.0146	0.0048	-0.0024
		Standard Deviation	0.0737	0.0621	0.0392	0.0162	0.0251	0.0244	0.0263
		Mean TNA	104.03	56.45	35.16	34.95	41.27	60.58	80.59

Table 1 (continued)

Summary statistics for investment funds registered for sale in various European countries

Portugal	Conventional	No. of Funds	94	124	138	154	177	210	218
		Mean Return	-0.0144	-0.0317	0.0061	0.0028	0.0176	0.0044	-0.0031
		Standard Deviation	0.0688	0.0599	0.0390	0.0168	0.0290	0.0239	0.0250
		Mean TNA	108.33	94.53	91.75	26.93	24.60	33.84	57.05
	Ethical	No. of Funds	6	13	15	15	15	20	22
		Mean Return	-0.0232	-0.0384	0.0063	0.0018	0.0140	0.0048	-0.0002
		Standard Deviation	0.0752	0.0652	0.0381	0.0151	0.0237	0.0255	0.0266
		Mean TNA	48.48	50.78	26.20	20.99	23.46	31.15	56.65
United Kingdom	Conventional	No. of Funds	588	686	760	833	903	1,037	1,049
		Mean Return	-0.0120	-0.0303	0.0079	0.0040	0.0189	0.0051	-0.0036
		Standard Deviation	0.0718	0.0554	0.0395	0.0174	0.0291	0.0246	0.0252
		Mean TNA	106.09	85.11	70.73	76.62	84.92	98.21	104.44
	Ethical	No. of Funds	33	38	43	43	43	48	50
		Mean Return	-0.0149	-0.0346	0.0054	0.0042	0.0182	0.0065	-0.0025
		Standard Deviation	0.0709	0.0562	0.0421	0.0190	0.0316	0.0274	0.0270
		Mean TNA	54.68	38.44	27.26	30.23	34.02	40.29	57.09

Note: For each country analysed and each year within our sample, table 1 shows the maximum number of funds (ethical and conventional) in the year considered, the mean monthly return and the standard deviation of the mean monthly return on the equally weighted portfolio including conventional funds; and the same values for the equally weighted portfolio including ethical funds. Moreover the Total Net Assets of the mutual funds in each Market and for all the years analyzed are also shown.

5. Methodology

As stated in the previous sections, the main objective of this study is to evaluate the stock picking and Market timing abilities of European managers of conventional and ethical funds. To do this, we take the Market timing model proposed by Treynor and Mazuy (1966), according to which the term *Market timing* refers to a manager's ability to allocate funds towards equity or towards cash so as to make a profit when the Market is bullish and minimise losses when the Market is bearish. Treynor and Mazuy incorporate this ability by adding a quadratic term to the Jensen model, which measures variation in the manager's risk exposure as a result of his/her prediction of the Market. The model is expressed in formula 1:

$$r_{p,t} = \alpha_p + \beta_p r_{m,t} + \gamma_p r_{m,t}^2 + \varepsilon_{p,t} \quad (1)$$

where $r_{p,t}$ and $r_{m,t}$ are the return on portfolio P and on the Market in excess of that on the risk-free asset during the period t ; β_p is the beta of portfolio P ; α_p is the alpha of portfolio P and measures the manager's stock picking ability; γ_p is the gamma of portfolio P and measures the manager's Market timing ability; $\varepsilon_{p,t}$ is the error term for portfolio P during the period t with an expected value of zero. Stock picking ability (α_p) is the ability to select the securities that provide greater returns than others with a similar non-diversifiable risk level. So if alpha is positive and significant, this indicates that the manager has the skill to predict security prices accurately, while if it is zero the manager will not obtain any extra profit from his/her management beyond that which he/she would achieve using a buy and hold strategy. Market timing ability is measured by γ_p , so if γ_p is positive/negative and significant it indicates a

Ethical fund managers are not worse in stock picking than the conventional ones

superior/poor Market timing ability, while an insignificant value indicates that the quadratic term does not add any additional explanatory power to the model.

The Treynor and Mazuy (1966) model relies on the existence of a convex relationship between fund returns and Market returns, provided that the manager increases/reduces the Market exposure of his/her portfolio when the Market is more/less profitable. This is known as *Market timing*. However, as stated by Ferson and Schadt (1996), this convex relationship may appear for reasons other than actual Market timing activity. One possible cause might be common time variation in the portfolio beta and the expected Market risk premium due to public information (i.e., information known to investors) concerning the economic cycle. Traditional Market timing models fail to consider this possibility.

The Market timing coefficient also varies over time. In fact, this variable depends on both the accuracy of the signal the manager receives and his/her aversion to risk. The accuracy of the signal varies over time because it depends on economic conditions, and it would therefore seem reasonable to assume that the manager will receive information with a greater or lesser degree of uncertainty. Risk aversion may also change over time, as it tends to increase in adverse economic conditions and decrease in more favourable times. Traditional Market timing models also fail to take this into account.

Similar to Christopherson et al. (1998), we assume that the alpha parameter also varies over time, as a constant alpha is not a powerful predictor of superior performance. In a conditional performance evaluation model, conditional alpha will be zero if the weightings of the manager's portfolio do not provide information on future Market returns and the only information available on these is included in public information variables. However, if the manager has more information than what is public, the portfolio weightings will be correlated with future returns, conditional upon public information, and conditional alpha will be a function of this conditional covariance. Alpha will therefore be a function of public information.

On the basis of model 1 and incorporating the ideas of Ferson and Schadt (1996) and Christopherson et al. (1998), we therefore obtain model 2, which allows the coefficients alpha, beta and gamma to vary with the economic cycle:

$$r_{p,t} = \alpha_p + \alpha'_p z_{t-1} + \beta_p r_{m,t} + \beta'_p (z_{t-1} r_{m,t}) + \gamma_p r_{m,t}^2 + \gamma'_p (z_{t-1} r_{m,t}^2) + \varepsilon_{p,t} \quad (2)$$

where $z_{t-1} = Z_{t-1} - E[Z]$ and Z_{t-1} is a vector of public information variables on the economic cycle available in the period $t - 1$.¹¹ These variables are used to predict the Market risk premium. α'_p , β'_p and γ'_p are vectors of the same size as Z_{t-1} . So $\beta'_p (z_{t-1} r_{m,t})$ controls for common variation over time in the risk premium and the beta of the portfolio due to public information on the economic cycle; the term $\gamma'_p (z_{t-1} r_{m,t}^2)$ captures the variability of the manager's Market timing ability over the economic cycle due to the use of public information. Finally, the term $\alpha'_p z_{t-1}$

¹¹ This work considers three variables that represent the economic cycle: dividend yield, calculated on the basis of the dividends paid by MSCI Europe in the 12 previous months, divided by the current index price; term spread, calculated as the difference between the annualised return on the 10 years-EMU bond and that on the 3 month-Euribor; and the short-term interest rate, which is proxied by 3 month-Euribor. The reason we select European variables even though we are analysing global equity funds is that we confirmed that these funds are invested mainly in Europe. We do not distinguish between ethical and conventional variables because the last two cannot be obtained for ethical funds. These three variables were selected because their relevance in predicting stock returns has been proved in literature (Ferson & Schadt, 1996; Christopherson et al., 1998; Cortez & Silva, 2002; Roy & Deb, 2004).

**Regarding
Market timing
abilities, if we
remove public
information the
manager
performs even
worse**

captures the variability of the manager's stock picking ability over the economic cycle due to the use of public information.

However, the purpose of this work goes beyond simply measuring the Market timing and stock picking abilities of managers of ethical and conventional funds. As stated in the introductory sections, we also aim to adapt models 1 and 2 to enable us, on the one hand, to measure the stock picking ability of ethical fund managers and that of conventional fund managers. The difference between the two is the cost borne by ethical fund managers as a result of a loss of portfolio risk diversification. On the other hand, we seek for a new model which measures the Market timing ability of ethical fund managers and conventional fund managers with the understanding that conventional fund managers will time the Market following a purely financial purpose (i.e., seeking a greater Market exposure when the Market is bullish and less Market exposure when the Market is bearish) whereas the Market timing of ethical fund managers should also be based on a socially responsible criterion (i.e., with greater Market exposure when it rises but focusing this exposure to the companies quoted on the Market that assume social, ethical or environmental responsibilities). If we do not initially consider the time variation of the alpha, beta and gamma coefficients according to public information on the economic cycle, these ideas are represented in model 3:

$$r_{p,t} = \alpha_p + AD_1 + \beta_{pE} r_{mC,t} D_1 + \beta_{pC} r_{mC,t} D_2 + \gamma_{pE} r_{mC,t}^2 D_1 + \gamma_{pC} r_{mC,t}^2 D_2 + \varepsilon_{p,t} \quad (3)$$

where D_1 is a dummy variable that takes the value 1 if the fund considered is ethical and 0 if it is conventional; A measures the opportunity cost (if it is negative) borne by an ethical fund manager due to the loss of diversification in the process of selecting securities to include in his/her portfolio, which means a lower stock picking ability. The stock picking ability of a conventional fund manager would therefore be determined by α_p , whereas that of an ethical fund manager would be determined by the sum of coefficients $\alpha_p + A$. It is therefore expected that A will take a negative value (it is a cost) such that the stock picking ability of a conventional manager exceeds that of an ethical fund manager.

D_2 is a dummy variable that takes the value 1 if the fund considered is conventional, and 0 otherwise; $r_{mC,t}$ is the excess return on the conventional reference portfolio (MSCI Europe); finally, γ_{pE} and γ_{pC} are the Market timing ability of ethical and conventional fund managers respectively.

In model 3 we do not use two different benchmarks (one for the conventional Market and another for the Ethical Market) given that, in that case, it would make no sense to introduce a diversification cost since we would be measuring each manager in relation to their respective benchmark.¹² However we also construct model 4 which does include two different benchmarks (FTSE4Good Europe and MSCI Europe) with two purposes. First, in order to solve a problem that is common in financial literature: evaluating both ethical and conventional funds using a single reference portfolio. This means that this study evaluates each type of fund according to a reference portfolio of its own type. Second, in order to determine if ethical fund managers are more skilful than their conventional pairs in timing the Market as a consequence of the former being focused on companies following social policies provided that they enjoy major acceptance by the society and therefore are more successful.

¹² We do not think that it is problematic to work with only one benchmark, representative of the conventional Market, given that both benchmarks are very correlated.

Perverse stock picking and Market timing abilities exist for conventional managers

$$r_{p,t} = \alpha_{pE} D_1 + \alpha_{pC} D_2 + \beta_{pE} r_{mE,t} D_1 + \beta_{pC} r_{mC,t} D_2 + \gamma_p r_{mC,t}^2 + \gamma_{pE1} (r_{mE,t} - r_{mC,t})^2 D_1 H_1 - \gamma_{pE2} (r_{mE,t} - r_{mC,t})^2 D_1 H_2 + \varepsilon_{p,t}, \quad (4)$$

Here α_{pE} and α_{pC} are the stock picking ability of ethical and conventional mutual fund managers respectively. And $r_{mE,t}$ is the excess return on the ethical reference portfolio (FTSE4Good Europe).

Moreover, conventional fund managers' Market timing ability is measured by the coefficient γ_p , which multiplies the quadratic term of the excess return on the conventional reference portfolio and therefore captures Market timing carried out for financial purposes. The two reference portfolios we use in this analysis, FTSE4Good Europe and MSCI Europe, differ from each other in that the former includes only socially responsible companies, whereas the latter includes all companies, so that the difference between the returns on the two portfolios, which are very correlated, can give us an idea of the benefit or cost entailed in making socially responsible investments. This is because we believe that the addition (difference) of the effects of the components γ_p and γ_{pE1} (γ_{pE2}) measure the manager's ability to time the Market following both financial and ethical purposes. H_1 (H_2) is a dummy variable which takes the value 1 when $r_{mE,t} > (<) r_{mC,t}$ and zero otherwise. In short, there are two scenarios: (1) The ethical Market rises more than the conventional one (H_1 represents this situation), here the ethical manager who increases his/her Market exposure would get a higher return than that of the conventional manager (his/her timing ability would be determined by the addition of the effects of γ_p and γ_{pE1}); (2) The ethical Market rises less than the conventional one (H_2 represents this situation), here the ethical manager who increases his/her Market exposure would get a lower return than that of the conventional manager (his/her timing ability would be determined by the difference of the effects of γ_p and γ_{pE2}). The addition/difference of the effects of such coefficients will determine whether ethical fund managers' Market timing ability is greater or lesser than that of conventional fund managers.

We also extend model 3 for incorporating public information:¹³

$$r_{p,t} = \alpha_p + \Delta D_1 + \alpha'_p z_{t-1} + \beta_{pE} r_{mC,t} D_1 + \beta'_{pE} r_{mC,t} D_1 z_{t-1} + \beta_{pC} r_{mC,t} D_2 + \beta'_{pC} r_{mC,t} D_2 z_{t-1} + \gamma_{pE} r_{mC,t}^2 D_1 + \gamma'_{pE} r_{mC,t}^2 D_1 z_{t-1} + \gamma_{pC} r_{mC,t}^2 D_2 + \gamma'_{pC} r_{mC,t}^2 D_2 z_{t-1} + \varepsilon_{p,t} \quad (5)$$

And we therefore take into account the time variation of alpha, beta and gamma coefficients. We do not think that it is a problem to include the public information in model 3 and not in model 4 which considers both benchmarks, as we believe that public information, as defined by the three variables considered in this study, will affect the return from the conventional Market and the part of the return from the ethical Market which is correlated with that from the conventional Market, but not the part of this return which arises from the social policies of companies.

Our analysis therefore applies models 3, 4 and 5. We also reproduce models 4 and 5 but considering a more restrictive definition of the term *ethical fund*, so that in this case D_1 will take the value 1 when the fund considered is both ethical (according to exclusionary criteria, see footnote 5) and best-in-class, i.e., those which invest in leading companies according to environmental, social and corporate criteria within a particular sector or industry. The aim of

¹³ We do not extend model 4 for incorporating public information given that model 4 has many variables and the addition of more variables could lead to multicollinearity problems.

Ethical managers are better than conventional managers (each one with their benchmark)

this is to determine how a more or less restrictive definition of the term *ethical fund* affects ethical fund managers' stock picking and Market timing abilities.

As stated above, we initially consider a fund to be ethical even if it did not pass one or two of the eleven ethical screens shown by the Social Investment Forum. In this work, we will consider a fund best-in-class if it is part of the group of funds that we identify as ethical and also passes all eleven ethical screens. Thus we obtain the result that considering all funds classed as ethical in the United Kingdom, 15% would also be recognised as best-in-class. These percentages rise to 23% for Germany, 17% for France, 19% for Spain, 33% for Italy, 53% for Portugal and 6% for Ireland.

As a robustness test that allows us to determine whether the results for models 3, 4 and 5 are reliable, we use model 1 separately for each of the two samples (ethical and conventional funds), considering the appropriate reference portfolio to evaluate the funds analysed by each model:

$$r_{pC,t} = \alpha_{pC} + \beta_{pC} r_{mC,t} + \gamma_{pC} r_{mC,t}^2 + \varepsilon_{pC,t} \quad (6)$$

$$r_{pE,t} = \alpha_{pE} + \beta_{pE} r_{mE,t} + \gamma_{pE} r_{mE,t}^2 + \varepsilon_{pE,t} \quad (7)$$

We use model 6 to evaluate conventional fund managers' stock picking and Market timing abilities and model 7 to evaluate the same abilities for ethical fund managers. In fact, subscript C in model 6 refers to conventional portfolios, while subscript E in model 7 refers to ethical portfolios.

If we compare α_{pC} and α_{pE} we can know which managers show superior stock picking ability so that if $\alpha_{pC} > \alpha_{pE}$ this will confirm that conventional fund managers are more skilful at picking the undervalued stocks than their ethical pairs. In addition, comparing γ_{pC} and γ_{pE} will tell us which managers show superior Market timing ability so that if $\gamma_{pC} < \gamma_{pE}$ this will confirm that ethical fund managers are more skilful at choosing the best moments to increase/reduce their Market exposure than their conventional pairs.

6. Results

Table 2¹⁴ reports the results for models 3 (panel A) and 5 (panel B). In panel A, we show the α_p parameter, which measures conventional mutual fund managers' stock picking ability. We also provide the A coefficient which represents the cost of diversification suffered by the ethical mutual fund managers. Additionally table 2 reports the results for the coefficients γ_{pE} and γ_{pC} which represent the ethical and conventional mutual fund managers' Market timing abilities with respect to a conventional benchmark, respectively. The final column in the table contains the R-squared coefficient. All these parameters are provided for each country studied. In panel B, we show the same information than in panel A but from model 5 which is the conditional version of model 3.

In relation with results for model 3, taking into account the alpha coefficients, we can assert that conventional mutual fund managers do not show stock picking ability. They have a perverse stock picking ability. They do not manage to beat the Market, since negative and significant coefficients are found for almost all the Markets.

¹⁴ We have also run all the models using total return benchmarks but our findings keep.

Ethical managers are not able to follow Market timing strategies with their benchmark

Table 2
Cost of diversification

Panel A: Results of model 3					
	α_p	A	γ_{pE}	γ_{pC}	R ²
Germany	-0.002***	-5E-05	-2.102***	-2.189***	0.447
Spain	-0.002***	0.000	-2.209***	-2.153***	0.455
France	-0.001***	-0.001**	-1.894***	-2.311***	0.461
Ireland	-0.0002	0.002	-2.847***	-2.442***	0.424
Italy	-0.002***	-0.0002	-2.235***	-2.136***	0.441
Portugal	-0.001***	-0.001	-2.301***	-2.375***	0.469
United Kingdom	-0.0003**	-0.001	-2.285***	-2.231***	0.443
Panel B: Results of model 5					
	α_p	A	γ_{pE}	γ_{pC}	R ²
Germany	0.048***	-0.001***	-24.864***	-25.784***	0.553
Spain	0.05***	-0.0003	-25.685***	-26.489***	0.565
France	0.049***	-0.002***	-26.550***	-24.537***	0.566
Ireland	0.052***	0.001	-23.067***	-25.814***	0.529
Italy	0.049***	-0.001***	-26.338***	-26.519***	0.552
Portugal	0.05***	-0.002*	-25.915***	-25.529***	0.575
United Kingdom	0.049***	-0.001	-24.514***	-23.460***	0.546

Notes:

- The method used for estimating in regressions is Ordinary Least Squares.
- The standard errors are consistent with the problems of autocorrelation and heteroscedasticity (Newey & West, 1987).
- *** significant at 1%, ** significant at 5% and * significant at 10%.

Regarding the results found for A coefficient, which measures the diversification cost that ethical fund might bear, we conclude that, in general terms, this cost does not exist since in almost all the Markets non significant coefficients are found. We therefore can assert that the stock picking ability of ethical fund managers is not worse than that of conventional ones.

Taking into account the results found for gamma coefficients, a perverse Market timing ability, with regard to the conventional benchmark, is shown for both the conventional and the ethical funds.

Finally, the R-squared coefficients found are reasonable, taking into account the explanatory variables included in the model.

Model 5 is constructed from model 3 but conditioning alpha, beta and gamma coefficients to public information variables. In relation with stock picking results, comparing alpha coefficients found in model 3 with those of model 5, we observe that they become positive and significant. The reason is that stock picking ability can be split in two parts; one part arises from public information variables and this is negative; the other part measures the stock picking ability arising from the manager's use of superior information, which represents the managers' real contribution to performance. The results found with models 3 and 5 indicate us that managers do not use public information properly. However, if we remove the public

Ethical mutual fund managers perform better than conventional mutual fund managers

information effect, we obtain the results reached with private information, and, in this case, conventional managers show a good stock picking ability.

In relation with A, which represents the diversification cost for ethical managers, it is true that taking into account model 3, in model 5 there is some additional coefficient with a negative and significant value. However, it is also true that comparing the magnitudes of coefficients alpha and A in model 5, we can conclude that this cost is not important and there is not a great difference with respect to the results found with model 3; that is, the ethical fund managers are not worse in stock picking than the conventional ones.

Regarding Market timing abilities we observe that gamma coefficients have become highly negative and significant, indicating this fact that if we remove public information the manager performs even worse. This result is indicating the possibility that in the presence of an unexpected Market rise (fall), the mutual fund manager have an unexpected inflow (outflow) and he/she has not the capacity to manage this situation. Then, for example, in presence of an unexpected Market rise, there is an important inflow of money in the fund, so the manager increases the liquidity of his/her portfolio which goes against his/her timing.

Finally, if we compare the R-squared found in models 3 and 5, we observe that they are higher in model 5. This fact is due to the introduction of public information variables.

Table 3 reports the results for models 6 (panel A)¹⁵ and 7 (panel B). For each model, we show the α_p parameter, which measures managers' stock picking ability (α_{pC} is for model 6, which assesses conventional fund managers, and α_{pE} for model 7, which assesses ethical fund managers). We also provide the γ_p parameter (γ_{pC} for model 6, γ_{pE} for model 7), which represents managers' Market timing ability; and the final column in the table reports the R-squared coefficient. All these parameters are provided for each country studied.

The results found with model 6 indicate us perverse stock picking and Market timing abilities for conventional mutual fund managers, since we obtain, in general terms, negative and significant alpha and gamma coefficients.

It is interesting to highlight that the results found are the same as those found in model 3 for alpha, beta and gamma coefficients of conventional funds. This is because model 6 is the same as model 3 when D_1 takes the value 0 and D_2 takes the value 1, i.e., for conventional funds. On the other hand, the R-squared coefficients are slightly smaller than those found for model 3. The reason is that in model 6 we do not consider the ethical part of model 3.

Model 7¹⁶ reports the stock picking and Market timing results for ethical funds considering an ethical benchmark. Firstly, taking into account alpha coefficient, we could assert that ethical mutual fund managers are better in stock picking (but in relation with their benchmark) than conventional fund managers (in relation with a conventional benchmark). A possible explanation for this result has been appointed by different authors who think that ethical fund

¹⁵ As the number of ethical funds is much smaller for all Markets than the number of conventional funds, in order to obtain a suitable, reliable comparison of the results obtained for the two groups we use a bootstrap method, forming 10,000 random subsamples of size 101 for Germany, 62 for Spain, 69 for France, 9 for Ireland, 45 for Italy, 22 for Portugal and 50 for the United Kingdom, from the total group of funds, excluding ethical funds. These analyses are carried out on each of these bootstrap samples. The results obtained are very similar, which means that we can confirm that our analyses are not affected by any sample size bias. These results are available from authors upon request.

¹⁶ The great differences we observe between results found for model 7 and the part of results found for model 3 related with ethical mutual funds are due to the consideration of different benchmarks.

Ethical portfolios are more similar to their benchmark than conventional portfolios to their benchmark

Table 3
Treyner and Mazuy Model for conventional and ethical mutual funds

Panel A: Model 6 (conventional funds)			
	α_{pC}	γ_{pC}	R^2
Germany	-0.002***	-2.189***	0.447
Spain	-0.002***	-2.153***	0.455
France	-0.001***	-2.311***	0.460
Ireland	-0.0002	-2.442***	0.423
Italy	-0.002***	-2.136***	0.439
Portugal	-0.001***	-2.375***	0.469
United Kingdom	-0.0003**	-2.231***	0.442
Panel B: Model 7 (ethical funds)			
	α_{pE}	γ_{pE}	R^2
Germany	0.001***	-0.910***	0.763
Spain	0.001*	-0.847***	0.787
France	0.000	-0.726***	0.801
Ireland	0.003***	-1.306***	0.788
Italy	0.000	-1.012***	0.790
Portugal	0.001	-1.262***	0.765
United Kingdom	0.002***	-1.119***	0.763

Notes:

- It has been considered the MSCI Europe as benchmark for conventional mutual funds and the FTSE4Good Europe as benchmark for SR mutual funds.
- The estimation method used is Ordinary Least Squares.
- The standard errors are consistent with the autocorrelation and heteroscedasticity problems (Newey & West, 1987).
- *** significant at 1%, ** significant at 5% and * significant at 10%.

managers have a better knowledge of the securities which make up their investment universe than their conventional counterparts, given that the former have a smaller investment universe to select the values to be included in their portfolios, and this lead them to a better stock picking ability (see, for example, Benson et al., 2006).

With regard to results found for gamma coefficient, we observe that ethical mutual fund managers have a bad performance; they are not able to follow Market timing strategies related with their benchmark, since negative and significant coefficients are reached. On the other hand, if we take into account the magnitude of the coefficients for conventional fund managers in model 6 and we compare them with those for model 7, we can conclude that ethical mutual fund managers perform better than conventional mutual fund managers.

One possible explanation for this result could be found in the fact that in general terms ethical mutual funds have a smaller average size than conventional mutual funds. This provides ethical mutual funds with a higher flexibility and agility to come in and out the Market more quickly.

R-squared coefficients are high, which indicates that ethical mutual fund portfolios are more similar to their benchmark than conventional mutual fund portfolios in relation with their benchmark. This fact is not surprising given the lower number of investment alternatives of ethical mutual funds.

Best-in-class ethical funds are worse at stock picking than ethical funds as a whole

Table 4 reports the results for model 4. It shows the α_p parameter, which is related with managers' stock picking ability (α_{pC} for conventional mutual funds and α_{pE} for SR mutual funds); γ_p parameter which represents fundamentally conventional mutual funds managers' Market timing ability; γ_{pE1} and γ_{pE2} which measure the manager's ability to time the Market following both financial and ethical purposes, so that if the ethical Market rises more than the conventional one, the ethical manager's timing ability would be determined by the addition of the effects of γ_p and γ_{pE1} but if the ethical Market rises less than the conventional one the ethical manager's timing ability would be determined by the difference of the effects of γ_p and γ_{pE2} ; and the final column in the table is the R-squared coefficient. All these parameters are provided for each country studied.

Table 4
Timing model 4 results

Results of model 4						
	α_{pE}	α_{pC}	γ_p	γ_{pE1}	γ_{pE2}	R^2
Germany	0.005***	-0.002***	-2.077***	8.410***	5.993***	0.470
Spain	0.004***	-0.002***	-2.044***	9.539***	5.819***	0.481
France	0.005***	-0.001***	-2.196***	8.211***	6.752***	0.482
Ireland	0.006***	-0.0003	-2.419***	10.886***	4.503***	0.433
Italy	0.004***	-0.002***	-2.049***	7.933***	6.229***	0.464
Portugal	0.004***	-0.001***	-2.249***	5.871***	4.997***	0.497
United Kingdom	0.005***	-0.0004***	-2.169***	12.123***	5.356***	0.460

Notes:

- It has been considered the MSCI Europe as benchmark for conventional mutual funds and the FTSE4Good Europe as benchmark of SR mutual funds.
- The estimation method used is Ordinary Least Squares.
- The standard errors are consistent with the autocorrelation and heteroscedasticity problems (Newey & West, 1987).
- *** significant at 1%, ** significant at 5% and * significant at 10%.

For the case of ethical mutual funds, alpha coefficients are positive and significant and for the case of conventional mutual funds are generally negative and significant. We must be cautious when interpreting the economic significance of these results, given that, although to a certain extent alpha coefficients in model 4 are related to stock picking, we can not interpret them strictly as stock picking indicators given the model specification. However, as commented before, they have a strong relation with stock picking, and the results are robust with regard to those found for models 6 and 7, so we can conclude that ethical mutual funds have this ability.

On the other hand we observe that α_{pC} coefficients are very similar to those found for table 3, but they are not identical because of the model 4 specification where gamma interacts with ethical and conventional funds.

γ_p coefficient is negative and significant, and it is similar to that found for model 3, indicating that fund managers are bad Market timers in general terms.

But perhaps the more striking results for this model are those related with γ_{pE1} and γ_{pE2} . In relation with the first coefficient, we would consider the situation of ethical benchmark performing better than the conventional one. This coefficient is positive and significant for all the Markets indicating that, in this scenario, ethical mutual funds perform better than conventional ones, that is, the ethical funds fit better to their benchmark. In relation with γ_{pE2} ,

Best-in-class ethical funds bear a higher diversification cost

we would consider the situation of conventional benchmark performing better than ethical one. This coefficient is also positive and significant for all the Markets, so if we take into account the model specification where this coefficient is preceded by a minus sign, these results indicate that in this scenario ethical funds perform worse than conventional funds, that is, ethical funds fit better to their benchmark again.

Additionally, it is interesting to observe how in terms of absolute value, γ_{PE1} coefficients are always higher than γ_{PE2} coefficients, this fact indicating that in the first situation (ethical benchmark perform better than conventional one) the improvement in the ethical managers' Market timing ability in relation to that of the conventional managers is higher than the worsening in ethical managers' Market timing ability (in relation to that of conventional funds) in the second scenario (ethical benchmark performing worse than conventional one). This is a signal of global better timing.

R-squared coefficients are higher than those of model 3, which is expected given that in model 4 the ethical benchmark is also included.

Finally, table 5 reports the results found for models 4 and 5 but considering a more restrictive definition of ethical mutual funds (best-in-class). The notation of these models have been defined before but in table 5 we only report the results for the parameters which change

Table 5
Results of models 4-5 considering best-in-class ethical funds

Panel A: Results of model 4 - Best-in-Class				
	α_{pE}	γ_{pE1}	γ_{pE2}	R^2
Germany	-0.003***	9.232***	6.001***	0.405
Spain	-0.005***	9.748***	5.944***	0.477
France	-0.004***	9.527***	6.895***	0.472
Ireland	-0.003***	11.333***	4.777***	0.425
Italy	-0.003***	8.002***	7.232***	0.461
Portugal	-0.006***	6.778***	5.582***	0.485
United Kingdom	-0.005***	13.107***	6.434***	0.403
Panel B: Results of model 5 - Best-in-Class				
	A	R^2		
Germany	-0.023***	0.511		
Spain	-0.025***	0.548		
France	-0.052***	0.517		
Ireland	-0.011***	0.504		
Italy	-0.017***	0.514		
Portugal	-0.062***	0.533		
United Kingdom	-0.074***	0.520		

Notes:

- It has been considered the MSCI Europe as benchmark for conventional mutual funds and the FTSE4Good Europe as benchmark of SR mutual funds.
- The estimation method used is Ordinary Least Squares.
- The standard errors are consistent with the autocorrelation and heteroscedasticity problems (Newey & West, 1987).
- *** significant at 1%, ** significant at 5% and * significant at 10%.

Managers make good use of superior information when selecting investments but not anticipating Market movements

remarkably in relation with those found for models 4 and 5 in tables 4 and 2, respectively, where all the ethical funds of our sample were considered.

Taking into account model 4 (Panel A) we observe that alpha coefficient becomes negative and significant (it was positive and significant before), which indicates that best-in-class ethical funds are worse at stock picking than the group of ethical funds as a whole. The reason could be found in the fact that best-in-class ethical funds have a smaller investment universe. Moreover γ_{pE1} and γ_{pE2} coefficients are higher than before, indicating that when ethical benchmark performs better than the conventional one the best-in-class ethical funds fit even better to their benchmark than the group of ethical funds as a whole, and that when ethical benchmark performs worse than the conventional one, the best-in-class ethical funds also fit even better to their benchmark than the group of ethical funds as a whole; that is, in a bullish ethical Market the best-in-class ethical funds are better at Market timing than the group of ethical funds as a whole and in a bearish ethical Market the best-in-class ethical funds are worse at Market timing than the group of ethical funds as a whole. Finally, the R-squared coefficients are lower than before, which is logical due to the smaller number of ethical funds considered.

Taking into account model 5 (Panel B) we observe that A is more negative and significant than before, indicating that best-in-class ethical funds bear a higher diversification cost than the group of ethical funds as a whole, which is logical taking into account that the investment universe of the former is smaller than that of the latter. In this model also the R-squared coefficient decreases with regard to the model where all the ethical mutual funds are considered.

7. Conclusions

This work seeks to evaluate the stock picking and Market timing abilities of European ethical and conventional fund managers but from a different perspective from that typically used in financial literature to measure these abilities. We use the Treynor and Mazuy Market timing model (1966) and its conditional version according to the notions of Ferson and Schadt (1996) and Christopherson et al. (1998). Using a model with only one conventional benchmark, we make a distinction between ethical and conventional fund managers' stock picking ability because we understand that the stock picking ability of the former is lower than that of the latter due to an opportunity cost arising from a loss of diversification for the ethical fund manager. This leads to a lower stock picking ability for the ethical fund manager, as he/she can only invest in socially responsible stocks. With this model we also analyse the Market timing ability of both managers.

We also make a distinction between ethical and conventional fund managers' Market timing ability but now using a model with two benchmarks, one for the conventional Market and another for the ethical Market, as we believe that the conventional managers follow only financial criteria seeking for greater Market exposure when Markets are more profitable. In the case of ethical fund managers, they incorporate ethical criteria into this Market timing process, and their better results in timing the Market could arise from the better performance of firms carrying out more socially responsible activities.

Furthermore, we run the model with one benchmark (the conventional one) including the public information. However, we do not introduce public information in the model with two benchmarks since both are very correlated and the differences in their returns are due to the restrictions imposed to firms in order to be included in the ethical benchmark and we do not

There are not significant differences between the results obtained for the different European countries

think that public information about the economic cycle, as has been defined in this paper by three variables, has any influence in these differences of returns, but rather they could arise from the better/worse performance of firms following social policies.

We also repeat this conditional model and the model with two benchmarks but taking into consideration a more restrictive definition of the term *ethical fund*. In this way, we evaluate the effect of this definition on managers' abilities. Finally, as a robustness test, traditional Market timing model is applied separately to ethical and conventional fund managers.

We think there are several interesting elements in our work: our comparative analysis of the little-explored collective investment industries; the use of appropriate benchmarks to evaluate ethical and conventional fund managers; as well as the construction of new models. The results are not expected to be conclusive for the superior performance of either ethical or conventional fund managers, as there is no consensus in literature as to whether or not SRI contributes to improving financial performance.

Using the non-conditional model that measures the diversification cost, we find that both managers, ethical and conventional, have perverse stock picking and Market timing abilities, and we also find that the diversification cost does not exist for ethical fund managers. When conditional information is included, the stock picking ability of both groups of managers increases considerably and becomes positive, and the diversification cost remains negligible. This means that managers make good use of superior information when selecting investments. Finally, the Market timing ability of both groups of managers worsens, which indicates that they do not make good use of superior information when anticipating Market movements.

When we consider a model with two benchmarks, one for the ethical Market and another for the conventional one, we obtain that conventional fund managers have perverse stock picking and Market timing abilities and that ethical fund managers are good at stock picking. Moreover we find that ethical fund managers fit always to their benchmark, so when their Market performs better than the conventional one, they do better at Market timing than conventional managers, but when their Market performs worse than the conventional one, they do worse at Market timing than their conventional counterparts.

Our robustness tests confirm all the results obtained from this latter model constructed in this study. This demonstrates their validity.

When a more restrictive definition of the term *ethical fund* is considered (i.e., when only those that we define as *best-in-class* are considered), we observe, as logical, that the opportunity cost borne by ethical fund managers as a result of their loss of diversification increases and becomes significant, which reduces their stock picking ability although it remains positive in some cases. This means we cannot confirm that this worse ability is the result of poor management. Conventional fund managers' stock picking ability is consistent, which is also logical. Conventional fund managers' Market timing ability is also consistent, while that of ethical fund managers improves when ethical benchmark performs better than the conventional one and worsens when ethical benchmark performs worse than the conventional benchmark.

Finally, we would like to highlight that there are no significant differences between the results obtained for the different countries analysed. Therefore, it is possible to speak of a common pattern of behaviour among the European managers examined in this study.

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