Universidade do Minho
Escola de Economia e Gestão

Joana Filipa Rodrigues Carvalho Pena

Essays on Social Screening and Mutual Fund Performance

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Essays on Social Screening and Mutual Fund Performance

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Trabalho realizado sob a orientação da
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I hereby declare having conducted my thesis with integrity. I confirm that I have not used plagiarism or any form of falsification of results in the process of the thesis elaboration.
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"*Success consists of going from failure to failure without loss of enthusiasm*." – Winston Churchill

ABSTRACT

ESSAYS ON SOCIAL SCREENING AND MUTUAL FUND PERFORMANCE

The relationship between social screening and performance is a key theme in the Socially Responsible Investment (SRI) mutual fund industry. Our research focuses on the screening strategies of US and European equity funds over the period from 2003 to 2014, and how they affect fund risk-adjusted returns, the flow-performance relationship, abnormal future returns, and managers' risk-taking behavior.

We start by investigating the relationship between the risk-adjusted performance and the screening strategies. In general, the results support the argument that mutual fund investors can align their investment decisions with their social concerns without sacrificing financial performance. For the global sample and the US subsample, we find a curvilinear relationship (of an inverted U-shaped type) between screening intensity and fund performance. In relation to funds in continental Europe and particularly Scandinavia, we find a positive linear relationship between the number of screens and performance. With regard to UK funds, we find evidence of a negative relationship between the number of sectoral screens and financial performance. The analysis of the different market states allows us to conclude that these results are mainly driven by expansion periods. Furthermore, the results show that the type of the screening activities of SRI funds have a significant impact on risk-adjusted returns. The results also suggest that funds that are certified with social labels tend to yield higher performance.

Secondly, we study the flow-performance relationship and the determinants of future returns. Overall, although we do not observe an asymmetric flow-performance relationship, or a less sensitive one for SRI funds in comparison to their conventional peers, we document that socially responsible investors react negatively to short-term performance and positively to long-term performance, while their conventional peers only seem to focus on current performance. Consistent with socially responsible investors being more loyal, we show significant persistence in UK money flows. Our results also indicate that some social attributes affect the money flows of US and European funds. Additionally, our empirical evidence suggests a relationship between past average flows and future returns for US SRI funds (i.e., a "smart" money effect). Notwithstanding, this effect only exists when we exclude social factors. Differently, for the European (excluding UK) subsample, we document a "smart" money effect which depends on the screening features.

Finally, we analyze the risk-return behavior of conventional and SRI mutual fund managers. Overall, the regression results show that conventional fund managers exhibit strategic behavior. The results for SRI funds are mixed. In particular, we find evidence of tournament (strategic) behavior for the global sample and US subsample when we exclude (include) social variables in the regression approach. For European (with and without UK) subsamples, when we include social factors in the analysis, we document a strategic behavior pattern. For the UK, we detect the presence of tournament behavior. Our empirical investigation also indicates that some social factors influence the risk-taking by SRI managers.

Undoubtedly, we empirically confirm that the heterogeneity among SRI funds affects their financial performance, money flows, and abnormal future performance, as well as managerial behavior. Furthermore, we strongly support that the geographic context, market conditions, and the distinction between types of funds (conventional or socially responsible) are relevant to our conclusions.

RESUMO

ENSAIOS SOBRE O USO DE FILTROS SOCIAIS E O DESEMPENHO DE FUNDOS DE INVESTIMENTO

A relação entre os critérios de seleção de natureza social e o desempenho financeiro é um tema-chave no setor de fundos de Investimento Socialmente Responsável (ISR). Esta investigação aborda transversalmente o processo de seleção social para fundos dos EUA e Europa no período de 2003 a 2014, e o seu impacto na rendibilidade ajustada ao risco, relação fluxo-desempenho, rendibilidades anormais futuras, e nível de risco assumido pelos gestores de fundos.

O primeiro ensaio investiga a relação entre o desempenho ajustado ao risco e as estratégias de seleção social. De um modo geral, os resultados mostram que os investidores em fundos de investimento podem alinhar as suas decisões de investimento com as suas preocupações sociais, sem sacrificar o desempenho. Para a amostra global e para os EUA, encontramos uma relação curvilínea (em forma de U invertido) entre o número de filtros e o desempenho. Em relação aos fundos da Europa continental e da Escandinávia, encontramos uma relação linear positiva entre o número de filtros e o desempenho. Quanto ao Reino Unido, existe evidência de uma relação negativa entre o número de filtros setoriais e desempenho. A análise dos estados de mercado permite-nos concluir que esses resultados são impulsionados por períodos de expansão. Além disso, os resultados mostram que o tipo de filtros aplicados aos fundos ISR tem um impacto significativo nas rendibilidades. Por fim, os resultados também sugerem que os fundos certificados com rótulos de socialmente responsáveis tendem a obter um maior desempenho.

Em segundo lugar, estudamos a relação fluxo-desempenho e os determinantes de rendibilidades futuras. De um modo geral, embora não se observe uma relação fluxo-desempenho assimétrica, ou menos sensível para fundos ISR, documentamos que os investidores socialmente responsáveis reagem negativamente ao desempenho de curto prazo e positivamente ao desempenho de longo prazo, enquanto que os seus pares convencionais apenas se parecem concentrar no desempenho atual. Consistente com o facto de os investidores socialmente responsáveis serem mais leais, é observada uma persistência significativa nos fluxos do Reino Unido. Os resultados também indicam que alguns atributos sociais afetam os fluxos de fundos dos EUA e da Europa. Além disso, existe uma relação entre os fluxos passados e as rendibilidades futuras dos fundos ISR dos EUA (o efeito dinheiro "inteligente") que só existe quando excluímos fatores sociais. De modo distinto, para a subamostra europeia (sem o Reino Unido), esse efeito depende das características sociais.

Por fim, avaliamos o comportamento dos gestores de fundos de investimento convencionais e socialmente responsáveis em relação ao binómio rendibilidade/risco. De um modo geral, os resultados da análise de regressão mostram que os gestores de fundos convencionais apresentam um comportamento estratégico. Os resultados obtidos para os fundos ISR são díspares. Em particular, existe evidência de comportamento de competição (estratégico) para a amostra global e subamostra dos EUA quando excluímos (incluímos) variáveis sociais na análise de regressão. Para as subamostras europeias (com e sem o Reino Unido), quando incluímos os fatores sociais na análise, documentamos um padrão de comportamento estratégico. Para o Reino Unido, detetamos a presença de competição. A investigação empírica também indica que alguns fatores sociais influenciam a tomada de risco pelos gestores de fundos ISR.

Assim, confirmamos empiricamente que a heterogeneidade dos fundos ISR afeta o seu desempenho financeiro, os fluxos de fundos e as rendibilidades futuras anormais, bem como o comportamento dos gestores. Além disso, mostramos que o contexto geográfico, os estados de mercado e a distinção entre tipos de fundos (convencionais ou socialmente responsáveis) são relevantes para as nossas conclusões.

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CHAPTER 1 – INTRODUCTION

1.1. Motivation and purpose of the research

Socially Responsible Investment (SRI) is an approach to investing that considers environmental, social, and corporate governance criteria in order to generate long-term financial returns and positive social impact (US SIF, 2016). Although there does not seem to be consensus on what the term means for investors (Berry and Junkus, 2013), it seems quite clear that unlike traditional investing that focuses only on financial criteria, SRI articulates both financial and social responsibility issues (Derwall *et al*., 2011). In order words, socially responsible investors direct their investments to securities of firms whose products or actions are considered socially acceptable and thus have the opportunity to derive financial and non-financial utility from their investment decisions (Bollen, 2007).

In fact, the practices of socially conscious investing are becoming widely-followed around the world, as reflected in terms of assets under management. The Global Sustainable Investment Alliance (GSIA) states that there are about 23 trillion dollars of assets under management following SRI strategies, which represents an increase of 25 percent in comparison to 2014, and 26 percent of all professionally managed assets globally. Concerning the US SRI industry, the Forum for Sustainable and Responsible Investment (US SIF) reports 8.72 trillion dollars under management in the beginning of 2016, up about 33 percent from the value at the beginning of 2014 (US SIF, 2016). With regard to Europe, the total assets under SRI strategies grew by 12 percent from 2014 to 2016 reaching 12 trillion dollars (GSIA, 2016).

The considerable growth of SRI in the last decades and, in particular, the size of the SRI mutual fund industry worldwide has motivated academics to discuss the implications of considering social criteria in the investment process. One of the most controversial issues in the literature concerns the impact of the social screening process on the performance of investment portfolios. The main purpose of this research is to fill some existing gaps in the literature and provide new insights on the effects of social screening in mutual fund performance. In particular, this investigation comprises three essays on social screening and mutual fund performance, presented in chapters 2 to 4. We address three main research topics concerning (1) social screens as determinants of financial performance, (2) the dynamics of ethical money, and (3) the risk-

shifting behavior of SRI funds. Furthermore, considering that financial markets are increasingly interconnected, we explore a global dataset of equity mutual funds that encompasses mature markets in terms of SRI (the US and Europe), taking into account cross-country differences. According to Salzmann (2012), until recently, the finance literature has largely ignored countries' characteristics such as the cultural, social, legal and political environment. Notwithstanding, these context-specific factors may play an important role in the development of sustainable finance and investment.

Chapter 2 – Social screening and mutual fund performance: international evidence – addresses the question of how the screening process applied by SRI funds, namely with regard to the number of screens applied and qualitative differences between them, impacts the risk-adjusted performance. In Chapter 3 – The dynamics of ethical money: cash flows and returns – we investigate the flow-performance relationship of SRI funds (i.e., how socially responsible money flows react to past returns) as well as their future response (in terms of financial performance) to past money flows (the "smart" money *versus* "dumb" money effect). The purpose of Chapter 4 – Risk-shifting in the socially responsible mutual fund industry: tournament *versus* strategic behavior – is to provide a comprehensive investigation on the behavior of SRI fund managers concerning the risk-return binomial, particularly if managers that are interim "losers" manipulate risk differently from managers that are interim "winners".

As mentioned by Capelle-Blancard and Monjon (2012), academic research on SRI financial performance is somewhat puzzling, and there is a wide range of social issues that have not been fully addressed. The heterogeneity among SRI funds is one example. Thus, we cross-examine (i.e., for the three essays) the impact of different screening dimensions, namely the number of screens applied, the types of screens (environmental, social, governance, products, and shareholder engagement screens), the screening strategy (positive *versus* negative), and the certification by social labels. We test if these screening features impact the financial performance, the flow-performance relationship and future abnormal returns, and the risk-shifting behavior of fund managers. Furthermore, regarding the flow-performance relationship and the risk manipulation by fund managers, we analyze the SRI funds' idiosyncrasies in comparison to a matched sample of non-SRI funds. Since conventional funds follow a strictly financial rationale, whilst SRI funds also integrate a sustainability logic, understanding their differences may contribute to a higher theorization of the socially responsible paradigm, still quite fragmented.

Another important matter concerns the analysis of the temporal differentiation between business cycles (expansion and recession periods). Although responsible investing is commonly associated with long-term practices, we evaluate whether market ups and downs affect the conclusions for financial performance and money flows. To sum up, taken separately or as a whole, these three essays could shed some light on the academic research on SRI and contribute to a more coherent framework.

1.2. Historical roots of SRI

Socially responsible finance and investing go way back in time. Schueth (2003) traces its origins to early biblical times and several religions including the Jewish, Christian, and Islamic religions. In the beginning of the 20th century, the investment practice of religious groups (which boycotted "sin" activities) was noticeable in the US. While this approach to SRI was mainly driven by religious issues, the second half of the 20th century brought social issues into the forefront of SRI. In fact, the modern era of SRI began in the 1960s (Bengtsson, 2008) when movements related to the Vietnam War, civil and women's rights, environmental concerns, and other controversial political and social issues became relevant factors in investment decisions (Bauer *et al*., 2005). Biehl *et al*. (2012) present an extensive chronological overview of social, environmental, and trust issues, dividing SRI history into 9 periods, as follows:

A) Pre-1940s: The Early Centuries;
B) 1940s: The Post-World War II Era;
C) 1950s: The Discovery of Pension Funds as a Tool;
D) 1960s: The Movement Decade;
E) 1970s: The Organization and Implementation Decade;
F) 1980s: The Decade of Societal and Political Attention;
G) 1990s: Social, Environmental and Trust Issues Reach Finance;
H) 2000s: The Era of Responsible Investment Starts;
I) 2010s: Trust Issues Enter the Stage and Social and Environmental Issues Enter the Mainstream.

The first era is dominated by the activism of individuals and small groups like John Wesley and the Quakers, respectively. John Wesley, cofounder of the Methodist Church, formulated

guidelines for the responsible use of money, which are considered the first social and environmental exclusion rules. The Quakers are a religious group known for their boycott of slavery and avoidance of investments in weapon manufacturers – they are considered the first group of ethical investors (Bauer *et al*., 2005). Additionally, the first SRI fund – the Pioneer Fund – was created in the United States in 1928, applying screens based on religious prohibitions (Renneboog *et al*., 2008a).

The second period is mainly marked by the United Nations' adoption of the Declaration of Human Rights (in 1948), in aftermath of World War II. In the 1950s, labor unions slowly began playing an active social role and started to use new business tools (like buying corporate stocks and making proposals to invest in pension funds) to support their social claims. Environmental issues also surfaced on societal and political agenda. In 1952-1953, hundreds of people died in London due to smog caused by coal fire emissions. As a consequence, the British Parliament created in 1956 the first piece of environmental legislation – the Clean Air Act.

The 1960s defined a decade of social movements: civil rights, consumer rights, labor rights, anti-Vietnam war, gender equality, and anti-apartheid. In the 1970s, the ideas introduced in previous decades were beginning to get formally organized and implemented in societal and political systems. For example, social issues about the Vietnam War influenced business activities and investments, and labor unions continued to gain influence over pension funds. In 1971, to target militarism and inspired by the opposition to Vietnam War, the first open-end SRI fund in the United States – the Pax World Fund – was created (Renneboog *et al*., 2008a).

By the 1980s, the social movements of the 1960s and the rise of environmental concerns during the 1970s had already shaped general public opinion. Notwithstanding, the problems caused by irresponsible economic growth become apparent especially after several environmental accidents and scandals, namely the Chernobyl nuclear power plant accident (1986) and the spillover of crude oil by Exxon Valdez (1989). These accidents dramatically illustrated the costs of environmental incidents. By the end of the 1980s, environmental issues were on the spotlight, as reflected in the emergence of specialized environmental funds. In social terms, the dominant issue was South Africa and the apartheid regime, which received the attention of social investors who pressured investment firms not to include South African firms in their portfolios.

Although historically the origins of SRI are usually associated to the United States, which is one of the largest markets of SRI, investing with a social agenda is also a common practice in

Europe. Whilst the first European open-end SRI fund (Aktie Ansvar Aktiefond) was actually launched in Sweden in 1965 (Bengtsson, 2008), in the United Kingdom the first ethically screened mutual fund was launched only in 1984 – the Friends Provident Stewardship Fund. Also during the 1980s, the United Nations World Commission on Environment and Development published the Brundtland Report, entitled "*Our Common Future*", which resumes the debate on environmental issues.

Besides SRI mutual funds, the emergence of social and ethical indices reflects the increasing importance of SRI in financial markets. For instance, in 1990, the Domini Social Index was created and, in 1999, the Dow Jones Sustainability Development Indices emerged. In the next decade, the consequences of globalization became apparent. The power of companies increased through deregulation and globalization of markets, and the subprime crisis that emerged in the US and its direct consequences worldwide – global recession – hit the economy. In the court of public opinion, the consequences of the economic crisis, such as the loss of employment, were directly linked to banks and the financial sector in general. The series of corporate ethical and accounting scandals that were exposed in the beginning of this decade (e.g., WorldCom and Enron) and the events associated with the 2008 crisis have further contributed to the public awareness of the role of corporate governance mechanisms. In terms of environmental issues, in 2005 the European Union launched the largest multinational trading scheme for greenhouse gas emissions. Further, the United Nations launched the Principles for Responsible Investment (PRI), encouraging SRI by institutional investors. By January 2018, over 1900 institutional investors worldwide signed the PRI[1].

In the beginning of the decade of 2010, the environmental catastrophes dominated. In 2010, the British Petroleum (BP) oil rig called Deepwater Horizon exploded and sunk. Because of the emergency systems failed to stop the oil flow, more than four million barrels of crude oil leaked into the Gulf of Mexico. In 2011, an earthquake and tsunami led to a core meltdown in the Tepco nuclear power plant in Fukushima, Japan. Both events led to a global increase in regulations concerning deep sea drilling and nuclear power. Besides the environmental disasters, a severe financial crisis – the European sovereign debt crisis – shook the Eurozone in 2011. As with the international financial crisis, public opinion quickly blamed on banks, and rating agencies and called for more ethical practices as a means to promote stability in the financial system.

[1] www.unpri.org

1.3. Recent trends

In recent years, SRI has become increasingly popular. Remarkably, although a considerable number of academic papers have been published, covering essentially the performance of SRI funds (in contrast to non-SRI funds), the ambiguity on the actual performance of SRI remains an open challenge, and little is known about the reasons why investors engage in socially responsible practices. Thus, it is imperative to find new approaches to address this issue, particularly in terms of research questions, methodologies, geographic markets, among others. In fact, several authors (e.g., Hoepner and McMillan, 2009; Capelle-Blancard and Monjon, 2012) claim the need for more conceptual and theoretical work in the SRI research area, as well as the development of a social performance indicator, to score and classify mutual funds with respect to social responsibility. In this sense, the range of topics has been expanding, and topics besides performance measurement, are emerging.

Regarding this thesis, we focus on three major issues, still largely unexplored in the SRI academic literature. In particular, we study the impact of several screening characteristics on risk-adjusted performance. Although some studies address this issue, we provide a novel and multi-dimensional analysis (covering screening intensity, types of screens, sectoral and transversal screening, positive screening, and labels), for an international sample (US and Europe). Additionally, we explore the question of the flow-performance relationship, and the dichotomy "smart" *versus* "dumb" money. A large body of research has been devoted to these matters, but mainly for conventional funds. We go further than previous studies on SRI funds and investigate the influence of screening on money flows and future abnormal performance. In both essays, we examine the relationships across different market states (expansion and recession periods). As far as we are aware of, we are one of the first to perform such analysis in the context of flow-performance relationship and future abnormal performance. In the third essay, we revisit the question of tournament *versus* strategic behavior in the SRI mutual fund industry. To the best of our knowledge, we are the first to incorporate social factors as determinant of managers risk-taking behavior.

Beyond the themes addressed in our essays, other "hot" topics in the SRI field include social preferences experiments, the analysis of the funds' holdings, social ratings, and new methodological frameworks (e.g., portfolio optimization).

By way of example, Bauer and Smeets (2015) and Riedl and Smeets (2015) focus on the standpoint of experimental finance. Taking as reference the clientele of two explicitly socially responsible banks, Bauer and Smeets (2015) show that social identification (aspect of self-image based on in-group preferences and perception of belonging to a social group) plays an important role in investment decisions. In the same line of research, Riedl and Smeets (2015) empirically investigate the role of financial motives, social signaling and intrinsic social preferences as drivers for investors to hold SRI equity funds. The authors find that social preferences are the major factor determining the likelihood to hold SRI, and that social signaling also plays a role in ethical investment decisions. Contrary to standard finance theory, the financial factor has a subordinate role.

Another recent development in the SRI academic research concerns the analysis of the funds' holdings. Utz and Wimmer (2014) conclude that, when analyzing fund holdings, the label "socially responsible mutual fund" does not in any way guarantee the exclusion of unethical firms. Within a similar line of research, Borgers *et al.* (2015) find that exposure to socially sensitive stocks is weaker for funds that aim to attract socially conscious investors, and it relates with local political and religious factors. Mutual fund holdings reveal a positive and statistically significant relationship between the weight in "sin" stocks and a fund's risk-adjusted return. In turn, Humphrey *et al.* (2016) apply a holdings-based analysis to explore the differences between SRI and conventional funds (namely concerning managers' skills and style exposures). The authors conclude that, although there are some differences between the two types, the universe of SRI and conventional funds is very similar in terms of return and style.

Concerning social ratings, though there is considerable literature (e.g., Derwall *et al*., 2005; Kempf and Osthoff, 2007; Galema *et al*., 2008; Statman and Glushkov, 2009), the topic is yet an open research field (Wallis and Klein, 2015). Indeed, the number of studies that aim to determine how socially responsible a mutual fund is based on a rating approach keeps growing. For example, Utz and Wimmer (2014) also examine ethical performance (to analyze whether socially responsible mutual funds are more ethical in general than conventional mutual funds) making use of the social ratings from ASSET4 Thomson Reuters Datastream and Bloomberg. In turn, Halbritter and Dorfleitner (2015) apply environmental, social and governance (ESG) ratings of ASSET4 Thomson Reuters Datastream, Bloomberg and KLD to investigate the link between the corporate social and financial performance. Similarly, Petrillo *et al.* (2016) present a methodology

that takes into account the different ESG considerations, with the purpose of providing individual passive investors a ranking of mutual funds based on their degree of social responsibility. For ESG-screened bond funds, and using also a portfolio holdings evaluation, Henke (2016) shows that managers of SRI bond funds outperforming their conventional peers appear to exclude bond issuers with the highest ESG risks, as indicated by the lowest ESG ratings.

With particular emphasis on the portfolio optimization area, some recent papers offer new methodological perspectives to the unsolved debate in social finance. To understand whether SRI is merely a sales pitch or whether fund managers really take social responsibility into account during the investment process, Utz *et al.* (2014) apply inverse portfolio optimization in a tri-criterion (risk, return, social responsibility) framework to SRI mutual funds. The authors find that, after the screening stage, there appears to be no significant evidence that social responsibility issues are taken into account in the asset allocation process. In a follow-up study, Gasser *et al*. (2017) revisit Markowitz (1952) portfolio selection theory and define a three-dimension capital allocation scheme that allows investors to incorporate their personal preferences regarding risk, return and social responsibility. Differently, Statman and Glushkov (2016) construct a factor model that extends the common four-factor asset pricing model into a six-factor model by adding two social responsibility factors: the top-bottom factor, consisting in the difference between the returns of stocks of companies ranked in the top third and the bottom third by five social responsibility criteria, and the accepted-shunned factor, consisting in the difference between the returns of stocks of companies commonly accepted by socially responsible investors and the returns of stocks of companies that commonly shun (companies in the alcohol, gambling, firearms, military, and nuclear industries). Those factors are used to classify and measure the performance of mutual funds along a range from high social responsibility to low social responsibility.

1.4. Plan of presentation

This research is organized into 5 chapters. We start with a brief introduction (provided in Chapter 1) which first discusses the motivation and purpose of this thesis. We also present the historical background of responsible investment and new trends in the academic literature.

The empirical analysis is structured into three chapters (chapters 2 to 4), which represent three essays on socially responsible investing. Each of these chapters starts with an introduction,

which describes its main objectives, results and contributions. Then, we discuss prior academic research, followed by the research hypotheses. Afterwards, we describe the data, present the methodologies used, and analyze the empirical results. Finally, we discuss the main conclusions of each essay. Chapter 2 explores the impact of the screening characteristics on SRI funds' financial performance. Next, chapter 3 analyzes the flow-performance relationship and the existence of a "smart" or "dumb" money phenomenon. Chapter 4 highlights the behavior of fund managers in order to assess how they manipulate risk as response to prior performance (tournament *versus* strategic behavior).

Finally, in chapter 5, we summarize the main results of the three essays, and explain how their integration contributes to the existing literature. We also point out the main limitations and present some suggestions for future research.

CHAPTER 2 – SOCIAL SCREENING AND MUTUAL FUND PERFORMANCE: INTERNATIONAL EVIDENCE

2.1. Introduction

The increasing growth of socially responsible investments around the world has led to an intense debate among academics and investors on whether there is a premium or penalty for holding SRI funds. Investing with ethical concerns has clearly gone from margin to mainstream (Revelli, 2017), but there are still some issues in embracing SRI principles, mainly because some literature does not exclude a price for ethics.

What makes a fund socially responsible? There is no single and universal definition of what criteria a mutual fund should follow to be considered an ethical or socially responsible fund (Dunfee, 2003). Ultimately, the degree of heterogeneity in the criteria used by SRI funds reflects the diversity of investors' values. Despite the heterogeneity of SRI funds, many studies treat them as a homogenous group (Ferruz *et al*., 2012). According to Galema *et al.* (2008) and Derwall *et al.* (2011), among others, one of the reasons why the empirical literature yields scarce significant relations between socially responsible investing and returns is the aggregation of different social dimensions that may have confounding effects in financial performance. In fact, Schlegelmilch (1997) metaphorically defines ethical investment as an "*umbrella term for a wide variety of products*". Since socially responsible investors typically consider a multitude of criteria that can be contradictory or even mutually exclusive (Dunfee, 2003; Kempf and Osthoff, 2007), we should focus on the heterogeneity within SRI funds.

SRI funds use different screens that reflect the criteria used to filter for socially responsible companies. According to Kinder and Domini (1997), screening is the expression of the investors' values and societal concerns in a way that allows its application in the decision-making process. Through screening, SRI funds restrict their investments to firms that are engaged in social practices in specific stakeholder-oriented issues, or to those that are not involved in socially irresponsible activities or products. The latter approach may involve the exclusion of not merely certain firms, but entire industries and even economic sectors. The selection process can thus have significant implications in the financial performance of an investment portfolio (Barnett and Salomon, 2006). Yet, in the academic literature, there are still few studies that investigate the impact of different

screening strategies on SRI fund performance. This type of studies can provide further insights on previous research that suggests that SRI funds exhibit no significant performance differences from conventional funds.

Since the screening strategies applied to SRI portfolios impose constraints to the investment universe, the risk-adjusted returns of a socially screened portfolio can be lower relatively to an unrestricted one. Nevertheless, the use of specific social screens may allow portfolio managers to identify companies with sustainable competitive advantages, reflected in improved future performance. Thus, the issue of the screening strategies used must be taken into account to understand how SRI funds perform relative to their conventional peers, and if socially responsible investors are "*doing well while doing good*" (Hamilton *et al*., 1993). The analysis of the relationship between the features of the non-financial screening process and the financial performance of SRI funds will shed some light on the financial advantage (or disadvantage) of selecting socially constrained funds.

In this context, the central aim of this essay is to investigate how the screening process, i.e., the number of screens and qualitative differences in the screens used, affects risk-adjusted performance, and also if the impact of the screening processes differs worldwide. This study comprises data from socially responsible mutual funds domiciled in European countries and in the US, so we can assess geographically if there is a "*don't mix money and morality*" philosophy (Goldreyer *et al*., 1999). The analysis of whether there are geographical differences in the impact of the screening process on SRI fund performance is relevant, considering the different patterns of responsible investments' development around the world. In fact, several studies recognize the contextual nature of SRI practices and confirm regional and cultural idiosyncrasies in socially responsible investing (e.g., Louche and Lydenberg, 2006; Bengtsson, 2008; Neher and Hebb, 2016). Thus, different social concerns may vary considerably in geographic terms, especially in terms of screening strategies. As Sandberg *et al*. (2009) suggest, cultural differences might be one explanation for heterogeneity in the field of responsible investing.

We contribute to the mutual fund literature in several ways. To the best of our knowledge, this is one of the first studies to investigate the financial performance effects of the screening process in SRI funds in Europe and in the US. Although there are some papers in the SRI fund literature that explore the impact of screening, with the exception of Renneboog *et al.* (2008b), extant evidence is geographically limited. For example, Barnett and Salomon (2006) and Lee *et al.*

(2010) focus on US funds, whereas Laurel (2011) analyzes European funds, and Capelle-Blancard and Monjon (2014) restrict their investigation to French funds. And although Renneboog *et al.* (2008b) evaluate SRI fund performance for different countries worldwide, the analysis of the relation between screening and performance is performed at the aggregate level and not by geographical region or country. Furthermore, our analysis considers the multiple dimensions of the social screening process. Previous studies include one or a just a few of these dimensions such as screening intensity and type of screens, screening signal (positive *versus* negative), or sectoral and transversal screens. We consider all these dimensions as part of the screening process. Additionally, as far we are aware of, we are the first to include social labels as a potential determinant of the financial performance of SRI funds. Finally, we explore the impact of the screening process on SRI fund performance in different business cycles (expansion and recession periods).

For the global sample and for US funds, our analysis shows that screening intensity has a statistically significant impact on performance, specifically an inverted U-shaped effect: funds that screen more strictly have better risk-adjusted returns until a certain extent of screens; then, the returns start to decline. European (with the exception of UK) and Scandinavian SRI funds in particular exhibit a linear positive relationship between screens and returns whilst, in line with the work of Capelle-Blancard and Monjon (2014) for French funds, there is evidence that sectoral screens decrease the financial performance of UK funds (transversal screens have no effect). We should also highlight that the conclusions for the whole sample, and US and European (except UK) subsamples, only stand during expansion market states (there are no significant results in recessions).

Our findings also show that the type of screens used impact the performance of SRI funds. In particular, governance-oriented SRI funds are financially rewarded, considering the global sample and the US subsample. Besides that, environment- and products-oriented US SRI funds appear to have lower returns. In terms of social labels, we find weak evidence that US and European funds which are certified with such labels tend to have better performance, meaning that funds awarded for meeting high sustainability standards may benefit from improved financial performance.

Our results are relevant for several reasons. First, we obtain statistically significant empirical evidence for a worldwide sample of SRI funds, which is important considering the

different cultural and legislative environments of the countries considered. Second, we document relevant results (in terms of screening intensity and qualitative differences in the screens) concerning the US, the biggest responsible investment player in the world, continental Europe, and Scandinavian countries, who were among the first in the world to introduce regulatory frameworks and standards to promote social responsibility activities in financial management (Sandberg *et al*., 2009). To the best of our knowledge, we are the first to document results on the impact of screening strategies in respect to such relevant market for responsible investing. Finally, our study shows that the certification by social labels tends to enhance funds' financial performance, when considering the whole sample (US and European countries), which we consider a new insight on the financial merits of social attributes.

2.2. Prior research

2.2.1. Do social screens impact portfolio performance?

During the last decades, the SRI industry has experienced a high growth and became very fashionable. This trend was further supported by investors' reactions to well-known corporate and environmental scandals that became public in the beginning of the millennium, and their increased sensitivity to issues such as emissions control, global warming, human rights, labor and community relations.

Nevertheless, despite the increasing popularity of socially responsible investing, some academic studies are cautious about the claims made on its behalf. For example, Watson (2011) indicates that there appears to be a marketing strategy in the SRI sector, exploiting the currently high positive social sentiment amongst investors. Utz and Wimmer (2014) also question the social level of SRI labelled funds given that these funds, on average, do not hold socially responsible firms to a greater extent than conventional funds do.

Even though there are many arguments pointed out in favor of a positive or negative relationship between financial performance and Corporate Social Responsibility (CSR), there is still an ongoing debate on how adding an ethical dimension to the stock selection process impacts returns. On the empirical side, an overwhelming body of research has tested these different predictions. For example, Statman and Glushkov (2009) show that stocks of companies with high

scores on social responsibility issues outperform companies with poor social records but also that socially controversial stocks (e.g., tobacco, alcohol, gambling and firearms companies) earn abnormal positive returns relative to portfolios that shun those stocks. In turn, Diltz (1995) finds that employing environmental and military screens leads to a significantly positive performance, and Renneboog *et al.* (2008b) conclude that funds adopting a community involvement policy have better returns. On the other hand, Chong *et al.* (2006) find that the risk-adjusted performance of stocks in the Vice Fund (the antithesis of socially responsible investing) is superior to both the Domini Social and the Standard & Poor's 500, and Fabozzi *et al.* (2008) and Hong and Kacperczyk (2009) show that "sin" stocks (alcohol, tobacco, gaming) outperform the market. This evidence is consistent with the existence of two different types of investors in the SRI market: profit-driven and values-driven investors, as proposed by Derwall *et al*. (2011). This segmentation has implications in the way the screening process impacts portfolio returns, in what Derwall *et al*. (2011) term the shunned-stock hypothesis[2] and the error-in-expectations hypothesis[3].

Although each SRI fund is practically unique in the way it offers a specific combination of investments personalized to the social needs of a particular group of investors, Renneboog *et al.* (2008a) identify four generation of screening processes. The first generation of screens is characterized by the enforcement of negative screens, by specifying stocks or industries that should be excluded from SRI portfolios on the basis of social, environmental and ethical criteria. Alcohol, tobacco, and gambling typically represent the most common restrictions used in negative screening strategies. Positive screens constitute the second generation of screens, and involve selecting stocks of companies that accomplish superior standards of CSR in specific dimensions such as community involvement, environment, diversity, employee relations, among others. Positive screening strategies are often combined with a "best-in-class" approach, according to which firms are ranked within each industry or market sector based on social criteria. Renneboog *et al.* (2008a) highlight that US and UK markets are more focused on negative screens, while positive screens and the "best-in-class" strategy are more popular in continental Europe. The third generation of screens refers to an integrated approach of selecting companies based on the economic, environmental and social criteria comprised by both negative and positive screens ("triple bottom

[2] The shunned-stock hypothesis predicts that socially controversial stocks trade at relatively lower prices because values-driven investors refuse to hold stocks that do not comply with their societal and personal values.
[3] The error-in-expectations hypothesis predicts that SRI portfolios can deliver superior returns if the market systematically undervalues value-relevant information on CSR.

line"), and the fourth generation combines the third generation with shareholder activism (attempt to influence the companies' actions through direct dialogue with the management, or by the use of voting rights).

2.2.2. Theoretical arguments

Theoretically, two opposing views emerge as crucial to the discussion on the financial merits of considering socially responsible criteria in the investment process. These two approaches have been competing with each other to provide plausible explanations to the impact of social screening on portfolios' performance – this is known in the literature as the debate between Markowitz (1952) and Moskowitz (1972) (Kurtz, 1998).

The first approach is motivated by modern portfolio theory and claims that including socially responsible criteria in the portfolio selection process will imply a financial penalty. According to Markowitz (1952), social screens constrain the portfolio mean-variance optimization framework and the limitations imposed by screening reduce the potential diversification of SRI portfolios. The exclusion of specific companies, and perhaps entire sectors, can be reflected in higher levels of risk (Barnett and Salomon, 2006). Additionally, assuming markets are efficient and stock prices fully reflect all available information (Fama, 1970), rational utility-maximizing investors will consider all publicly available information about a firm's actions, including CSR, and its impact on cash flows (Orlitzky, 2013), thus preventing social considerations to generate abnormal positive returns. Finally, the implementation of social screens involves increased costs of obtaining and monitoring information (Barnett and Salomon, 2006; Areal *et al*., 2013).

Alternatively, another viewpoint suggests that the information associated with CSR may not be properly incorporated in the prices of securities, allowing portfolios constructed on the basis of this information to provide superior returns, as in Moskowitz (1972). A key assumption underlying this hypothesis is that stock markets misplace information on CSR in the short run such that SRI funds may outperform conventional funds in the long run (Renneboog *et al*., 2008b). Advocates of socially responsible investing argue that screening practices allow fund managers to generate value-relevant non-public information on issues such as managerial competence and superior corporate governance (Renneboog *et al.* 2008a). Accordingly, social criteria are useful tools to identify companies with higher management quality (Bollen, 2007). As a consequence,

the potential loss of efficiency as a result of the use of a restricted universe of securities can be more than offset by the inclusion of companies representing better investment opportunities (Barnett and Salomon, 2006). This viewpoint, supported by stakeholder theory (Freeman, 1984), is consistent with the argument that social investors have a multi-attribute utility function that does not just include risk-reward optimization, but also incorporates personal and societal values (Bollen, 2007).

In sum, modern portfolio theory holds that social responsibility will damage financial performance. However, consistent with stakeholder theory, proponents of socially responsible investing argue that some firms can be consistently better financial performers than others because of their social oriented characteristics (Barnett and Salomon, 2006). It is clearly a debate between two paradigms, namely the traditional paradigm, and a new paradigm consistent with behavioral finance, which advocates that investors incorporate variables as happiness and non-financial profits in their investment decisions. However, it can be argued, as in Barnett and Salomon (2006), that both perspectives, instead of being competitors, are in fact complementary, and the relationship between social and financial performance may be curvilinear, and not strictly monotonic.

2.2.3. Empirical evidence

Most empirical studies find that the performance of SRI funds is not statistically different from the performance of conventional funds. Among others, Hamilton *et al.* (1993), Goldreyer *et al.* (1999), Statman (2000) and Bello (2005), for US funds, Luther *et al.* (1992), Mallin *et al.* (1995) and Gregory *et al.* (1997) for UK funds find similar results in the sense that SRI fund performance is no better or worse than that of non-SRI funds and benchmark indices. Studies focusing on other individual markets, including Scholtens (2005) on Dutch funds, Bauer *et al.* (2006, 2007) on Canadian funds and Australian funds, respectively, Fernandez-Isquierdo and Matallin-Saez (2008) on Spanish funds, and Leite *et al.* (2018, forthcoming) on Swedish funds, find similar results. Other studies, such as Schröder (2004), Bauer *et al*. (2005), Kreander *et al.* (2005) and Cortez *et al.* (2009, 2012) focus on multiple markets and also find that the performance of SRI funds is not

statistically different from that of their conventional peers[4].

It is important to note, however, that these studies analyze SRI fund performance disregarding the fact different funds might use different screening strategies, which may impact performance in different ways. Recently, several papers move away from the simplistic search of answers for the performance of SRI funds as a whole, and focus on the question of "*when does it pay to be good*" (Capelle-Blancard and Monjon, 2014).

The analysis of the distinct screening characteristics used by SRI funds may play an important role in clarifying this issue. Barnett and Salomon (2006) and Renneboog *et al.* (2008b) are two seminal studies that find that screening intensity and some dimensions of social responsibility are intrinsically related to a higher financial performance.

Barnett and Salomon (2006) find a curvilinear relationship between screening intensity and financial performance for US funds. In particular, when the number of social screens used by a SRI fund increases, financial returns decline at first, but then rebounds as the number of screens reaches a maximum. This suggests the two long-competing viewpoints (modern portfolio and stakeholder theories) may be both valid. These results are consistent with a trade-off between the effects of diversification and selective choice of socially responsible companies, and so "middle" funds may be the most penalized, since they may not be able to effectively eliminate unsystematic risk, or keep away from their portfolios companies with worst performance. Additionally, Barnett and Salomon (2006) find that financial performance varies with the types of social screens used: community relations screening increases financial performance, whereas environmental and labor relations screening decrease financial performance.

To determine if investors pay (or not) a price of ethics, Renneboog *et al.* (2008b) investigate the under- and outperformance hypotheses for US, UK and European and Asia-Pacific SRI funds. The authors find that high screening intensity constrains the risk-return optimization and fund returns decrease with screening intensity on social and corporate governance criteria, but not on ethical or environmental criteria. The number of ethical screens, "sin" screens, or environmental screens do not have significant impact on performance. Lee *et al*. (2010), for US SRI funds, and Capelle-Blancard and Monjon (2014), for French SRI funds, observe that a high number of screens

[4] There are a few exceptions to this type of results. For instance, Gil-Bazo *et al.* (2010) show that US SRI funds outperform conventional funds. In contrast, Renneboog *et al.* (2008b) find that SRI funds in France, Ireland, Sweden and Japan, perform worse than their conventional peers. For a more detailed analysis, see the meta-analysis of SRI portfolio performance studies of Revelli and Viviani (2015), who conclude that SRI funds do not perform differently than conventional funds.

negatively impacts performance, while Humphrey and Lee (2011) find weak evidence that screening intensity increases risk-adjusted performance of Australian funds. Lee *et al.* (2010) also suggest that screened portfolios are able to obtain adequate levels of diversification (they find no relation between idiosyncratic risk and screening intensity), whilst Capelle-Blancard and Monjon (2014) highlight that only sectoral screens (such as avoiding "sin" stocks) decrease financial performance; transversal screens have no impact. Like Barnett and Salomon (2006), they also find that the initial negative effect is partly offset as the number of screens increases.

With respect to the risk-return binomial, and for a dataset of European socially responsible funds, Laurel (2011) finds that screening intensity has no effect on returns but has a curvilinear effect on risk. This means that funds with the least amount of screens have lower risk; this risk increases with the number of screens but then again decreases at high screening intensity (inverted U-shaped effect).In line with these studies, Renneboog *et al.* (2011) show that the flow-performance relationship for socially responsible investors depends on the types of screens used and on screening intensity[5].

Table 2.1. summarizes the main features and contributions of the papers that have addressed the relationship between the intensity and social dimensions of screens used by SRI funds and financial performance.

[5] Issues related to the flow-performance relationship of SRI funds will be further explored in the next chapter.

Table 2.1. Studies on the impact of screening on financial performance

This table briefly summarizes data information, methodology, and empirical results of the main studies on the relationship between screening and SRI fund performance.

	Number of SRI funds	Geographic Focus	Period	Methodology for evaluating performance	Main results/conclusions
Barnett and Salomon (2006)	61	US	1972-2000	CAPM	Curvilinear relationship between social screens and financial performance; some types of social screens are linked to a higher financial performance.
Renneboog *et al.* (2008b)	440	Europe, North America, Asia-Pacific (17 countries)	1991-2003	CAPM; Fama and French (1993); Carhart (1997)	High screening intensity constrains the risk-return optimization; the SRI screening activities matter.
Lee *et al.* (2010)	61	US	1989-2006	Carhart (1997)	Negative (curvilinear) relationship between performance (systematic risk) and screening intensity.
Humphrey and Lee (2011)	24	Australia	1996-2008	Fama and French (1993); Carhart (1997)	Weak evidence that more highly screened portfolios offer higher risk-adjusted returns; positive (negative) screening reduces (increases) funds' risk.
Laurel (2011)	177	Europe (14 countries)	1980-2010	CAPM	Screening intensity has no effect on returns but has a curvilinear effect on risk.
Capelle-Blancard and Monjon (2014)	116	France	2004-2007	CAPM	Screening intensity reduces financial performance; only sectoral screens decrease financial performance.

Besides evidence that the type of social screens used can influence SRI fund performance, there are also some studies at the corporate level that show a relationship between specific dimensions of CSR and financial performance, and studies which focus on subsets of SRI funds (mainly green and religious funds).

Concerning CSR, some authors show that firms that have good labor relations will benefit in terms of improved performance. For example, based on KLD ratings, Kempf and Osthoff (2007) and Statman and Glushkov (2009) report significant outperformance of portfolios of companies that perform well on the employee relations dimension. Based on the performance of America's

100 Best Corporate Citizens, Brammer *et al.* (2009) support this type of findings. Additionally, Edmans (2011) demonstrates that an annually rebalanced portfolio of companies included in *Fortune* magazine's "100 Best Companies to Work for in America" list outperforms the benchmarks.

A growing body of empirical literature also reports a positive relation between corporate environmental performance and firm value. Klassen and McLaughlin (1996) study the effect of published reports of events and awards on firm valuation and find that the marketplace rewards firms which minimize their adverse environmental impact, or improve their environmental programmes. In turn, Konar and Cohen (1997) show that polluting firms lose market value in a one-day window following the release of Toxic Release Inventory information, and Russo and Fouts (1997) complement previous work suggesting "*it pays to be green*". According to Dowell *et al.* (2000), firms adopting a stringent global environmental standard have much higher market values than firms with less stringent, or poorly enforced standards. King and Lenox (2001) also find evidence of an association between lower pollution and higher financial valuation, whereas Konar and Cohen (2001) suggest that firms that are disposing of relatively smaller amounts of toxic chemicals, and those that are confronted with few or no environmental lawsuits, tend to have higher market value. Derwall *et al.* (2005) show that a portfolio of companies labelled the most eco-efficient significantly outperform their least eco-efficient counterparts, and Salama (2005) points out that it appears that investors who target environmentally admirable companies do not incur a financial penalty. Following the same line of reasoning of Derwall *et al.* (2005), Guenster *et al.* (2011) report that corporate environmental performance relates positively to operating performance and market value.

In contrast, other studies – e.g., Cordeiro and Sarkis, 1997; Filbeck and Gorman, 2004; de Haan *et al*., 2012 – support a negative relationship between environmental and financial performance. Cordeiro and Sarkis (1997) show a significant negative relationship between corporate environmental activism and earnings per share performance forecasts, whilst Filbeck and Gorman (2004) demonstrate a negative relationship between financial return and a pro-active measure of environmental performance in electric utilities. Employing the Carhart (1997) four-factor model plus a fifth factor that captures risks associated with corporate environmental performance, de Haan *et al.* (2012) also find a negative relationship between environmental performance and stock returns.

Considering different dimensions of CSR, other studies document a positive impact in the financial performance of firms with good community relations (Waddock and Graves, 2000; Simpson and Kohers, 2002; Rodgers *et al*., 2013) and customer relations (Rodgers *et al*., 2013). Waddock and Graves (2000) show that companies that invest in stakeholder relations have above-average values of accounting performance measures, while Simpson and Kohers (2002), using the Community Reinvestment Act as a measure of social performance, support a positive link between social and financial performance. Additionally, the study of Rodgers *et al*. (2013) on the top corporate citizens provides evidence that two dimensions of CSR – customer and community relations – have a positive effect on both financial health and market value of firms.

At the mutual fund level, academic research that focus on a particular criterion is still emerging, but there are already some studies that focus on the performance of funds that use specific screens like green or religious funds. In what concerns green investments, most empirical studies show that environmental mutual funds do not perform differently (e.g., White, 1995; Mallett and Michelson, 2010; Climent and Soriano, 2011; Muñoz *et al*., 2014a), or underperform their conventional counterparts and/or the market (e.g., Climent and Soriano, 2011; Chang *et al*., 2012; Ibikunle and Steffen, 2015; Silva and Cortez, 2016).

White (1995) shows a similar (inferior) performance of German (US) green funds in relation to market. Later, Mallett and Michelson (2010) conclude that there is no real difference in terms of performance between green funds and SRI and index funds, whilst Climent and Soriano (2011) find that green funds have lower performance (or similar if we consider a shorter sample period) than conventional funds with similar characteristics. Chang *et al.* (2012) also show that US green mutual funds generate lower returns and similar risks relatively to US conventional mutual funds. Muñoz *et al.* (2014a) show a similar performance between green and other SRI funds, regardless of the market cycle (crisis or non-crisis). Ibikunle and Steffen (2015) show that green funds significantly underperform their conventional peers, while there are no statistical differences between green and black (fossil energy and natural resource) funds. More recently, Silva and Cortez (2016) show that US and European global green funds tend to underperform the benchmark, particularly in non-crisis periods.

Besides green funds, another subset of SRI funds that has been somewhat explored is faith-based funds. Although Hayat and Kraeussl (2011) and Ferruz *et al*. (2012) show religious mutual funds underperform conventional ones, other studies find a neutral performance of religious funds

in relation to the market (Boasson *et al.*, 2006; Hoepner *et al.*, 2011) and to other types of socially responsible mutual funds (Areal *et al.*, 2013). On the contrary, Lyn and Zychowicz (2010) show that faith-based funds mostly outperform the market, and this kind of screened mutual funds exceeds the financial performance achieved by other types of US SRI funds. In turn, Abdullah *et al.* (2007) find that Islamic mutual funds perform better than conventional mutual funds during bearish economic trends, whereas conventional mutual funds show better performance for bullish economic conditions.

Several papers in this field focus on the impact of the screening features on SRI fund performance in different economic cycles. The central issue here is the one formulated by Nofsinger and Varma (2014): "*would investors be willing to give up some return in non-crisis market periods to gain some higher returns during crisis periods?*". Areal *et al.* (2013) assess whether socially responsible or irresponsible investments perform better in "good times" or "bad times", and conclude that the use of different screens might impact mutual fund performance across different market regimes: the Vice Fund, which invests in unethical firms, outperforms in low-volatility regimes and underperforms in high-volatility regimes. For European and US funds, Muñoz *et al.* (2014a) point out that green funds do not perform worse than other forms of socially responsible mutual funds, and this conclusion holds after controlling for crisis market periods. The results of Silva and Cortez (2016) suggest that the performance of green funds is higher in crisis periods in comparison to non-crisis periods.

Nofsinger and Varma (2014) observe that SRI fund attributes drive an asymmetric return pattern in which SRI funds outperform conventional funds in market crisis periods but underperform in non-crisis periods (socially responsible investments act like a protective shield in negative market cycles). The authors suggest that the positive socially responsible features of companies result in lower risk in market crisis periods, and this is a factor that can explain the popularity of socially responsible investing. Nevertheless, this behavior – outperformance in crisis periods – is driven by funds that screen based on shareholder advocacy and ESG issues; SRI funds that focus on "sin" stocks or other product screens, and faith or religious funds, do not outperform in crisis periods.

For French socially responsible funds investing in European markets, Leite and Cortez (2015) show that SRI funds significantly underperform their conventional peers during non-crisis periods. The authors also conclude that this result is driven by funds that employ negative screens

(SRI funds that use only positive screens exhibit similar performance to conventional funds across different market states). Gangi and Trotta (2015) focus on the performance of European socially responsible funds during the international financial crashes of 2008 and 2011, and their empirical findings prove that investments that consider ethical issues are able to contain the negative effects during the "bear" phases of the market (CSR is able to compensate the "ethical sacrifice" supported by investors). Becchetti *et al.* (2015) support this type of results and show that SRI funds played an "insurance role" outperforming conventional funds during the global financial crisis. In relation to the Japanese market, Nakai *et al.* (2016) document that SRI funds resisted better to the bankruptcy of the Lehman Brothers (the momentous event that triggered the financial crisis) in comparison to conventional funds.

For SRI bond funds, Henke (2016) identifies a strong outperformance during crisis periods, reinforcing the idea that SRI funds are attractive investment opportunities that accumulate abnormal returns during recessions or bear market periods. The results of Leite and Cortez (2016) illustrate that, during expansions, European SRI bond funds outperform their conventional peers, whereas during recessions they seem capable to perform similarly to conventional funds.

Overall, the purpose of this investigation is to extend earlier research on the relationship between the financial performance of SRI funds and the characteristics of the non-financial screening process. Specifically, and since the evidence remains fragmented, we intend to investigate and enlighten the impact of the heterogeneity in the SRI funds' industry for a dataset of US and European funds, some of which belonging to the most developed SRI markets in the world.

2.3. Research hypotheses

This study investigates whether screening intensity (the number of screens employed) and the type of criteria used (i.e., ESG screens) influence funds' financial performance. Accordingly, we develop a set of hypotheses on the relationship between portfolio financial performance and screening intensity and type of social screens used.

Modern portfolio theory advocates a negative relationship between the number of screens used and portfolio performance (hypothesis 1a) since the exclusion of companies based on socially responsible screens may constrain the investment opportunities, thereby affecting the risk-return

optimization process. For instance, SRI funds typically do not invest in "sin" stocks, although these stocks have historically outperformed the market (Renneboog *et al.*, 2008b). Thus, investors who base their decisions on social and personal values and derive non-financial utility from investing in companies meeting high social standards may be willing to explicitly deviate from the economically rational goal of wealth-maximization and accept a lower rate of return – the underperformance hypothesis.

Conversely, stakeholder theory argues that socially responsible behavior of companies and managers allows companies to integrate the interests of all stakeholders, thus contributing to an improved performance of funds including these companies (hypothesis 1b). Also, socially responsible screens can be viewed as filters to identify managerial competence and superior corporate governance (value-relevant information not completely embedded in the share prices), or to avoid/reduce the potential costs of corporate social crises and environmental disasters (Renneboog *et al.*, 2008b), which supports the outperformance hypothesis.

Thereby, we set up the following mutual exclusive hypotheses:

Hypothesis 1a: A higher screening intensity reduces the performance of SRI funds (underperformance hypothesis).

Hypothesis 1b: A higher screening intensity enhances the performance of SRI funds (outperformance hypothesis).

Following Barnett and Salomon (2006), we also hypothesize a curvilinear relationship between screening intensity and financial performance (consistent with both modern portfolio theory and stakeholder theory). The intuition of this research hypothesis is that the financial loss carried by a SRI fund when it imposes social restrictions is, after a certain level of screening intensifies, offset by the financial benefits of including better-managed and more solid firms into the portfolio (Barnett and Salomon, 2006).

Hypothesis 2: The relationship between the intensity of social screening and financial performance for SRI funds is curvilinear.

We also integrate in the analysis the type of screens used, defined as the specific ESG factors the fund focuses on. Indeed, SRI funds may be oriented towards specific ESG criteria that impact performance differently[6]. To account for different types of screens, Barnett and Salomon (2006) employ five dummies, namely for environment, labor relations, equal employment, community investment, and community relations screens. In turn, Renneboog *et al*. (2008b) define four types of screens, specifically "sin", ethical, environmental, and social and corporate governance, whereas Capelle-Blancard and Monjon (2014) and Nofsinger and Varma (2014) emphasize labor relations, community relations and environment.

We follow the categorization employed by US SIF – The Forum for Sustainable and Responsible Investment[7], namely environment, social, governance, products and shareholder engagement. Although this study is not restricted to American funds, the US SIF is a reference in the socially responsible investments research field, and establishes a relatively wide classification of screens (encompassing 16 positive and negative screens)[8] that can also be applied to European funds.

Thus, we hypothesize that:

Hypothesis 3a: SRI funds that select firms based on environmental screening criteria (climate/clean tech, pollution/toxics, environment/other) obtain higher returns than those that do not screen on these criteria.

Hypothesis 3b: SRI funds that select firms based on social screening criteria (community development, diversity and equal employment opportunity policies, human rights, labor relations, Sudan) obtain higher returns than those that do not screen on these criteria.

Hypothesis 3c: SRI funds that select firms based on governance screening criteria (board issues, executive pay) obtain higher returns than those that do not screen on these criteria.

[6] As mentioned in the previous section, there is evidence that investing in companies that focus on specific dimensions of social responsibility (e.g., labor relations, environment, community relations) yields different pattern of returns.
[7] The US SIF is an organization that promotes the integration of socially responsible behavior in the investment practices in the United States.
[8] For example, combining the information from a variety of data sources, Renneboog *et al.* (2008b) identified a total of 21 screens used by SRI funds around the world.

Hypothesis 3d: SRI funds that select firms based on products screening criteria (alcohol, animal welfare, defense/weapons, gambling, tobacco) obtain higher returns than those that do not screen on these criteria.

Hypothesis 3e: SRI funds that select firms based on shareholder engagement screening criteria obtain higher returns than those that do not screen on these criteria.

In line with Capelle-Blancard and Monjon (2014), another relevant distinction can be made between sectoral and transversal criteria: sectoral criteria refer to the exclusion of entire sectors (i.e., "sin" screens and environmental screens), while transversal criteria apply to all firms (i.e., commitment to international conventions – United Nations Global Compact, International Labor Organization Rights at Work, etc.). The authors defend it is likely that portfolio diversification is more impacted by sectoral screens (which target specific sectors) than by transversal screens. Hoepner and Schopohl (2016) also address the exclusionary screening of two leading Nordic investors from a dual perspective, namely the sector-based exclusion (company's business model), and the norm-based exclusion (company's violation of international norms). The results provide initial evidence that the performance effect differs between these two exclusion decisions.

So, we establish the following hypothesis:

Hypothesis 4: Only sectoral screens affect financial performance; transversal screens do not have any impact.

Additionally, we will focus on the screening strategy signal: positive (seeking out stocks with good ESG performance) *versus* negative (weeding out poor ESG performing stocks) screening, since is reasonable to assume that both strategies can lead to different financial performance results (Statman and Glushkov, 2009; Ferruz *et al.*, 2012). Goldreyer *et al.* (1999) find that SRI funds which impose positive screens outperform funds that do not have positive screens. Humphrey and Lee (2011) conclude that positive screening significantly reduces risk, while Nofsinger and Varma (2014) demonstrate that the asymmetric return pattern in ESG funds is especially pronounced in those that use positive screening techniques. Leite and Cortez (2015) also find that SRI fund performance across different market conditions is related to

positive/negative screening strategies. The findings of Trinks and Scholtens (2015) further suggest that there are opportunity costs to negative screening.

Therefore, concerning the impact of positive screening, we formulate the next hypothesis:

Hypothesis 5: A higher positive screening intensity increases the performance of SRI funds.

Finally, we will distinguish funds that have received at least one sustainability label. Social labels are certifications attributed to socially responsible funds, which have emerged with the purpose of providing investors with quality standards and more transparency on SRI products[9]. For the US market, we will identify the funds with the *Diamond Standard*[10] label. For European funds, we will also distinguish the funds awarded with the following certifications: *Ethibel Pioneer*[11], *European SRI Transparency Code*[12], *Luxembourg Fund Labelling Agency* (LuxFLAG)[13], *Novethic SRI Label*[14], *Novethic Green Fund Label*[15], *Austrian Eco Label*[16], and *United Nations Principles for Responsible Investment* (UNPRI)[17]. The evidence of Silva and Cortez (2016) suggests a tendency for green funds that are certified with a label to perform better than uncertified green funds. We believe that social labels are a guarantee of compliance with ESG principles awarded by associations recognized as experts, and not merely a marketing artefact. So, we postulate the following:

[9] Considering concerns that the socially responsible denomination of mutual funds might be more of a marketing tool (Utz and Wimmer, 2014), the purpose of social labels is to ensure investors that the fund actually complies with the stated social screens.

[10] *Diamond Standard* is a guarantee of quality assigned by website yourSRI, a database which provides the search, comparison and rating of several companies and investment products through their investment profile and SRI classification. The sustainability performance of a fund is constructed on the basis of more than 70 indicators, offering an overview of the fund's strengths and weaknesses in comparison to its peers in terms of research quality, portfolio quality, engagement and transparency (yourSRI, 2016).

[11] *Ethibel Pioneer* is a quality label applied by Forum Ethibel to investment funds which exclusively invest in shares or bonds included in the Investment Register and with an A or B rating (usually industry leaders in terms of CSR) (Forum Ethibel, 2016).

[12] The *European SRI Transparency Code* was launched to increase the accountability and clarity of SRI practices for European investors. It focuses on SRI funds in Europe and has been designed to cover a range of asset classes, such as equity and fixed income (EUROSIF, 2016).

[13] The objective of the *Luxembourg Fund Labelling Agency* is to assure investors that the investment fund invests their assets, directly or indirectly, in the responsible investment sector – e.g., the LuxFLAG Environment Label, which primarily invests in environmental-related sectors (LuxFLAG, 2016).

[14] The *Novethic SRI Label* is the first European certification granted to SRI funds managed strictly on the basis of ESG criteria, and that ensures a high degree of transparency in the SRI management processes used (Novethic, 2016).

[15] The *Novethic Green Fund Label* is awarded to funds that select companies on the basis of environmental standards. The certified funds must also meet transparency, social and governance criteria (Novethic, 2016).

[16] The *Austrian Eco Label* was created by government initiative and certifies environmentally friendly products and services, as well as projects and companies within the financial services sector which achieve long term positive returns linked to ethical, sustainable and socially responsible activities (Umweltzeichen, 2016).

[17] The *United Nations Principles for Responsible Investment* Initiative is a network of investors which believe that ESG issues can affect the performance of investment portfolios and also acknowledge that applying the six principles may better align investors with broader objectives of society (UNPRI, 2016).

Hypothesis 6: SRI funds that operate under at least one social label obtain higher returns than those that do not.

2.4. Data and methods

2.4.1. Sample description

Much of the research on SRI funds has focused on the US and UK markets, two world leaders in sustainable and responsible finance, and with long traditions in this area. The US SIF 2016 Report identifies 8.72 trillion of dollars of total assets under management using SRI strategies at the beginning of 2016, an increase of 33% since 2014, and a 14-fold increase since 1995, when the US SIF Foundation first measured the size of the US SRI market. In relation to the UK, it is worth mentioning that it is the first country that regulated the disclosure of social investment policies of pension funds and charities (Renneboog *et al*., 2008a), and one of Europe's major SRI markets (Vigeo Eiris, 2016).

Although the US is still the world leading market for socially responsible investing, Europe is growing substantially in terms of assets and number of funds considering ESG criteria. According to the 2016 study from Vigeo Eiris[18], "Green, Social and Ethical Funds in Europe", the total of assets under management in Europe amounts to 158 billions of euros, which represents 2% of the overall retail funds market (in comparison to 1.7% in 2015). However, the number of funds was slightly reduced to 1138 funds (1204 in 2015). France was confirmed as the greatest European SRI retail market (37% of the total), while UK remained in second place (12%). The four largest markets (France, UK, Switzerland and Netherlands) account for 68% of European assets.

This study investigates US and European socially responsible mutual funds. With regard to European funds, we will focus on the countries covered by the reports and surveys of Vigeo Eiris, a benchmark in terms of European socially responsible investing, namely Austria, Belgium, Denmark, France, Germany, Italy, Luxembourg, Netherlands, Norway, Sweden, Switzerland, and United Kingdom[19]. Our dataset includes SRI equity funds from these countries. To avoid data duplication, in the case of funds with different classes, only one class of each fund is considered.

[18] Vigeo Eiris is a rating agency specialized in the review of European companies and organizations that comply with ESG principles.
[19] We excluded Spain due to insufficient data.

As first criterion, we select the oldest class; if the inception date is the same, we chose the class with more assets under management. Finally, in order to be included in our sample, the SRI funds must disclose at least one screen as part of their investment policies.

Our subsample of US funds consists of 80 socially responsible mutual funds over the period January 2000 to December 2014. The information on the funds is mainly extracted from two US SIF data sources: the Mutual Fund Performance Chart[20] on 31st December 2014 and the SRI Trends Reports[21]. The Mutual Fund Performance Chart provides information on the social screening strategies (number and type of social screens employed) of a set of surviving funds at the end of 2014. For the other funds of the sample, we manually collected the information on social screens through the funds prospectuses and websites, as well as from US Securities and Exchange Commission (SEC) files.

Considering the problems that may arise due to survivorship bias (Brown *et al.* 1992), we included not only surviving funds but also funds that disappeared during the period under evaluation. Although we use the 2001 to 2012 US SIF SRI Trends Reports to identify funds liquidated or merged during the sample period, we cannot ensure we were able to identify all dead funds.

Information on the screening criteria used by funds is not available historically, so we recognize the inherent assumption that the screening strategy of the mutual funds did not change over time. Given that the funds in the sample can be considered quite young (with a mean age of 11 years), it is reasonable to assume that the screening strategies did not change dramatically over time. Humphrey and Lee (2011) also mention this assumption. The authors note that none of the funds with completed survey information changed their screening practices over the sample period.

To identify SRI funds domiciled in Europe, we followed Renneboog *et al.* (2008b) and Nofsinger and Varma (2014) and first searched on Datastream for certain keywords that are common in SRI fund names, such as "Social", "Socially", "Ecology", "Environment", "Green", "Sustainability", "Sustainable", "Ethics", "Ethical", "Faith", "Religion", "Christian", "Islam", "Baptist", and "Lutheran". We then intersected the information obtained from Datastream with the funds' fact sheets (concerning the European countries covered by Vigeo Eiris) available on the

[20] The US SIF Mutual Fund Performance Chart contains the socially responsible mutual funds offered by US SIF's institutional member firms.
[21] Although US SIF publishes reports since 1995, the list of SRI funds is included in the report only since 2001. Thus, our analysis includes the years 2001, 2003, 2005, 2007, 2010 and 2012. We exclude 5 categories from the US SIF listings, namely *Other pooled products*, *Annuity funds*, *Exchange-traded funds*, *Closed-end funds* and *Alternative investment funds*.

website yourSRI[22]. The fact sheets provide information about the investment objective, SRI classification (screens and social labels), and investment profile (investment category, regional focus, asset status, domicile, inception date, benchmarks), among other data, for SRI funds around the world. Although this procedure for identifying SRI funds has allowed us to detect dead funds, we acknowledge that our European SRI fund sample may not be survivorship bias free.

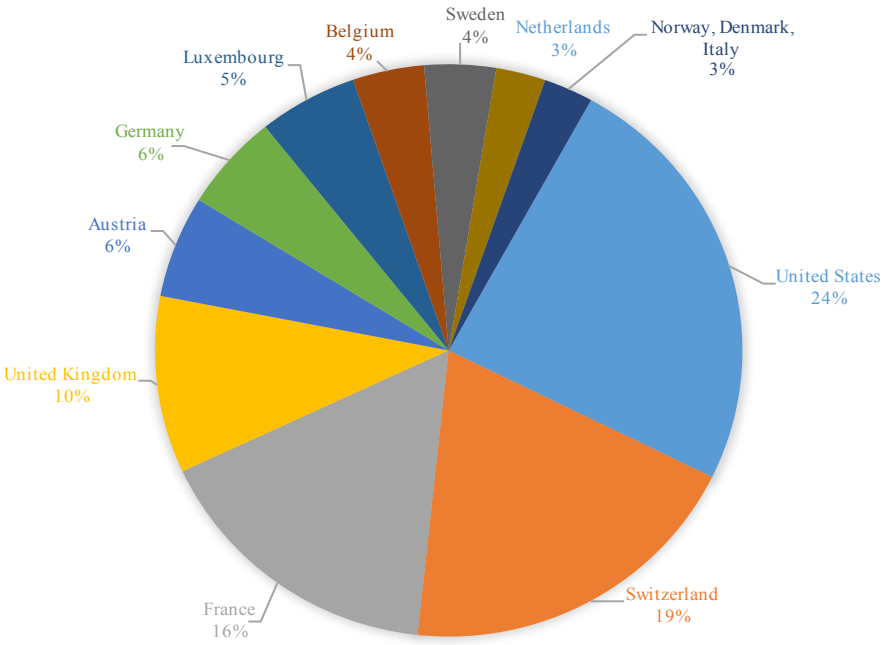
Since Luxembourg is chosen as domicile for many funds mainly because of its favorable tax laws, we will distribute the funds based on the countries of origin of the fund management companies, as in Renneboog *et al.* (2008b). Thereby, the resultant sample consists of 250 funds domiciled in 12 European countries, from January 2000 to December 2014. The majority of the funds are from Switzerland (26%), France (22%), and United Kingdom (13%). Similar to US funds, we assume static screening strategies during the sample period (on average, our European funds live 9 years).

The final sample, described in detail in Appendix 2.1. (US funds) and 2.2. (European funds)[23], results in an unbalanced panel[24] of 330 US and European funds over the period 2000 to 2014. Figure 2.1. shows the distribution of funds per country.

[22] yourSRI is a database and research platform for socially responsible products and services (yoursri.com).
[23] For each fund, we present the corresponding name, International Securities Identification Number (ISIN), and domicile country.
[24] Some of the Size and Total Expense Ratio data are missing.

Figure 2.1. Percentage of funds per country

This figure illustrates the division of the funds by the 13 countries considered in the sample.



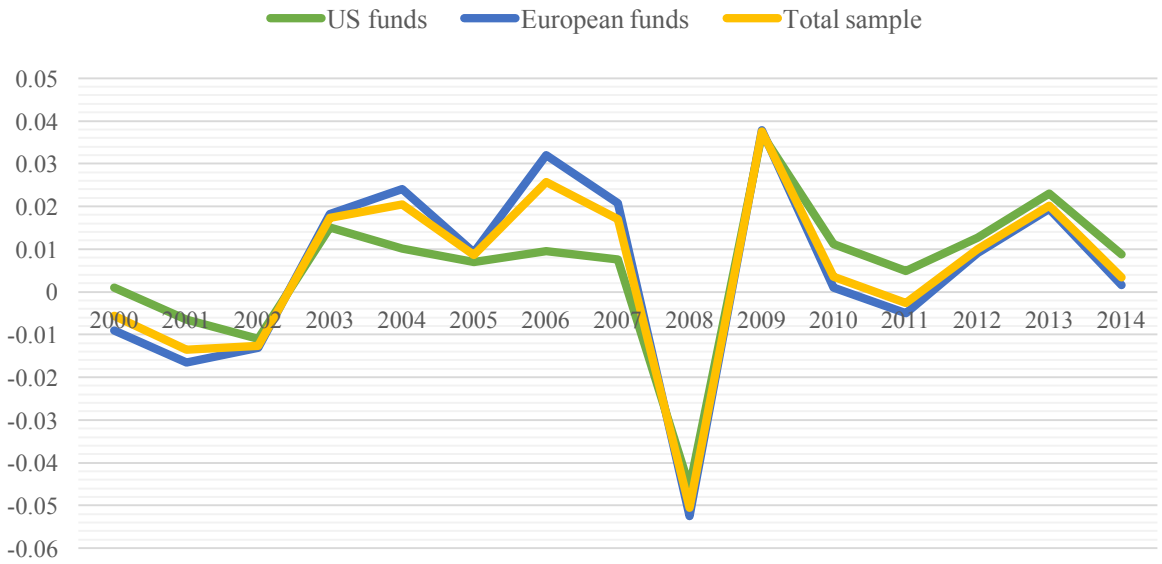
2.4.2. Financial performance

In line with previous studies (e.g., Barnett and Salomon, 2006; Renneboog *et al*., 2008b; Capelle-Blancard and Monjon, 2014), the dependent variable is the risk-adjusted performance, computed on the basis of the monthly returns of SRI funds denominated in US dollars. For US (European) funds, we use CRSP (Datastream) to collect each fund's end of month return (return index) from January 2000 through December 2014[25]. Discrete returns for European funds are calculated on a monthly basis. A minimum of 36 months of return data across the sample period is required. Figure 2.2. presents the average monthly returns over the sample period.

[25] For the UK fund Way Green Portfolio (ISIN GB00B3KWWT95), we detected an atypical and extremely high value for the observation of July 2014. So, we assumed the average between the observations of the previous (June 2014) and following (August 2014) periods as the value for the observation of July 2014.

Figure 2.2. Average monthly returns

This table presents monthly returns averaged for the period 2000-2014 considering the global sample and two subsamples (US funds and European funds).



The figure shows that, at the beginning of the period in analysis (2000 to 2002), the average returns of US funds are higher than the average returns of European funds. The situation was reversed during the years 2003 to 2007, and then again recovered in 2009. Additionally, it seems clear the peak of the global financial crisis of 2008, with highly negative average returns, and very similar for US and European funds.

We use the Carhart (1997) four-factor model (as in Renneboog *et al.*, 2008b, Lee *et al.*, 2010 and Nofsinger and Varma, 2014, among others) to compute the risk-adjusted returns of the funds of our sample. Although a few papers apply the CAPM based single factor alpha (e.g., Barnett and Salomon, 2006; Renneboog *et al.*, 2008b; Capelle-Blancard and Monjon, 2014), its limitations, namely the fact that it does not capture all relevant sources of systematic risk, motivates the use of multi-factor models. The Carhart (1997) model is one of the most commonly used models in the performance evaluation literature, and is an extension of the Fama and French (1993) three-factor model (that considers the market, size and value/growth factors) including a momentum factor[26], as follows:

[26] Although prior research has recognized the dynamic nature of the state of the economy, and that funds do not have constant betas (the funds' risk exposures change in response to public information on the economy, such as the level of interest rates and dividend yields), we will not employ a conditional model due to the problem which could be generated from the existence of a large number of betas to estimate by the model. Also, the fact that we are considering a rolling window somewhat accounts for time-varying risk exposures.

$$r_{it} - r_{f,t} = \alpha_i + \beta_{iMKT}(r_{mt} - r_{f,t}) + \beta_{iSMB}SMB_t + \beta_{iHML}HML_t + \beta_{iUMD}UMD_t + \varepsilon_{it} \quad (2.1)$$

Where:

r_{it} is the return of fund *i* in month *t*;

$r_{f,t}$ is the risk-free rate in month *t*;

r_{mt} is the market return in month *t*;

SMB_t, HML_t, and UMD_t are the *Small Minus Big* (i.e., return spread between a small cap portfolio and a large cap portfolio at time *t*), *High Minus Low* (i.e., return difference between a value stock portfolio and a growth stock portfolio at time *t*), and *Momentum* (i.e., difference in return between a portfolio of past winners and a portfolio of past losers at time *t*) factors;

α is the intercept;

β_{MKT}, β_{SMB}, β_{HML}, β_{UMD} are the factor loadings on the four factors (market, size, book-to-market, and momentum); and

ε_{it} stands for the error term.

The risk factors considered (market, size, book-to-market and momentum) are collected from the Professor Kenneth French Data Library. For domestic US funds, we employ the Fama/French 3 factors plus the momentum factor. Similarly, for European funds that invest only in Europe, we use the Fama/French European 3 factors plus the momentum factor. For funds investing internationally, we use the Kenneth French global factors. All the factors are in US dollars, and the risk-free rate is the US one-month Treasury-bill rate (as in Renneboog *et al*., 2008b and Nofsinger and Varma, 2014).

Table 2.2. reports the average estimates (and its significance) of alphas and factor loadings for the entire period (using the Carhart 4-factor model) by country.

Table 2.2. SRI funds' Carhart alpha and factor loadings by country

This table reports the average coefficient estimates and individual significance of alphas and factor loadings (market, size, book-to-market, and momentum), and the average R-squared statistics, by country, using the Carhart four-factor model. N(+) and N(-) represent the number of individual funds with positive and negative coefficients, respectively. The number of funds with statistically significant coefficients, at a 5% level, are reported in brackets. In order to account for heteroscedasticity and autocorrelation in the disturbance term, we estimate the individual regressions using the Newey and West (1994) procedure, establishing the number of lags as the integer part of $4(T/100)^{2/9}$, where T is the number of time series observations. The sample includes 330 SRI equity mutual funds for the period 2003-2014.

	A	β_{MKT}	β_{SMB}	β_{HML}	β_{UMD}	Adjusted R^2
Austria	-0.0039	1.0962	0.1983	-0.1208	0.0348	0.8449
N (+)	1[0]	19[18]	13[7]	2[2]	12[5]	
N (-)	18[8]	0[0]	6[2]	17[6]	7[2]	
Belgium	-0.0017	1.1063	-0.0561	0.0455	-0.0356	0.8336
N (+)	2[0]	13[13]	5[1]	8[1]	5[1]	
N (-)	11[2]	0[0]	8[6]	5[0]	8[1]	
Denmark	0.0012	0.9683	-0.0905	-0.0759	-0.0995	0.8142
N (+)	3[0]	3[3]	1[0]	1[0]	1[1]	
N (-)	0[0]	0[0]	2[0]	2[1]	2[1]	
France	-0.0019	1.0594	-0.1886	0.0595	-0.0541	0.8627
N (+)	8[1]	54[54]	13[6]	37[11]	13[1]	
N (-)	46[13]	0[0]	41[31]	17[3]	41[8]	
Germany	-0.0040	1.1763	0.0213	-0.1047	-0.0116	0.8683
N (+)	0[0]	18[18]	8[1]	6[1]	7[2]	
N (-)	18[6]	0[0]	10[5]	12[3]	11[4]	
Italy	-0.0006	0.7717	-0.2833	-0.0321	-0.0073	0.8483
N (+)	0[0]	1[1]	0[0]	0[0]	0[0]	
N (-)	1[0]	0[0]	1[1]	1[0]	1[0]	
Luxembourg	-0.0020	1.1386	0.2623	-0.2057	-0.0651	0.7788
N (+)	4[0]	18[18]	15[9]	3[0]	8[1]	
N (-)	14[2]	0[0]	3[3]	15[6]	10[3]	
Netherlands	-0.0005	0.9679	0.0046	-0.0688	-0.0676	0.8042
N (+)	3[0]	9[9]	3[2]	1[0]	4[0]	
N (-)	6[1]	0[0]	6[3]	8[2]	5[0]	
Norway	-0.0032	1.3908	0.4631	0.2268	-0.0724	0.8067
N (+)	2[0]	5[5]	4[2]	4[2]	2[0]	
N (-)	3[2]	0[0]	1[0]	1[0]	3[0]	
Sweden	-0.0013	1.0956	0.0574	-0.1135	-0.0124	0.8572
N (+)	4[1]	13[13]	6[2]	4[0]	3[0]	
N (-)	9[2]	0[0]	7[0]	9[5]	10[0]	
Switzerland	-0.0024	1.1209	0.1062	-0.1739	-0.0612	0.7678
N (+)	18[4]	64[63]	39[11]	19[0]	25[3]	
N (-)	46[15]	0[0]	25[12]	45[12]	39[7]	
UK	-0.0008	0.9935	0.2419	-0.1349	-0.0861	0.8407
N (+)	13[2]	33[33]	24[18]	7[0]	6[2]	
N (-)	20[4]	0[0]	9[3]	26[9]	27[10]	
US	-0.0011	1.0352	0.1599	0.0056	-0.1253	0.7898
N (+)	38[10]	80[80]	57[21]	44[10]	12[0]	
N (-)	42[7]	0[0]	23[2]	36[9]	68[31]	

The average alphas are negative for almost all countries. At the individual fund level, there are more funds underperforming the market (62) than outperforming it (18). The remainder of funds (250) yield alphas that are not statistically significant. These results are consistent with extant empirical research on mutual funds, which shows that most funds have neutral or negative performance. In terms of factor loading, the evidence is mixed. In countries such as the US and UK, SRI funds tend to be more exposed to small and growth stocks while in France SRI funds

load more on large and value stocks. These results are in line with previous studies documenting geographical differences in the investment styles of SRI funds[27].

The procedure to estimate monthly risk-adjusted returns is based on Ferreira *et al.* (2013) and involves estimating regressions of 36 months on a rolling monthly basis. First, every month, we regress the previous 36 months of fund excess returns on the market excess returns and size, value/growth and momentum factors, as in Carhart (1997). From each of these regressions, we obtain the monthly estimates from the beta coefficients. We then use these estimates along with the value of the respective factors to calculate the expected return of each fund in each month. Monthly alphas (i.e., the abnormal performance measure) are calculated by subtracting these values to the effective return of each fund. Since this process requires 36 months of prior information and the analysis begins in January 2000, we get the first performance estimates in January 2003. This performance measure is the dependent variable of our model.

Table 2.3. reports the descriptive statistics of the SRI funds' risk-adjusted performance by country.

Table 2.3. Descriptive statistics of SRI funds' risk-adjusted performance by country

This table presents summary statistics on SRI funds' risk-adjusted performance, namely the mean, standard deviation, minimum and maximum values, and number of observations (N), for each country of our sample from 2003 to 2014.

	Mean	Std. Dev.	Min	Max	N
Austria	-0.085271	0.154737	-1.050832	2.165533	2,106
Belgium	-0.109174	0.155434	-0.710921	0.216396	1,706
Denmark	-0.066106	0.138376	-0.662019	0.157612	263
France	-0.090301	0.310206	-4.449293	10.179470	5,870
Germany	-0.077443	0.173879	-1.250198	3.555045	1,810
Italy	-0.116044	0.153365	-0.487271	0.142134	144
Luxembourg	-0.747712	0.142145	-0.742347	0.270124	1,744
Netherlands	-0.093092	0.147459	-0.486076	0.191983	994
Norway	-0.074701	0.151730	-0.513114	0.257642	426
Sweden	-0.045755	0.163660	-2.938844	0.265552	916
Switzerland	-0.075021	0.188962	-6.916366	1.535203	6,142
United Kingdom	-0.946396	0.203831	-5.049177	3.370219	3,610
United States of America	-0.901901	0.225693	-7.463277	4.277121	8,972

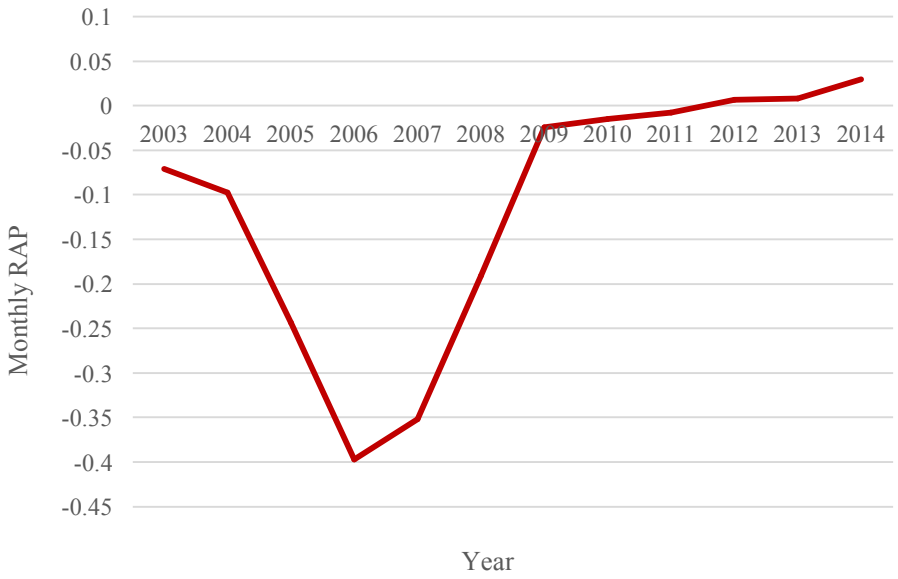
[27] See, for instance, Schröder (2004), Bauer *et al.* (2005, 2006), Scholtens (2005), and Cortez *et al*. (2012).

The average risk-adjusted performance is negative in all countries. The United States enjoys the lowest and one of the highest values, and France exhibits by far the maximum value during the period.

Figure 2.3. illustrates the evolution of the average monthly risk-adjusted performance for all funds included in our sample. It shows a strong decline in the performance of SRI funds over the period 2003-2006. After 2006, performance increases, displaying positive values since 2011.

Figure 2.3. Average monthly risk-adjusted performance

This figure shows the evolution of the financial variable of the study – RAP – for all the funds over the sample period (2003-2014).



2.4.3. Social variables

Although the definition of the social variables differs among studies, generally they emerge in the form of two groups: by screening intensity and by type. Screening intensity is a quantitative variable constructed to measure the strength of the requirements imposed by fund managers to filter firms, the lack of diversification of SRI funds and, to some extent, the quality of the process (Capelle-Blancard and Monjon, 2014). Differently, the second group of variables of interest is of a qualitative nature. Their aim is to emphasize the "best practices" among the SRI funds.

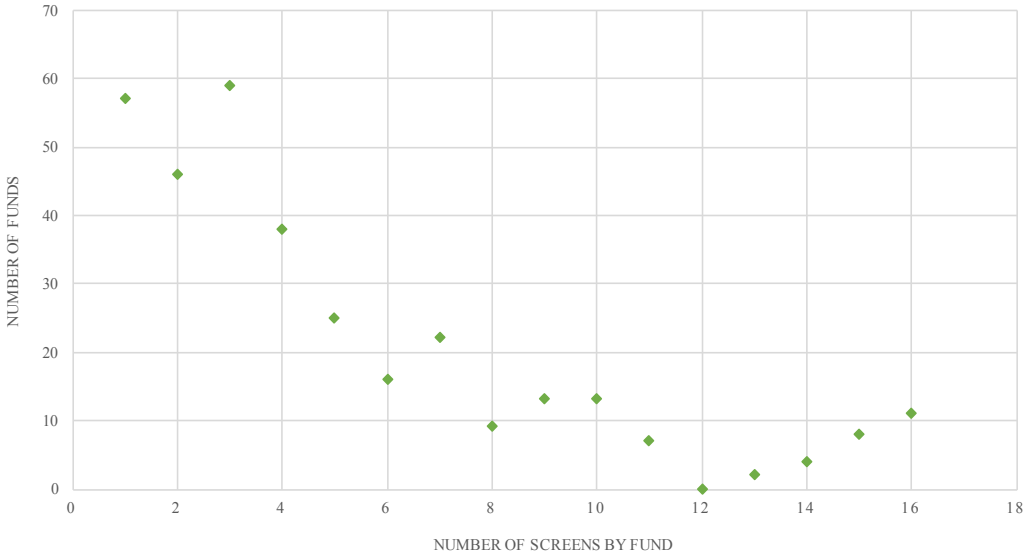
In this study, screening intensity is proxied by the number of screens applied by each fund. As mentioned previously, we will apply the US SIF's screening categorization to all (US and

European) funds. The US SIF defines 16 types of screens that SRI funds may use to filter firms from their investment portfolios, namely climate/clean tech [28], pollution/toxics [29], environment/other[30], community development[31], diversity & equal employment opportunity policies[32], human rights[33], labor relations[34], Sudan[35], board issues[36], executive pay[37], alcohol[38], animal welfare[39], defense/weapons[40], gambling[41], tobacco[42] and shareholder engagement[43]. If a fund's screening intensity is given a value of 16, this indicates that the fund employs all 16 of the listed screens, whereas a value of 1 indicates that the fund uses only 1 of the 16 available screens. Figure 2.4. illustrates the screening intensity of all funds in the sample.

[28] These screens focus on risk and opportunities related to climate change and greenhouse gas emissions, or on businesses dedicated to environmentally sustainable technologies, efficient use of natural resources, or mitigating negative ecological impacts; includes clean energy generation, infrastructure and storage (US SIF, 2016).
[29] These screens consider the toxicity of products and operations and/or pollution management and mitigation, including recycling, waste management and water purification (US SIF, 2016).
[30] This category of screens focuses on residual environmental issues (other than climate/clean tech or pollution/toxics) (US SIF, 2016).
[31] These screens focus in provision of affordable housing, fair consumer lending, small and medium business support and other services and support to low- and medium-income communities (US SIF, 2016).
[32] These screens relate to diversity and equal employment opportunity policies and practices relating to employees, company ownership or contractors (US SIF, 2016).
[33] This category of screens considers risks associated with human rights and companies' respect for human rights within their internal operations and the countries in which they do business, often with particular emphasis on relations with indigenous peoples, supply-chain management and conflict zones (US SIF, 2016).
[34] This category of screens considers companies' labor or employee relations programs, employee involvement, health and safety, employment and retirement benefits, union relations or workforce reductions (US SIF, 2016).
[35] This type of screens involves the exclusion or partial exclusion of companies that conduct business in Sudan because of its human rights abuses or support of terrorism (US SIF, 2016).
[36] These screens consider the directors' independence, diversity, pay and responsiveness to shareholders (US SIF, 2016).
[37] These screens consider companies' executive pay practices, especially whether pay policies are reasonable and aligned with shareholders' or other stakeholders' long-term interests (US SIF, 2016).
[38] This type of screens involves the exclusion or partial exclusion of companies involved in the production, licensing and/or retailing of alcohol products, or in the manufacturing of products necessary for production of alcoholic beverages, as well as ownership by an alcohol company (US SIF, 2016).
[39] These screens consider companies' policies and practices toward animals in consumer product testing, where such testing is not legally required, particularly where such tests inflict pain or suffering on the test animals, and on the treatment of animals raised or used for food and other goods and services (US SIF, 2016).
[40]This category of screens involves the exclusion or partial exclusion of companies that derive a significant portion of their revenues from the manufacture or retailing of firearms or ammunition for civilian use, or from military weapons (US SIF, 2016).
[41] This type of screens involves the exclusion or partial exclusion of companies involved in licensing, manufacturing, owning or operating gambling interests (US SIF, 2016).
[42] These screens involve the exclusion or partial exclusion of companies involved in the production, licensing, and/or retailing of tobacco products, or in the manufacturing of products necessary for production of tobacco products (US SIF, 2016).
[43] These screens relate to filing or co-filing shareholder resolution and/or engaging in private dialogue on environmental, social or governance issues with companies in this investment strategy portfolio (US SIF, 2016).

Figure 2.4. Screening intensity of SRI funds

This figure presents the number of screens applied by the funds included in the sample.



The screening intensity of the SRI funds of our sample varies widely. More than 50% of the funds apply between 1 and 4 screens, while only about 10% apply a number of screens higher than 10. There are 11 funds (3.3% of the total sample) with the maximum screening intensity (16 screens), and 57 funds (17.3%) with the minimum screening intensity (1 screen).

To test hypothesis 4, we consider the number of sectoral screens and the number of transversal screens used by SRI funds. In the terminology of US SIF, we define as sectoral screens climate/clean tech, pollution/toxics, environment/others, alcohol, animal welfare, defense/weapons, gambling and tobacco, and as transversal screens diversity & equal employment opportunity policies, human rights, labor relations and Sudan. Sectoral screens vary from 1 to 8, and transversal screens from 1 to 4.

The type of screen is measured using a dichotomous variable for each of the screening strategies employed by US SIF, namely environment (screens related to climate, clean technology, pollution, toxics and other environmental issues), social (screens associated with community development, diversity and equal employment, human rights, labor relations and Sudan), governance (screens that account for board and executive pay issues), products (screens that exclude companies involved in alcohol, animal welfare, defense/weapons, gambling and tobacco products) and shareholder engagement. For instance, in order to test hypothesis 3a, we will assign a value of 1 to the variable environment if a fund screened out firms based on at least one

environmental factor, and zero otherwise.

Similarly, to assess hypothesis 5, we establish a variable for positive screening. Since most funds of our sample employ a combination of positive and negative screens (the third screening generation mentioned by Renneboog *et al*., 2008a), we decided to compute the variable as the number of positive screens applied by the fund.

Finally, we will differentiate funds that have been awarded with at least one social label. Although there are more sophisticated methodologies to establish a ranking for mutual funds based on non-financial criteria (e.g., Petrillo *et al*., 2016), we will use a dummy variable for funds that have been certified by sustainability labels. The purpose of these labels is to provide investors with a quality standard (beyond the self-named label of SRI funds) by assuring the systematic integration of ESG criteria into mutual funds' management.

Table 2.4. provides some descriptive statistics on the screening characteristics of the SRI funds included in this study.

Table 2.4. Screening features of US and European SRI funds

This table summarizes SRI funds (US, European and total) based on screening type (environment, social, governance, products and shareholder engagement), nature (transversal and sectoral), strategy (number of funds that employ at least one positive screen), and also by labels.

	Percentage of funds		
Characteristics	*US funds*	*European funds*	*Total sample*
Environment	65.00%	53.20%	**56%**
Social	68.75%	44.00%	**50%**
Governance	35.00%	0.80%	**9%**
Products	82.50%	70.40%	**73%**
Shareholder engagement	40.00%	0.00%	**10%**
Transversal	68.75%	44.40%	**50%**
Sectoral	96.25%	96.00%	**96%**
Positive screening	78.75%	72.00%	**74%**
Labels	38.75%	76.40%	**67%**

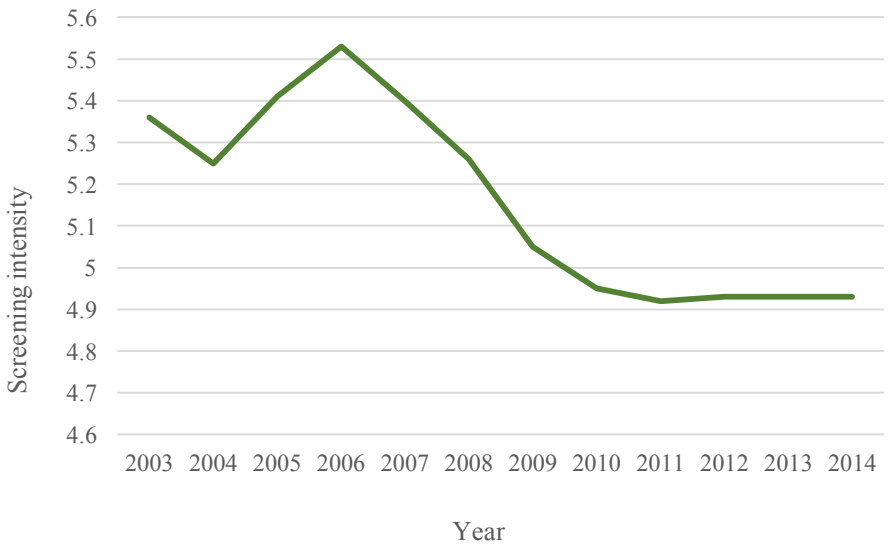
Most SRI funds of our sample put the emphasis on products (73%), environment (56%) and social concerns (50%). The percentage is higher for US funds (in relation to European funds) for the five types of nature of the screening process (environment, social, governance, products, and shareholder engagement), with the largest differences occurring on corporate governance and shareholder engagement topics. In the US, a wide dispersion of ownership constrains the direct influence of shareholders on corporate decisions while, in Europe, a higher concentration of ownership increases the direct influence of owners (Sacconi, 2012). This may explain a stronger concern of US funds concerning governance and shareholder engagement issues. In relation to products, the higher figures relative to Europe is consistent with Louche and Lydenberg (2006), who mention that socially responsible investing in the US is more oriented towards negative screening.

In our sample, almost all funds exclude entire sectors that do not comply with ESG principles (96%), and about 50% exclude firms, regardless of the industry, that do not subscribe fundamental international conventions, or connect with firms that have business relations in Sudan. Moreover, nearly 74% of the funds employ a number of positive screens equal or greater than one (78.75% of US funds, and 72.00% of European funds), and approximately two thirds are certified by social labels (with stronger focus on European funds – 76.40%).

Figure 2.5. illustrates the evolution of the average screening intensity for all funds included in our sample. It exhibits a decrease in funds' screening intensity since 2006 up until 2011. After that, it becomes more stable.

Figure 2.5. Average screening intensity

This figure shows the evolution of a social variable of the study – the screening intensity – for all the funds over the sample period (2003-2014).



2.4.4. Control variables

Since the main goal of this essay is to determine if the socially responsible investing is compatible with profitability, it is necessary to control for factors that could systematically affect SRI fund financial performance. We therefore include a variety of variables previously recognized as likely to influence the financial performance of mutual funds, namely funds' characteristics (age, size, and total expense ratio) and investment style (domestic or global funds).

To address the "*catching-up phase"* in SRI funds identified by Bauer *et al*. (2005)[44], and following Barnett and Salomon (2006), Humphrey and Lee (2011) and Nofsinger and Varma (2014), among others, we include the variable *Age*, defined as the number of months since the fund's inception. For surviving funds in late December 2014, the variable is computed with reference to 31 December 2014; for missing funds, is calculated up to the liquidation or merger date.

In line with Barnett and Salomon (2006), Lee *et al.* (2010) and Capelle-Blancard and Monjon (2014), and in order to control for any potential fund size effect, we include the variable

[44] Bauer *et al.* (2005) investigate the returns of ethical mutual funds (relative to those of their conventional counterparts) through time and document that ethical mutual funds went through a so-called catching-up phase, possible due to a learning effect.

Size, measured by the fund total net assets (in million US dollars)[45]. Indro *et al.* (1999) and Chen *et al.* (2004) show that larger funds are subject to decreasing returns to scale. Ferreira *et al.* (2013) find a negative relation between fund size and performance only for US funds; for non-US funds, fund size is positively related to performance. In relation to SRI funds, Gregory *et al.* (1997) find that the fund size does not seem to affect performance results.

The *Total Expense Ratio* is a measure of the total costs associated with managing and operating an investment fund (management fees, trading fees, legal fees, auditor fees and other operational expenses)[46]. Empirical evidence on the impact of fees in performance is mixed. Chen *et al.* (2004) and Ferreira *et al.* (2013) do not find evidence of a relationship between fees and fund performance for US funds. Other authors find a negative relation between fees and fund performance (e.g., Carhart, 1997, Gil-Bazo and Ruiz-Verdú, 2009 in relation to US funds and Dahlquist *et al.*, 2000 and Otten and Bams, 2002 in relation to European funds). Chang and Witte (2010) suggest that the costs of socially responsible investing are not homogeneous. Thus, the expense ratio may have impact on financial returns of SRI funds.

The following table reports the average values (from 2003-2014), by country, of the 330 funds included in this study concerning Age (in months), Size (in million US dollars), and Total Expense Ratio (in percentage).

[45] Monthly data on total net assets for European funds are a courtesy of Thomson Reuters.
[46] This monthly variable is obtained from Datastream for both US and European funds.

Table 2.5. Control variables of SRI mutual funds (by country)

This table presents funds' control variables averaged by country for the period 2003-2014. Control variables include: Age, measured as the number of months since the fund's inception; Size, measured by fund's total net assets in million US dollars; and Total Expense Ratio, in percentage.

Country	Age (Months)	Size (Million USD)	Total Expense Ratio (%)
Austria	75	22.97	1.76
Belgium	110	690.72	1.60
Denmark	106	109.54	1.74
France	110	95.50	1.53
Germany	72	88.76	1.74
Italy	139	198.58	2.02
Luxembourg	115	72.29	1.93
Netherlands	104	120.01	1.67
Norway	193	1,392.90	1.24
Sweden	160	1,195.95	1.34
Switzerland	73	114.79	1.78
UK	158	156.13	1.56
US	127	1,313.29	1.23

In our sample, the average fund age varies from 72 (Germany) to 193 (Norway) months, while size ranges from 22.97 (Austria) to 1,392.90 (Norway) million dollars[47]. The Total Expense Ratio is between 1.23% (United States) and 2.02% (Italy).

Global and regional economic factors may also affect financial performance and thus, funds with only domestic holdings may perform differently from those with international holdings. To monitor for performance differentials across funds with domestic and international holdings, and following several studies (e.g., Barnett and Salomon, 2006; Renneboog *et al.,* 2008b; Capelle-Blancard and Monjon, 2014), we incorporate a dummy variable *Global*. For US (European) funds, this variable takes the value of 1 if the fund invests outside US (Europe), and zero otherwise. With regard to the funds' regional objective, 72.5% of the US funds are domestic, and about 64% of the European funds diversify their assets outside Europe.

Table 2.6. shows some descriptive statistics and the correlation matrix concerning the main variables of our study.

[47] The high average values of the Size variable for Norway and Sweden are related to the fact that these countries have few funds in the sample (5 and 13 funds, respectively), but very significant in terms of assets under management.

Table 2.6. Descriptive statistics and correlation matrix

This table reports the pairwise correlations and the descriptive statistics (mean, standard deviation, minimum, maximum, skewness, and kurtosis) of fund variables. The financial variable is the risk-adjusted performance (RAP), and the social variables include: screening intensity (SI), types of screening – environment (ENV), social (SOC), governance (GOV), products (PROD), and shareholder engagement (SHENG) –, positive screening intensity (PSCR), and labels (LAB). Control variables include: the logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); the logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); Total Expense Ratio, in percentage (TER); and the geographic dummy (GL).

	RAP	SI	ENV	SOC	GOV	PROD	SHENG	PSCR	LAB	L_AGE	L_SIZE	TER	GL
RAP	1.0000												
SI	-0.0406	1.0000											
ENV	0.0162	0.4842	1.0000										
SOC	-0.0319	0.6344	0.2472	1.0000									
GOV	-0.0327	0.6918	0.3007	0.2934	1.0000								
PROD	-0.0554	0.3883	-0.2952	0.2327	0.1489	1.0000							
SHENG	-0.0249	0.7050	0.3134	0.3220	0.7815	0.1562	1.0000						
PSCR	-0.0173	0.6377	0.5882	0.5574	0.3433	0.0614	0.3635	1.0000					
LAB	-0.0214	-0.0524	-0.0722	0.0806	-0.0279	0.0405	-0.0743	0.0413	1.0000				
L_AGE	0.0641	0.0389	-0.1141	0.0398	0.0523	0.1183	0.0374	-0.0064	0.0416	1.0000			
L_SIZE	-0.0458	0.0765	-0.0320	-0.0039	0.1553	0.0773	0.0607	0.0374	0.0252	0.4014	1.0000		
TER	0.0362	-0.0995	0.1664	-0.0452	-0.1630	-0.1261	-0.1270	0.0030	0.1137	-0.1673	-0.2199	1.0000	
GL	0.0656	-0.0826	0.1980	-0.1257	-0.1779	-0.1483	-0.1723	-0.0525	-0.0219	-0.2488	-0.1616	0.2662	1.0000
Mean	-0.0858	5.1005	0.5436	0.5179	0.1066	0.7627	0.1069	1.9333	0.6948	4.3665	3.7752	1.5450	0.5006
Std. Dev.	0.2174	4.1385	0.4981	0.4997	0.3086	0.4254	0.3090	2.2435	0.4605	0.9191	2.0690	0.6537	0.5000
Min	-7.4633	1	0	0	0	0	0	0	0	0	-9.2103	0	0
Max	10.1795	16	1	1	1	1	1	12	1	6.2226	11.1987	9.8	1
Skewness	1.8602	1.2492	-0.1752	-0.0715	2.5493	-1.2348	2.5439	1.8464	-0.8459	-0.7184	-0.3803	1.9378	-0.0024
Kurtosis	463.8212	3.7247	1.0307	1.0051	7.4990	2.5248	7.4716	7.0974	1.7157	3.4946	5.2032	25.5228	1.0000

Interestingly, there is a negative correlation between the two main variables of the model ($\rho_{SI,RAP}$ = -0.0406). With the exception of shareholder engagement and governance screens ($\rho_{SHENG,GOV}$ = 0.7815), and differently than expected, there is also a low correlation between many of the social screens[48]. Furthermore, there is a negative relation between the screens related with products and the environment ($\rho_{PROD,ENV}$ = -0.2952).

[48] Since high correlations between the variables may induce multicollinearity, this problem is somewhat mitigated.

2.4.5. Relationship between the screening process and financial performance

This sub-section presents the methodology for testing the effects of the intensity and type of investment screens applied on SRI funds' financial performance.

The monthly risk-adjusted performance of the SRI funds is the dependent variable of our study and it is computed by estimating regression (2.1) on a rolling monthly basis as described in sub-section 2.4.2. We then examine whether it is related with the magnitude and type of the screening process, controlling for variables related to funds' characteristics and investment style.

In model (2.2), we postulate risk-adjusted performance as a linear function of screening intensity, to test whether including more social screens is positively or negatively related to fund financial performance (hypotheses 1a and 1b), and estimate the following model:

$$RAP_{it} = \gamma_0 + \gamma_1 SI_i + \gamma_2 L_AGE_{it} + \gamma_3 L_SIZE_{it} + \gamma_4 TER_{it} + \gamma_5 GL_i + \mu_{it} \quad (2.2)$$

Where:

RAP_{it} is the risk-adjusted performance of fund *i* in month *t*;
SI_i is the screening intensity of fund *i*;
L_AGE_{it} is the logarithm of the number of months since the inception of fund *i* in month *t*;
L_SIZE_{it} is the logarithm of the size (total net assets in million US dollars) of fund *i* in month *t*;
TER_{it} is the Total Expense Ratio of the fund *i* in month *t*;
GL_i is a dummy variable equal to 1 if the fund *i* invests outside US (US funds) or Europe (European funds), and 0 otherwise; and
μ_{it} stands for the error term.

To assess hypothesis 2 and capture a potential curvilinear relationship between social screening and financial performance, we also include the square of the screening intensity $[(SI_i)^2]$.

$$RAP_{it} = \psi_0 + \psi_1 SI_i + \psi_2 SI_i^2 + \psi_3 L_AGE_{it} + \psi_4 L_SIZE_{it} + \psi_5 TER_{it} + \psi_6 GL_i + \mu_{it} \quad (2.3)$$

Models (2.4) [screening intensity only] and (2.5) [screening intensity and its squared term] add the types of social screens, as well as two other social variables – positive screening and labels – to assess whether screening strategies have influence on mutual fund performance. These specifications allow us to jointly test hypotheses 3a to 3e (types of screens), 5 (positive screening) and 6 (labels).

$$RAP_{it} = \omega_0 + \omega_1 SI_i + \omega_2 ENV_i + \omega_3 SOC_i + \omega_4 GOV_i + \omega_5 PROD_i + \omega_6 SHENG_i + \omega_7 PSCR_i + \omega_8 LAB_i + \omega_9 L_AGE_{it} + \omega_{10} L_SIZE_{it} + \omega_{11} TER_{it} + \omega_{12} GL_i + \mu_{it} \quad (2.4)$$

$$RAP_{it} = \theta_0 + \theta_1 SI_i + \theta_2 SI_i^2 + \theta_3 ENV_i + \theta_4 SOC_i + \theta_5 GOV_i + \theta_6 PROD_i + \theta_7 SHENG_i + \theta_8 PSCR_i + \theta_9 LAB_i + \theta_{10} L_AGE_{it} + \theta_{11} L_SIZE_{it} + \theta_{12} TER_{it} + \theta_{13} GL_i + \mu_{it} \quad (2.5)$$

Where:

ENV_i is a dummy variable equal to 1 if the fund *i* focuses on environmental issues, and 0 otherwise;
SOC_i is a dummy variable equal to 1 if the fund *i* focuses on social issues, and 0 otherwise;
GOV_i is a dummy variable equal to 1 if the fund *i* focuses on governance issues, and 0 otherwise;
$PROD_i$ is a dummy variable equal to 1 if the fund *i* focuses on products' issues, and 0 otherwise;
$SHENG_i$ is a dummy variable equal to 1 if the fund *i* focuses on shareholder engagement issues, and 0 otherwise;
$PSCR_i$ is a dummy variable equal to 1 if the fund *i* employs a positive screening strategy, and 0 otherwise;
LAB_i is a dummy variable equal to 1 if the fund *i* has received at least one social label, and 0 otherwise.

Alternatively, to test hypothesis 4 introduced in section 2.3, we estimate the regressions replacing the variable SI by the number of sectoral screens (SECT) and transversal screens (TRNV), together (equations 2.6 to 2.9) and individually (equations 2.10.a to 2.13.b).

$$RAP_{it} = \nu_0 + \nu_1 SECT_i + \nu_2 TRNV_i + \nu_3 L_AGE_{it} + \nu_4 L_SIZE_{it} + \nu_5 TER_{it} + \nu_6 GL_i + \mu_{it} \quad (2.6)$$

$$RAP_{it} = \zeta_0 + \zeta_1 SECT_i + \zeta_2 SECT_i^2 + \zeta_3 TRNV_i + \zeta_4 TRNV_i^2 + \zeta_5 L_AGE_{it} + \zeta_6 L_SIZE_{it} + \zeta_7 TER_{it} + \zeta_8 GL_i + \mu_{it} \quad (2.7)$$

$$RAP_{it} = \sigma_0 + \sigma_1 SECT_i + \sigma_2 TRNV_i + \sigma_3 ENV_i + \sigma_4 SOC_i + \sigma_5 GOV_i + \sigma_6 PROD_i + \sigma_7 SHENG_i + \sigma_8 PSCR_i + \sigma_9 LAB_i + \sigma_{10} L_AGE_{it} + \sigma_{11} L_SIZE_{it} + \sigma_{12} TER_{it} + \sigma_{13} GL_i + \mu_{it} \quad (2.8)$$

$$RAP_{it} = \epsilon_0 + \epsilon_1 SECT_i + \epsilon_2 SECT_i^2 + \epsilon_3 TRNV_i + \epsilon_4 TRNV_i^2 + \epsilon_5 ENV_i + \epsilon_6 SOC_i + \epsilon_7 GOV_i + \epsilon_8 PROD_i + \epsilon_9 SHENG_i + \epsilon_{10} PSCR_i + \epsilon_{11} LAB_i + \epsilon_{12} L_AGE_{it} + \epsilon_{13} L_SIZE_{it} + \epsilon_{14} TER_{it} + \epsilon_{15} GL_i + \mu_{it} \quad (2.9)$$

$$RAP_{it} = \pi_0 + \pi_1 SECT_i + \pi_2 L_AGE_{it} + \pi_3 L_SIZE_{it} + \pi_4 TER_{it} + \pi_5 GL_i + \mu_{it} \quad (2.10.a)$$

$$RAP_{it} = \kappa_0 + \kappa_1 TRNV_i + \kappa_2 L_AGE_{it} + \kappa_3 L_SIZE_{it} + \kappa_4 TER_{it} + \kappa_5 GL_i + \mu_{it} \quad (2.10.b)$$

$$RAP_{it} = \vartheta_0 + \vartheta_1 SECT_i + \vartheta_2 SECT_i^2 + \vartheta_3 L_AGE_{it} + \vartheta_4 L_SIZE_{it} + \vartheta_5 TER_{it} + \vartheta_6 GL_i + \mu_{it} \quad (2.11.a)$$

$$RAP_{it} = \tau_0 + \tau_1 TRNV_i + \tau_2 TRNV_i^2 + \tau_3 L_AGE_{it} + \tau_4 L_SIZE_{it} + \tau_5 TER_{it} + \tau_6 GL_i + \mu_{it} \quad (2.11.b)$$

$$RAP_{it} = \delta_0 + \delta_1 SECT_i + \delta_2 ENV_i + \delta_3 SOC_i + \delta_4 GOV_i + \delta_5 PROD_i + \delta_6 SHENG_i + \delta_7 PSCR_i + \delta_8 LAB_i + \delta_9 L_AGE_{it} + \delta_{10} L_SIZE_{it} + \delta_{11} TER_{it} + \delta_{12} GL_i + \mu_{it} \quad (2.12.a)$$

$$RAP_{it} = \varphi_0 + \varphi_1 TRNV_i + \varphi_2 ENV_i + \varphi_3 SOC_i + \varphi_4 GOV_i + \varphi_5 PROD_i + \varphi_6 SHENG_i + \varphi_7 PSCR_i + \varphi_8 LAB_i + \varphi_9 L_AGE_{it} + \varphi_{10} L_SIZE_{it} + \varphi_{11} TER_{it} + \varphi_{12} GL_i + \mu_{it} \quad (2.12.b)$$

$$RAP_{it} = \phi_0 + \phi_1 SECT_i + \phi_2 SECT_i^2 + \phi_3 ENV_i + \phi_4 SOC_i + \phi_5 GOV_i + \phi_6 PROD_i + \phi_7 SHENG_i + \phi_8 PSCR_i + \phi_9 LAB_i + \phi_{10} L_AGE_{it} + \phi_{11} L_SIZE_{it} + \phi_{12} TER_{it} + \phi_{13} GL_i + \mu_{it} \quad (2.13.a)$$

$$RAP_{it} = \lambda_0 + \lambda_1 TRNV_i + \lambda_2 TRNV_i^2 + \lambda_3 ENV_i + \lambda_4 SOC_i + \lambda_5 GOV_i + \lambda_6 PROD_i + \lambda_7 SHENG_i + \lambda_8 PSCR_i + \lambda_9 LAB_i + \lambda_{10} L_AGE_{it} + \lambda_{11} L_SIZE_{it} + \lambda_{12} TER_{it} + \lambda_{13} GL_i + \mu_{it} \quad (2.13.b)$$

Fixed effects and random effects models are two common estimators for panel data. The fixed effects model concentrates on differences "within" individuals (Verbeek, 2012). Given the structure of our main variables of interest (the social variables are constant over time) and the fact that the fixed effects eliminates any time-invariant variables from the model, we consider that this estimator is not adequate. In turn, the random effects model assumes that all factors that affect the dependent variable, but have not been included as regressors, can be appropriately summarized by a random error term (Verbeek, 2012). We performed the Hausman test to compare both estimators (fixed and random effects), and we rejected the hypothesis that the preferred model is random effects. Since we have some time series variables and investment strategies related to SRI funds that have not changed during the sample period, the between effects model emerges as the most appropriate estimator. The between effects performs an Ordinary Least Squares (OLS) estimation on a "collapsed" dataset where all data are converted into individual specific averages, i.e., the between estimator effectively discards the time series information, and exploits the between dimension of the data (Verbeek, 2012). To capture the influence of aggregate trends, we include year dummies in the analysis.

2.5. Empirical results

The impact of the screening process in the risk-adjusted performance of SRI funds is assessed according to the models presented in previous section. Models 2.2 and 2.4 estimate a potential linear association between risk-adjusted performance and screening intensity, while models 2.3 and 2.5 evaluate the presence of a curvilinear effect. Models 2.4 and 2.5 add the social dummies (screens' type, positive screening, and labels) to models 2.2 and 2.3, respectively.

Although socially responsible investments appear to be a global phenomenon, there is substantial heterogeneity in the development and adoption rates between countries and regions (Neher and Hebb, 2016). Given the geographic differences in socially responsible investing and the importance of the cultural and legislative contexts in which it has arisen, we will differentiate the analysis according to the following groups/individual countries: Global (US and European countries), Europe, Europe without UK, US, UK, and Scandinavia[49] (Denmark, Norway, and Sweden).

[49] The strong similarities between Scandinavian countries justifies its aggregation into one group.

When we consider the whole sample (table 2.7), the results show a curvilinear relationship between financial performance and screening intensity, namely a positive sign for screening intensity and a negative sign for squared screening intensity (inverted U-shaped effect). When a fund increases its screens, it becomes more and more selective, causing financial performance to increase. However, above a certain level of screening, given the narrowing of its investable universe, performance starts to decrease until the maximum screening intensity is achieved. Notwithstanding, financial performance is higher at the maximum screening intensity (16 screens) in comparison with the minimum level (1 screen). In terms of screening types, the results are mixed, and without statistical significance. The exception is governance: governance-screened funds exhibit a positive and statistically significant coefficient, suggesting that screening on this dimension impacts fund performance in a positive way. The results also show a positive and statistical significant (at the 10% level) coefficient of the dummy labels, thereby indicating a tendency for funds that are certified with a social label to perform better.

Table 2.7. Regression results for the global sample

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used, and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The sample includes 330 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Global			
	Model (2.2)	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**
Screening Intensity	0.0005 (1.65)	0.0010 (1.06)	-0.0001 (-0.07)	0.0028* (1.89)
Squared Screening Intensity		-0.0000 (-0.59)		-0.0002** (-2.20)
Dummy_Environment			-0.0017 (-0.45)	-0.0032 (-0.86)
Dummy_Social			0.0047 (1.47)	0.0024 (0.73)
Dummy_Governance			0.0081 (1.28)	0.0132** (1.98)
Dummy_Products			0.0018 (0.49)	-0.0005 (-0.14)
Dummy_Shareholder Engagement			0.0046 (0.74)	0.0101 (1.53)
Dummy_Positive Screening			-0.0010 (-1.28)	-0.0010 (-1.28)
Dummy_Labels			0.0044* (1.84)	0.0043* (1.82)
Log Age	-0.0009 (-0.42)	-0.0009 (-0.43)	-0.0008 (-0.35)	-0.0007 (-0.32)
Log Size	0.0018*** (2.79)	0.0018*** (2.75)	0.0017*** (2.69)	0.0016** (2.46)
Total Expense Ratio	-0.0018 (-0.97)	-0.0019 (-1.03)	-0.0015 (-0.79)	-0.0017 (-0.91)
Dummy_Global	-0.0016 (-0.65)	-0.0017 (-0.69)	0.0001 (-0.04)	-0.0004 (-0.16)
Year dummies	Included			
Number of observations	30,921			
Number of mutual funds	330			

Focusing the analysis on the European countries as a whole (table 2.8), when we estimate a linear relationship between the number of screens and returns, the coefficients are positive and without statistical significance. When the screening intensity squared term is introduced, the coefficients of the screening intensity show a negative sign, and the coefficients for the squared term are positive, but neither of them is statistically significant. Furthermore, we find no evidence

of specific screens, positive screens, or social labels systematically affecting performance. These results are in line with Laurel (2011), who finds no relationship between screening intensity and financial performance for a European context, neither linear nor curvilinear.

Table 2.8. Regression results for European funds

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used, and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The subsample includes 250 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Europe			
	Model (2.2)	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**
Screening Intensity	0.0002 (0.47)	-0.0003 (-0.23)	0.0005 (0.54)	-0.0010 (-0.58)
Squared Screening Intensity		0.0001 (0.37)		0.0002 (1.06)
Dummy_Environment			0.0004 (0.10)	0.0005 (0.12)
Dummy_Social			0.0037 (1.00)	0.0043 (1.15)
Dummy_Governance			0.0000 (0.00)	0.0010 (0.08)
Dummy_Products			0.0029 (0.79)	0.0029 (0.80)
Dummy_Shareholder Engagement			(omitted)	(omitted)
Dummy_Positive Screening			-0.0020 (-1.10)	-0.0024 (-1.28)
Dummy_Labels			0.0022 (0.82)	0.0020 (0.77)
Log Age	0.0005 (0.26)	0.0006 (0.27)	0.0004 (0.22)	0.0005 (0.23)
Log Size	0.0026*** (4.27)	0.0026*** (4.28)	0.0026*** (4.14)	0.0027*** (4.22)
Total Expense Ratio	-0.0007 (-0.43)	-0.0007 (-0.39)	-0.0004 (-0.25)	-0.0002 (-0.13)
Dummy_Global	-0.0014 (-0.59)	-0.0014 (-0.60)	-0.0000 (-0.02)	0.0000 (0.00)
Year dummies	Included			
Number of observations	22,272			
Number of mutual funds	250			

Considering that some of the features of the UK financial market are different from continental Europe countries, we also analyze the European subsample excluding UK funds. The results, presented in table 2.9, show a positive linear relationship between screening intensity and risk-adjusted returns at the 5% significance level. Similar to the whole sample of European funds (i.e., with the UK), there are no significant relationships with regard to particular types of screens, positive screening, or labels.

Table 2.10 shows the regression results for US funds. Interestingly, the results show that several variables have a significant impact on the financial performance of SRI funds. We find evidence that the performance an US SRI fund investor can expect is dependent on the number and type of screens employed by the funds. For a significance level of 5%, the findings in model 2.5 suggest there is a positive relationship between screening intensity and risk-adjusted returns, and a negative relationship between squared screening intensity and risk-adjusted returns. This means that the financial performance increases at first as the number of screens increases, but then declines continuously until it reaches the maximum screening intensity. Still, at the maximum of 16 screens, performance is superior to the level of funds with one screen. Therefore, unlike Barnett and Salomon (2006), who find that the risk-adjusted performance starts to decrease as the number of screens increases, and then recovers, we conclude for an inverted curvilinear (U-shaped) effect, as already observed for the overall sample (table 2.7). From table 2.10, it is also evident that some screening strategies significantly influence the financial performance of US SRI funds. Similar to Barnett and Salomon (2006), funds that screen on the basis of environmental criteria have a relatively lower performance. Products-oriented screens also have a negative effect on performance, while screening on governance, in contrast with Renneboog *et al.* (2008b), generates a relatively stronger financial performance.

Table 2.9. Regression results for European funds (without UK)

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used, and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The subsample includes 217 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Europe without UK			
	Model (2.2)	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**
Screening Intensity	0.0001 (0.50)	0.0004 (0.66)	0.0009** (2.26)	0.0011 (1.46)
Squared Screening Intensity		-0.0000 (-0.55)		-0.0000 (-0.26)
Dummy_Environment			-0.0018 (-0.91)	-0.0018 (-0.92)
Dummy_Social			-0.0004 (-0.27)	-0.0005 (-0.31)
Dummy_Governance			0.0006 (0.14)	0.0005 (0.11)
Dummy_Products			-0.0025 (-1.62)	-0.0025 (-1.62)
Dummy_Shareholder Engagement			(omitted)	(omitted)
Dummy_Positive Screening			-0.0010 (-1.22)	-0.0010 (-1.16)
Dummy_Labels			0.0001 (0.06)	0.0001 (0.08)
Log Age	0.0000 (0.02)	0.0000 (0.00)	-0.0003 (-0.27)	-0.0003 (-0.27)
Log Size	0.0008*** (2.89)	0.0008*** (2.82)	0.0008*** (2.86)	0.0008*** (2.80)
Total Expense Ratio	-0.0005 (-0.64)	-0.0005 (-0.69)	-0.0004 (-0.47)	-0.0004 (-0.49)
Dummy_Global	-0.0002 (-0.24)	-0.0002 (-0.22)	-0.0001 (-0.09)	-0.0001 (-0.09)
Year dummies	Included			
Number of observations	19,047			
Number of mutual funds	217			

Table 2.10. Regression results for US funds

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used, and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The subsample includes 80 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	US			
	Model (2.2)	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**
Screening Intensity	0.0002 (0.39)	0.0028 (0.93)	-0.0015 (-0.83)	0.0131** (2.03)
Squared Screening Intensity		-0.0001 (-0.88)		-0.0007** (-2.35)
Dummy_Environment			-0.0054 (-0.49)	-0.0315** (-2.06)
Dummy_Social			0.0050 (0.55)	-0.0086 (-0.82)
Dummy_Governance			0.0285** (2.40)	0.0289** (2.53)
Dummy_Products			-0.0034 (-0.29)	-0.0302* (-1.89)
Dummy_Shareholder Engagement			0.0013 (0.12)	0.0028 (0.27)
Dummy_Positive Screening			-0.0012 (-0.92)	-0.0008 (-0.63)
Dummy_Labels			0.0079 (1.06)	0.0073 (1.02)
Log Age	0.0070 (0.80)	0.0079 (0.89)	0.0030 (0.33)	0.0083 (0.92)
Log Size	-0.0027 (-1.30)	-0.0028 (-1.33)	-0.0024 (-1.14)	-0.0027 (-1.33)
Total Expense Ratio	-0.0048 (-0.66)	-0.0047 (-0.65)	-0.0065 (-0.83)	-0.0046 (-0.60)
Dummy_Global	-0.0033 (-0.40)	-0.0014 (-0.16)	-0.0097 (-1.10)	-0.0064 (-0.75)
Year dummies	Included			
Number of observations	8,649			
Number of mutual funds	80			

Table 2.11 presents the regression results for UK funds only. There are different signs for the hypothesis of a linear relationship between financial performance and screening intensity, but without any of the coefficients being statistically significant. With respect to the square of the screening intensity, the coefficients are positive but not statistically significant. Both ESG-type and screening strategies exhibit mixed signs and no significant coefficients.

Table 2.11. Regression results for UK funds

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used, and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The subsample includes 33 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	UK			
	Model (2.2)	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**
Screening Intensity	0.0015 (0.51)	-0.0025 (-0.25)	-0.0160 (-1.55)	-0.0232 (-1.66)
Squared Screening Intensity		0.0004 (0.42)		0.0011 (0.78)
Dummy_Environment			0.0055 (0.21)	0.0034 (0.13)
Dummy_Social			0.0193 (0.73)	0.0273 (0.95)
Dummy_Governance			(omitted)	(omitted)
Dummy_Products			0.0928 (1.58)	0.0738 (1.14)
Dummy_Shareholder Engagement			(omitted)	(omitted)
Dummy_Positive Screening			0.0198 (1.09)	0.0061 (0.24)
Dummy_Labels			0.0146 (0.51)	0.0244 (0.76)
Log Age	0.0102 (0.93)	0.0103 (0.92)	0.0046 (0.38)	0.0078 (0.60)
Log Size	0.0094** (2.59)	0.0096** (2.56)	0.0100** (2.36)	0.0086* (1.85)
Total Expense Ratio	0.0110 (0.89)	0.0107 (0.84)	0.0239* (1.79)	0.0236 (1.74)
Dummy_Global	0.0040 (0.23)	0.0047 (0.26)	0.0078 (0.44)	0.0028 (0.14)
Year dummies	Included			
Number of observations	3,225			
Number of mutual funds	33			

Finally, table 2.12 shows the results for Scandinavian countries. We show a positive linear relationship between screening intensity and fund performance for a significance level of 5%, suggesting that the financial performance of Scandinavian funds is higher when the number of screens increases. The social dummies exhibit negative signals, but none of them are statistically significant.

Table 2.12. Regression results for Scandinavian funds

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used, and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The subsample includes 21 SRI equity mutual funds for the period 2003-2014. The t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Scandinavia			
	Model (2.2)	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**
Screening Intensity	0.0019**	0.0001	0.0147	0.0171
	(2.36)	(0.03)	(1.11)	(0.85)
Squared Screening Intensity		0.0001		-0.0002
		(0.53)		(-0.19)
Dummy_Environment			-0.0145	-0.0119
			(-0.25)	(-0.18)
Dummy_Social			-0.0051	-0.0055
			(-0.50)	(-0.46)
Dummy_Governance			(omitted)	(omitted)
Dummy_Products			-0.0437	-0.0404
			(-0.94)	(-0.72)
Dummy_Shareholder Engagement			(omitted)	(omitted)
Dummy_Positive Screening			-0.0138	-0.0141
			(-0.88)	(-0.79)
Dummy_Labels			-0.0045	-0.0043
			(-1.10)	(-0.90)
Log Age	-0.0002	-0.0002	0.0020	0.0018
	(-0.09)	(-0.07)	(0.33)	(0.25)
Log Size	0.0012	0.0013	-0.0007	-0.0007
	(1.30)	(1.33)	(-0.23)	(-0.20)
Total Expense Ratio	0.0044	0.0043	0.0007	0.0012
	(1.76)	(1.65)	(0.11)	(0.16)
Dummy_Global	-0.0009	-0.0012	-0.0043	-0.0046
	(-0.41)	(-0.51)	(-0.95)	(-0.84)
Year dummies	Included			
Number of observations	1,281			
Number of mutual funds	21			

In relation to the control variables, only Size and the Total Expense Ratio seem to affect financial performance. For the global sample, as well as for the European (with and without UK) and UK subsamples, the Size variable exhibits a positive and statistically significant coefficient. This means that larger SRI funds may benefit from better financial returns. Concerning the Total Expense Ratio, UK funds show a positive sign (although only significant at the 10% level)

suggesting that the total costs incurred by a SRI fund do not detract risk-adjusted returns.

In order to test hypothesis 4, as in Capelle-Blancard and Monjon (2014), we proceed to the replacement of the total screening intensity by the number of sectoral and transversal screens. Tables 2.13 to 2.18 (sectoral and transversal screens considered together) and 2.19 to 2.24 (sectoral and transversal screens considered individually) present the results. For the global sample, the inverted U-shaped effect disappears, and a positive linear relationship (at the 10% significance level) between the number of transversal screens and financial returns is uncovered. Additionally, when we consider only sectoral screens, there is weak evidence (at the 10% significance level) that social screens have a positive impact on performance. Interestingly, the positive relationship previously found for Europe without UK and Scandinavia, and well as the curvilinear relationship for US funds, also hold for sectoral screens. We also document an interesting result for the UK: when we consider both sectoral and transversal screens, there is a negative relationship between the number of sectoral screens and financial performance, for a level of significance of 10%. So, consistent with Capelle-Blancard and Monjon (2014) for French funds, we report that sectoral screens decrease the financial performance of UK funds, while transversal screens have no influence on performance.

Table 2.13. Regression results for the global sample – sectoral and transversal screens

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Sectoral Screens and Transversal Screens*, defined as the number of sectoral and transversal screens used, respectively, and its square (*Squared Sectoral Screens and Squared Transversal Screens)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The sample includes 330 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Global			
	Model (2.6)	**Model (2.7)**	**Model (2.8)**	**Model (2.9)**
Sectoral Screens	-0.0003 (-0.48)	0.0004 (0.19)	-0.0006 (-0.71)	0.0018 (0.84)
Squared Sectoral Screens		-0.0001 (-0.36)		-0.0003 (-1.20)
Transversal Screens	0.0018 (1.58)	0.0027 (0.89)	0.0021 (0.93)	0.0044 (0.53)
Squared Transversal Screens		-0.0002 (-0.26)		-0.0004 (-0.22)
Dummy_Environment			-0.0013 (-0.34)	-0.0017 (-0.46)
Dummy_Social			0.0018 (0.40)	0.0000 (0.00)
Dummy_Governance			0.0072 (1.20)	0.0080 (1.32)
Dummy_Products			0.0024 (0.65)	0.0013 (0.33)
Dummy_Shareholder Engagement			0.0043 (0.75)	0.0061 (1.03)
Dummy_Positive Screening			-0.0013 (-1.53)	-0.0014 (-1.58)
Dummy_Labels			0.0045* (1.87)	0.0046* (1.91)
Log Age	-0.0009 (-0.42)	-0.0010 (-0.44)	-0.0006 (-0.26)	-0.0005 (-0.22)
Log Size	0.0018*** (2.76)	0.0018*** (2.70)	0.0017*** (2.59)	0.0016** (2.42)
Total Expense Ratio	-0.0019 (-1.06)	-0.0020 (-1.10)	-0.0015 (-0.79)	-0.0016 (-0.87)
Dummy_Global	-0.0011 (-0.46)	-0.0012 (-0.49)	0.0001 (0.05)	-0.0001 (-0.04)
Year dummies	Included			
Number of observations	30,921			
Number of mutual funds	330			

Table 2.14. Regression results for European funds – sectoral and transversal screens

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Sectoral Screens and Transversal Screens*, defined as the number of sectoral and transversal screens used, respectively, and its square (*Squared Sectoral Screens and Squared Transversal Screens)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The subsample includes 250 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Europe			
	Model (2.6)	**Model (2.7)**	**Model (2.8)**	**Model (2.9)**
Sectoral Screens	0.0004 (0.52)	-0.0006 (-0.33)	0.0005 (0.53)	-0.0005 (-0.25)
Squared Sectoral Screens		0.0001 (0.56)		0.0001 (0.56)
Transversal Screens	-0.0001 (-0.11)	0.0024 (0.67)	0.0027 (0.77)	-0.0044 (-0.42)
Squared Transversal Screens		-0.0009 (-0.79)		0.0018 (0.69)
Dummy_Environment			0.0019 (0.39)	0.0019 (0.39)
Dummy_Social			0.0022 (0.52)	0.0076 (0.82)
Dummy_Governance			0.0016 (0.13)	0.0018 (0.15)
Dummy_Products			0.0025 (0.67)	0.0028 (0.74)
Dummy_Shareholder Engagement			(omitted)	(omitted)
Dummy_Positive Screening			-0.0033 (-1.22)	-0.0035 (-1.25)
Dummy_Labels			0.0022 (0.85)	0.0020 (0.77)
Log Age	0.0005 (0.25)	0.0003 (0.17)	0.0004 (0.21)	0.0004 (0.20)
Log Size	0.0026*** (4.27)	0.0027*** (4.35)	0.0026*** (4.11)	0.0027*** (4.18)
Total Expense Ratio	-0.0007 (-0.42)	-0.0006 (-0.36)	-0.0005 (-0.26)	-0.0004 (-0.24)
Dummy_Global	-0.0016 (-0.63)	-0.0014 (-0.59)	0.0000 (0.00)	0.0003 (0.13)
Year dummies	Included			
Number of observations	22,272			
Number of mutual funds	250			

Table 2.15. Regression results for European funds (without UK) – sectoral and transversal screens

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Sectoral Screens and Transversal Screens*, defined as the number of sectoral and transversal screens used, respectively, and its square (*Squared Sectoral Screens and Squared Transversal Screens)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The subsample includes 217 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Europe without UK			
	Model (2.6)	**Model (2.7)**	**Model (2.8)**	**Model (2.9)**
Sectoral Screens	0.0004 (1.35)	0.0008 (0.98)	0.0009** (2.24)	0.0015 (1.62)
Squared Sectoral Screens		-0.0001 (-0.52)		-0.0001 (-0.72)
Transversal Screens	-0.0005 (-1.05)	0.0001 (0.09)	0.0006 (0.40)	-0.0036 (-0.57)
Squared Transversal Screens		-0.0002 (-0.41)		0.0010 (0.72)
Dummy_Environment			-0.0020 (-0.87)	-0.0021 (-0.90)
Dummy_Social			-0.0003 (-0.14)	0.0033 (0.63)
Dummy_Governance			0.0014 (0.30)	0.0014 (0.30)
Dummy_Products			-0.0024 (-1.55)	-0.0024 (-1.52)
Dummy_Shareholder Engagement			(omitted)	(omitted)
Dummy_Positive Screening			-0.0008 (-0.65)	-0.0007 (-0.56)
Dummy_Labels			0.0000 (0.04)	0.0000 (0.01)
Log Age	0.0003 (0.04)	0.0000 (0.02)	-0.0003 (-0.27)	-0.0002 (-0.25)
Log Size	0.0008*** (2.91)	0.0008*** (2.83)	0.0008*** (2.85)	0.0008*** (2.77)
Total Expense Ratio	-0.0005 (-0.71)	-0.0006 (-0.75)	-0.0004 (-0.47)	-0.0005 (-0.59)
Dummy_Global	-0.0005 (-0.51)	-0.0005 (-0.51)	-0.0001 (-0.10)	-0.0000 (-0.04)
Year dummies	Included			
Number of observations	19,047			
Number of mutual funds	217			

Table 2.16. Regression results for US funds – sectoral and transversal screens

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Sectoral Screens and Transversal Screens*, defined as the number of sectoral and transversal screens used, respectively, and its square (*Squared Sectoral Screens and Squared Transversal Screens)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The subsample includes 80 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	US			
	Model (2.6)	**Model (2.7)**	**Model (2.8)**	**Model (2.9)**
Sectoral Screens	-0.0029 (-1.59)	0.0066 (1.14)	-0.0042 (-1.55)	0.0261*** (2.94)
Squared Sectoral Screens		-0.0012* (-1.80)		-0.0031*** (-3.60)
Transversal Screens	0.0062* (1.70)	0.0022 (0.30)	0.0058 (0.84)	0.0249 (1.05)
Squared Transversal Screens		0.0019 (0.85)		-0.0013 (-0.30)
Dummy_Environment			-0.0043 (-0.38)	-0.0374** (-2.41)
Dummy_Social			-0.0066 (-0.48)	-0.0224 (-0.87)
Dummy_Governance			0.0236** (2.29)	0.0223** (2.37)
Dummy_Products			0.0001 (0.01)	-0.0385** (-2.34)
Dummy_Shareholder Engagement			0.0020 (0.20)	0.0105 (1.12)
Dummy_Positive Screening			-0.0015 (-1.15)	-0.0017 (-1.41)
Dummy_Labels			0.0072 (0.97)	0.0064 (0.94)
Log Age	0.0055 (0.63)	0.0076 (0.89)	0.0032 (0.36)	0.0094 (1.10)
Log Size	-0.0022 (-1.08)	-0.0026 (-1.26)	-0.0023 (-1.10)	-0.0021 (-1.10)
Total Expense Ratio	-0.0041 (-0.57)	-0.0033 (-0.46)	-0.0064 (-0.81)	-0.0011 (-0.15)
Dummy_Global	-0.0031 (-0.38)	-0.0038 (-0.45)	-0.0117 (-1.31)	-0.0148* (-1.77)
Year dummies	Included			
Number of observations	8,649			
Number of mutual funds	80			

Table 2.17. Regression results for UK funds – sectoral and transversal screens

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Sectoral Screens and Transversal Screens*, defined as the number of sectoral and transversal screens used, respectively, and its square (*Squared Sectoral Screens and Squared Transversal Screens)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The subsample includes 33 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	UK			
	Model (2.6)	**Model (2.7)**	**Model (2.8)**	**Model (2.9)**
Sectoral Screens	-0.0036 (-0.64)	-0.0147 (-0.88)	-0.0171 (-1.55)	-0.0714* (-1.85)
Squared Sectoral Screens		0.0015 (0.69)		0.0083 (1.48)
Transversal Screens	0.0143 (1.14)	0.0389 (1.17)	-0.0084 (-0.39)	0.1560 (1.14)
Squared Transversal Screens		-0.0116 (-0.86)		-0.0684 (-1.18)
Dummy_Environment			0.0074 (0.27)	-0.0838 (-1.11)
Dummy_Social			0.0166 (0.59)	-0.0825 (-0.89)
Dummy_Governance			(omitted)	(omitted)
Dummy_Products			0.0898 (1.46)	0.0425 (0.62)
Dummy_Shareholder Engagement			(omitted)	(omitted)
Dummy_Positive Screening			0.0165 (0.80)	0.0438 (1.06)
Dummy_Labels			0.0178 (0.58)	0.0444 (1.26)
Log Age	0.0098 (0.90)	0.0079 (0.69)	0.0050 (0.39)	0.0114 (0.86)
Log Size	0.0089** (2.46)	0.0091** (2.36)	0.0092* (1.93)	0.0058 (1.11)
Total Expense Ratio	0.0103 (0.83)	0.0104 (0.80)	0.0233 (1.68)	0.0266* (1.89)
Dummy_Global	-0.0006 (-0.03)	-0.0040 (-0.21)	0.0039 (0.19)	-0.0132 (-0.56)
Year dummies	Included			
Number of observations	3,225			
Number of mutual funds	33			

Table 2.18. Regression results for Scandinavian funds – sectoral and transversal screens

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Sectoral Screens and Transversal Screens*, defined as the number of sectoral and transversal screens used, respectively, and its square (*Squared Sectoral Screens and Squared Transversal Screens)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The subsample includes 21 SRI equity mutual funds for the period 2003-2014. The t-statistics are shown in parentheses. *

*p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Scandinavia			
	Model (2.6)	**Model (2.7)**	**Model (2.8)**	**Model (2.9)**
Sectoral Screens	0.0027* (2.15)	0.0112 (0.64)	0.0147 (1.11)	0.0140 (0.63)
Squared Sectoral Screens		-0.0009 (-0.50)		-0.0001 (-0.03)
Transversal Screens	0.0009 (0.63)	-0.0020 (-0.26)	0.0658 (1.09)	0.0585 (1.24)
Squared Transversal Screens		0.0011 (0.36)		-0.0062 (-0.39)
Dummy_Environment			0.0879 (1.58)	0.0579 (0.71)
Dummy_Social			-0.0051 (-0.50)	-0.0241 (-0.48)
Dummy_Governance			(omitted)	(omitted)
Dummy_Products			-0.0437 (-0.94)	-0.0387 (-0.82)
Dummy_Shareholder Engagement			(omitted)	(omitted)
Dummy_Positive Screening			-0.0649 (-1.05)	-0.0327 (-0.88)
Dummy_Labels			-0.0045 (-1.10)	-0.0043 (-0.90)
Log Age	-0.0003 (-0.12)	-0.0009 (-0.30)	0.0020 (0.33)	0.0018 (0.25)
Log Size	0.0012 (1.31)	0.0012 (1.17)	-0.0007 (-0.23)	-0.0007 (-0.20)
Total Expense Ratio	0.0045 (1.75)	0.0058 (1.48)	0.0007 (0.11)	0.0012 (0.16)
Dummy_Global	-0.0020 (-0.79)	-0.0024 (-0.66)	-0.0043 (-0.95)	-0.0046 (-0.84)
Year dummies	Included			
Number of observations	1,281			
Number of mutual funds	21			

Table 2.19. Regression results for the global sample – sectoral vs. transversal screens

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used (sectoral or transversal screens), and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The sample includes 330 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Sectoral Screens (SECT)				**Transversal Screens (TRNV)**			
	Model (2.10.a)	**Model (2.11.a)**	**Model (2.12.a)**	**Model (2.13.a)**	**Model (2.10.b)**	**Model (2.11.b)**	**Model (2.12.b)**	**Model (2.13.b)**
Screening Intensity	0.0004	0.0003	-0.0005	0.0017	0.0015*	0.0028	0.0019	0.0065
	(0.70)	(0.17)	(-0.58)	(0.77)	(1.66)	(0.93)	(0.83)	(0.79)
Squared Screening Intensity		0.0000		-0.0003		-0.0004		-0.0011
		(0.03)		(-1.10)		(-0.46)		(-0.59)
Dummy_Environment			-0.0008	-0.0010			-0.0023	-0.0027
			(-0.23)	(-0.28)			(-0.70)	(-0.79)
Dummy_Social			0.0049*	0.0054*			0.0017	-0.0023
			(1.74)	(1.89)			(0.40)	(-0.28)
Dummy_Governance			0.0082	0.0089			0.0070	0.0076
			(1.39)	(1.50)			(1.17)	(1.25)
Dummy_Products			0.0030	0.0022			0.0009	0.0007
			(0.80)	(0.57)			(0.29)	(0.23)
Dummy_Shareholder Engagement			0.0051	0.0066			0.0036	0.0041
			(0.88)	(1.12)			(0.63)	(0.71)
Dummy_Positive Screening			-0.0010	-0.0010			-0.0014	-0.0013
			(-1.25)	(-1.26)			(-1.59)	(-1.48)
Dummy_Labels			0.0043*	0.0044*			0.0046*	0.0046*
			(1.81)	(1.83)			(1.92)	(1.92)
Log Age	-0.0012	-0.0012	-0.0007	-0.0007	-0.0009	-0.0010	-0.0006	-0.0006
	(-0.57)	(-0.57)	(-0.33)	(-0.32)	(-0.42)	(-0.45)	(-0.29)	(-0.27)
Log Size	0.0018***	0.0018***	0.0017***	0.0017***	0.0018***	0.0018***	0.0017***	0.0016**
	(2.82)	(2.81)	(2.70)	(2.58)	(2.77)	(2.78)	(2.60)	(2.54)
Total Expense Ratio	-0.0020	-0.0020	-0.0015	-0.0016	-0.0019	-0.0019	-0.0014	-0.0014
	(-1.07)	(-1.06)	(-0.81)	(-0.89)	(-1.04)	(-1.06)	(-0.76)	(-0.76)
Dummy_Global	-0.0018	-0.0018	0.0001	-0.0001	-0.0013	-0.0013	-0.0001	-0.0001
	(-0.75)	(-0.74)	(0.03)	(-0.05)	(-0.54)	(-0.52)	(-0.05)	(-0.04)
Year dummies	Included				Included			
Number of observations	30,921				30,921			
Number of mutual funds	330				330			

Table 2.20. Regression results for European funds – sectoral vs. transversal screens

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used (sectoral or transversal screens), and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The sample includes 250 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Sectoral Screens (SECT)				**Transversal Screens (TRNV)**			
	Model (2.10.a)	**Model (2.11.a)**	**Model (2.12.a)**	**Model (2.13.a)**	**Model (2.10.b)**	**Model (2.11.b)**	**Model (2.12.b)**	**Model (2.13.b)**
Screening Intensity	0.0003	-0.0007	0.0003	-0.0010	0.0002	0.0028	0.0022	-0.0052
	(0.55)	(-0.35)	(0.34)	(-0.50)	(0.21)	(0.81)	(0.66)	(-0.49)
Squared Screening Intensity		0.0001		0.0002		-0.0009		0.0019
		(0.53)		(0.73)		(-0.78)		(0.74)
Dummy_Environment			0.0003	0.0000			0.0020	0.0023
			(0.06)	(0.00)			(0.41)	(0.48)
Dummy_Social			0.0041	0.0036			0.0026	0.0085
			(1.11)	(0.97)			(0.59)	(0.93)
Dummy_Governance			0.0002	0.0002			0.0012	0.0015
			(0.02)	(0.02)			(0.10)	(0.12)
Dummy_Products			0.0035	0.0037			0.0038	0.0040
			(0.98)	(1.04)			(1.33)	(1.37)
Dummy_Shareholder Engagement			(omitted)	(omitted)			(omitted)	(omitted)
Dummy_Positive Screening			-0.0016	-0.0016			-0.0027	-0.0030
			(-1.03)	(-1.01)			(-1.11)	(-1.20)
Dummy_Labels			0.0022	0.0020			0.0022	0.0022
			(0.82)	(0.75)			(0.85)	(0.82)
Log Age	0.0005	0.0005	0.0005	0.0004	0.0005	0.0004	0.0005	0.0006
	(0.25)	(0.23)	(0.24)	(0.21)	(0.25)	(0.20)	(0.26)	(0.28)
Log Size	0.0026***	0.0026***	0.0026***	0.0027***	0.0026***	0.0027***	0.0026***	0.0027***
	(4.29)	(4.31)	(4.14)	(4.19)	(4.28)	(4.33)	(4.11)	(4.15)
Total Expense Ratio	-0.0007	-0.0007	-0.0005	-0.0003	-0.0007	-0.0007	-0.0005	-0.0006
	(-0.42)	(-0.38)	(-0.25)	(-0.18)	(-0.42)	(-0.41)	(-0.28)	(-0.32)
Dummy_Global	-0.0015	-0.0015	0.0000	0.0001	-0.0013	-0.0012	0.0002	0.0005
	(-0.63)	(-0.60)	(0.01)	(0.05)	(-0.54)	(-0.51)	(0.09)	(0.20)
Year dummies	Included				Included			
Number of observations	22,272				22,272			
Number of mutual funds	250				250			

Table 2.21. Regression results for European funds (without UK) – sectoral vs. transversal screens

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used (sectoral or transversal screens), and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The sample includes 217 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Sectoral Screens (SECT)				**Transversal Screens (TRNV)**			
	Model (2.10.a)	**Model (2.11.a)**	**Model (2.12.a)**	**Model (2.13.a)**	**Model (2.10.b)**	**Model (2.11.b)**	**Model (2.12.b)**	**Model (2.13.b)**
Screening Intensity	0.0002	0.0007	0.0009**	0.0013	-0.0001	0.0003	-0.0005	-0.0055
	(0.92)	(0.92)	(2.23)	(1.52)	(-0.32)	(0.21)	(-0.30)	(-0.89)
Squared Screening Intensity		-0.0001		-0.0001		-0.0001		0.0012
		(-0.68)		(-0.61)		(-0.30)		(0.84)
Dummy_Environment			-0.0024	-0.0023			-0.0022	-0.0025
			(-1.24)	(-1.20)			(-0.97)	(-1.09)
Dummy_Social			0.0001	0.0003			0.0003	0.0043
			(0.08)	(0.17)			(0.14)	(0.83)
Dummy_Governance			0.0011	0.0011			0.0006	0.0005
			(0.23)	(0.23)			(0.12)	(0.11)
Dummy_Products			-0.0022	-0.0023			-0.0002	-0.0001
			(-1.51)	(-1.56)			(-0.19)	(-0.10)
Dummy_Shareholder Engagement			(omitted)	(omitted)			(omitted)	(omitted)
Dummy_Positive Screening			-0.0004	-0.0004			0.0004	0.0006
			(-0.58)	(-0.60)			(0.37)	(0.52)
Dummy_Labels			0.0000	0.0001			-0.0001	-0.0002
			(0.00)	(0.06)			(-0.05)	(-0.17)
Log Age	0.0000	0.0001	-0.0002	-0.0002	-0.0000	-0.0000	-0.0001	-0.0001
	(0.04)	(0.06)	(-0.25)	(-0.24)	(-0.00)	(-0.03)	(-0.11)	(-0.11)
Log Size	0.0008***	0.0007***	0.0008***	0.0008***	0.0008***	0.0008***	0.0008***	0.0008***
	(2.88)	(2.77)	(2.85)	(2.74)	(2.93)	(2.94)	(2.77)	(2.81)
Total Expense Ratio	-0.0005	-0.0006	-0.0004	-0.0004	-0.0005	-0.0005	-0.0004	-0.0004
	(-0.66)	(-0.72)	(-0.47)	(-0.52)	(-0.65)	(-0.64)	(-0.48)	(-0.56)
Dummy_Global	-0.0003	-0.0004	-0.0001	-0.0002	-0.0002	-0.0002	0.0003	0.0004
	(-0.34)	(-0.38)	(-0.11)	(-0.15)	(-0.20)	(-0.18)	(0.25)	(0.35)
Year dummies	Included				Included			
Number of observations	19,047				19,047			
Number of mutual funds	217				217			

Table 2.22. Regression results for US funds – sectoral vs. transversal screens

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used (sectoral or transversal screens), and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The sample includes 80 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Sectoral Screens (SECT)				**Transversal Screens (TRNV)**			
	Model (2.10.a)	**Model (2.11.a)**	**Model (2.12.a)**	**Model (2.13.a)**	**Model (2.10.b)**	**Model (2.11.b)**	**Model (2.12.b)**	**Model (2.13.b)**
Screening Intensity	-0.0004	0.0062	-0.0033	0.0178**	0.0015	0.0039	0.0015	0.0085
	(-0.38)	(1.06)	(-1.32)	(2.11)	(0.70)	(0.52)	(0.23)	(0.34)
Squared Screening Intensity		-0.0007		-0.0021**		-0.0006		-0.0013
		(-1.15)		(-2.61)		(-0.32)		(-0.29)
Dummy_Environment			-0.0023	-0.0200			-0.0118	-0.0134
			(-0.21)	(-1.61)			(-1.15)	(-1.14)
Dummy_Social			0.0024	0.0089			0.0003	-0.0068
			(0.28)	(1.05)			(0.03)	(-0.24)
Dummy_Governance			0.0263***	0.0292***			0.0215**	0.0216**
			(2.69)	(3.12)			(2.08)	(2.07)
Dummy_Products			0.0008	-0.0226			-0.0101	-0.0112
			(0.07)	(-1.56)			(-0.99)	(-1.02)
Dummy_Shareholder Engagement			0.0022	0.0080			-0.0045	-0.0043
			(0.22)	(0.83)			(-0.50)	(-0.47)
Dummy_Positive Screening			-0.0012	-0.0011			-0.0012	-0.0012
			(-0.99)	(-0.95)			(-0.96)	(-0.86)
Dummy_Labels			0.0069	0.0058			0.0101	0.0100
			(0.92)	(0.82)			(1.38)	(1.35)
Log Age	0.0063	0.0077	0.0024	0.0051	0.0071	0.0070	0.0044	0.0048
	(0.72)	(0.87)	(0.27)	(0.60)	(0.82)	(0.79)	(0.48)	(0.52)
Log Size	-0.0028	-0.0031	-0.0025	-0.0026	-0.0025	-0.0025	-0.0021	-0.0022
	(-1.38)	(-1.51)	(-1.18)	(-1.30)	(-1.22)	(-1.19)	(-0.99)	(-1.00)
Total Expense Ratio	-0.0053	-0.0051	-0.0074	-0.0054	-0.0043	-0.0043	-0.0042	-0.0042
	(-0.74)	(-0.71)	(-0.96)	(-0.74)	(-0.59)	(-0.60)	(-0.54)	(-0.54)
Dummy_Global	-0.0030	-0.0024	-0.0107	-0.0117	-0.0032	-0.0026	-0.0092	-0.0088
	(-0.36)	(-0.29)	(-1.22)	(-1.40)	(-0.38)	(-0.31)	(-1.04)	(-0.98)
Year dummies	Included				Included			
Number of observations	8,649				8,649			
Number of mutual funds	80				80			

Table 2.23. Regression results for UK funds – sectoral vs. transversal screens

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used (sectoral or transversal screens), and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The sample includes 33 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Sectoral Screens (SECT)				**Transversal Screens (TRNV)**			
	Model (2.10.a)	**Model (2.11.a)**	**Model (2.12.a)**	**Model (2.13.a)**	**Model (2.10.b)**	**Model (2.11.b)**	**Model (2.12.b)**	**Model (2.13.b)**
Screening Intensity	0.0010	-0.0079	-0.0160	-0.0311	0.0086	0.0233	0.0004	-0.0330
	(0.25)	(-0.56)	(-1.56)	(-1.74)	(1.00)	(0.83)	(0.02)	(-0.50)
Squared Screening Intensity		0.0011		0.0024		-0.0061		0.0150
		(0.66)		(1.03)		(-0.55)		(0.54)
Dummy_Environment			0.0065	-0.0023			-0.0139	0.0006
			(0.24)	(-0.08)			(-0.55)	(0.02)
Dummy_Social			0.0155	0.0219			0.0276	0.0529
			(0.57)	(0.79)			(0.96)	(0.95)
Dummy_Governance			(omitted)	(omitted)			(omitted)	(omitted)
Dummy_Products			0.0768	0.0584			0.0116	0.0085
			(1.54)	(1.11)			(0.31)	(0.22)
Dummy_Shareholder Engagement			(omitted)	(omitted)			(omitted)	(omitted)
Dummy_Positive Screening			0.0108	0.0010			-0.0032	-0.0174
			(0.78)	(0.06)			(-0.19)	(-0.55)
Dummy_Labels			0.0175	0.0292			-0.0085	-0.0040
			(0.59)	(0.92)			(-0.31)	(-0.14)
Log Age	0.0104	0.0101	0.0057	0.0092	0.0098	0.0090	0.0077	0.0090
	(0.94)	(0.90)	(0.47)	(0.74)	(0.91)	(0.81)	(0.59)	(0.65)
Log Size	0.0097**	0.0100**	0.0085*	0.0073	0.0088**	0.0085**	0.0092*	0.0088
	(2.69)	(2.71)	(2.01)	(1.68)	(2.47)	(2.33)	(1.84)	(1.69)
Total Expense Ratio	0.0109	0.0103	0.0224	0.0223	0.0109	0.0114	0.0210	0.0199
	(0.87)	(0.80)	(1.70)	(1.69)	(0.89)	(0.91)	(1.44)	(1.32)
Dummy_Global	0.0048	0.0047	0.0000	-0.0044	0.0014	-0.0011	0.0029	0.0016
	(0.26)	(0.44)	(0.00)	(-0.24)	(0.08)	(-0.06)	(0.12)	(0.07)
Year dummies	Included				Included			
Number of observations	3,225				3,225			
Number of mutual funds	33				33			

Table 2.24. Regression results for Scandinavian funds – sectoral vs. transversal screens

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used (sectoral or transversal screens), and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The sample includes 21 SRI equity mutual funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Sectoral Screens (SECT)				**Transversal Screens (TRNV)**			
	Model (2.10.a)	**Model (2.11.a)**	**Model (2.12.a)**	**Model (2.13.a)**	**Model (2.10.b)**	**Model (2.11.b)**	**Model (2.12.b)**	**Model (2.13.b)**
Screening Intensity	0.0030**	0.0116	0.0147	0.0183	0.0017	-0.0049	0.0191	0.2063
	(2.48)	(0.83)	(1.11)	(0.74)	(1.05)	(-0.71)	(0.43)	(0.83)
Squared Screening Intensity		-0.0009		-0.0004		0.0026		-0.0227
		(-0.62)		(-0.19)		(0.98)		(-0.68)
Dummy_Environment			-0.0438	-0.0425			0.0706	0.3628
			(-0.55)	(-0.47)			(1.29)	(0.93)
Dummy_Social			-0.0051	-0.0055			-0.0031	-0.0732
			(-0.50)	(-0.46)			(-0.29)	(-0.70)
Dummy_Governance			(omitted)	(omitted)			(omitted)	(omitted)
Dummy_Products			-0.0437	-0.0427			0.0078	0.0085
			(-0.94)	(-0.79)			(1.15)	(1.18)
Dummy_Shareholder Engagement			(omitted)	(omitted)			(omitted)	(omitted)
Dummy_Positive Screening			0.0009	0.0010			-0.0164	-0.1128
			(0.17)	(0.17)			(-0.37)	(-0.95)
Dummy_Labels			-0.0045	-0.0043			-0.0025	-0.0026
			(-1.10)	(-0.90)			(-0.68)	(-0.65)
Log Age	-0.0006	-0.0008	0.0020	0.0018	-0.0012	-0.0018	-0.0032	-0.0021
	(-0.27)	(-0.32)	(0.33)	(0.25)	(-0.41)	(-0.62)	(-0.76)	(-0.44)
Log Size	0.0012	0.0012	-0.0007	-0.0007	0.0009	0.0011	0.0023	0.0013
	(1.31)	(1.24)	(-0.23)	(-0.20)	(0.81)	(0.97)	(1.53)	(0.63)
Total Expense Ratio	0.0042	0.0051	0.0007	0.0012	0.0035	0.0053	0.0066	0.0063
	(1.74)	(1.77)	(0.11)	(0.16)	(1.17)	(1.51)	(1.79)	(1.58)
Dummy_Global	-0.0025	-0.0033	-0.0043	-0.0046	0.0010	0.0018	-0.0007	-0.0027
	(-1.06)	(-1.19)	(-0.95)	(-0.84)	(0.39)	(0.67)	(-0.21)	(-0.59)
Year dummies	Included				Included			
Number of observations	1,281				1,281			
Number of mutual funds	21				21			

Furthermore, we explore whether the impact of screening strategies differs across different market states (expansion and recession periods). We start by identifying market states across the distinct geographies considered in our sample. For US funds, we use the National Bureau of Economic Research (NBER) business cycles. The NBER identifies a single recession period during our sample period (2003-2014), namely from December 2007 until June 2009. For the Euro Area funds, we use the cycles provided by the Centre for Economic Policy Research (CEPR). The CEPR distinguishes two recession periods for the Euro Area: January 2008 to April 2009, and July 2011 to March 2013. For UK, Swiss and Scandinavian funds, we employ the business cycles of the Economic Cycle Research Institute (ECRI). The ECRI identifies one recession period for the UK during 2003-2014 – May 2008 to January 2010 – and two recession periods for Switzerland – January 2003 to March 2003, and May 2008 to May 2009. Finally, for Scandinavia, given the cultural homogeneity of the countries included, we employ the business cycles provided for Sweden: April 2008 to March 2009. The remaining periods are considered periods of expansion. We then estimate regressions for recession and expansion periods[50]. Tables 2.25 to 2.28 present the results.

[50] We do not estimate these regressions for UK and Scandinavian funds given the insufficient number of observations.

Table 2.25. Regression results for the global sample – expansion and recession periods

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used, and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The sample includes 330 SRI equity mutual funds for the expansion and recession periods defined in section 2.5. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods				**Recession Periods**			
	Model (2.2)	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**	**Model (2.2)**	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**
Screening Intensity	0.0004	0.0010	-0.0001	0.0028**	0.0008	0.0007	0.0005	-0.0031
	(1.29)	(1.08)	(-0.18)	(1.99)	(0.70)	(0.18)	(0.17)	(-0.50)
Squared Screening Intensity		-0.0000		-0.0002**		0.0000		0.0003
		(-0.72)		(-2.36)		(0.03)		(0.64)
Dummy_Environment			-0.0000	-0.0017			-0.0090	-0.0066
			(-0.01)	(-0.47)			(-0.61)	(-0.44)
Dummy_Social			0.0049	0.0024			0.0016	0.0044
			(1.60)	(0.74)			(0.12)	(0.33)
Dummy_Governance			0.0065	0.0120*			0.0031	-0.0034
			(1.10)	(1.90)			(0.11)	(-0.12)
Dummy_Products			0.0004	-0.0020			0.0146	0.0181
			(0.10)	(-0.56)			(0.95)	(1.11)
Dummy_Shareholder Engagement			0.0038	0.0099			-0.0045	-0.0131
			(0.65)	(1.55)			(-0.16)	(-0.42)
Dummy_Positive Screening			-0.0011	-0.0011			-0.0001	-0.0001
			(-1.41)	(-1.41)			(-0.03)	(-0.04)
Dummy_Labels			0.0039*	0.0038			0.0137	0.0138
			(1.68)	(1.63)			(1.30)	(1.30)
Log Age	-0.0024	-0.0024	-0.0022	-0.0021	0.0035	0.0034	0.0012	0.0010
	(-1.14)	(-1.14)	(-1.04)	(-1.02)	(0.55)	(0.55)	(0.18)	(0.15)
Log Size	0.0021***	0.0020***	0.0020***	0.0019***	-0.0022	-0.0022	-0.0021	-0.0020
	(3.35)	(3.29)	(3.23)	(3.06)	(-0.86)	(-0.86)	(-0.78)	(-0.76)
Total Expense Ratio	-0.0026	-0.0027	-0.0026	-0.0028	0.0025	0.0025	0.0030	0.0034
	(-1.39)	(-1.45)	(-1.37)	(-1.46)	(0.40)	(0.40)	(0.47)	(0.53)
Dummy_Global	0.0007	0.0006	0.0018	0.0016	-0.0150	-0.0150	-0.0084	-0.0081
	(0.30)	(0.24)	(0.74)	(0.65)	(-1.54)	(-1.54)	(-0.82)	(-0.79)
Year dummies	Included				Included			
Number of observations	24,872				6,049			
Number of mutual funds	330				264			

Table 2.26. Regression results for European funds – expansion and recession periods

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used, and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The sample includes 250 SRI equity mutual funds for the expansion and recession periods defined in section 2.5. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods				**Recession Periods**			
	Model (2.2)	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**	**Model (2.2)**	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**
Screening Intensity	0.0002	-0.0007	0.0004	-0.0013	0.0003	0.0006	0.0024	0.0020
	(0.42)	(-0.43)	(0.40)	(-0.74)	(0.30)	(0.17)	(1.19)	(0.52)
Squared Screening Intensity		0.0001		0.0002		-0.0000		0.0000
		(0.57)		(1.15)		(-0.10)		(0.14)
Dummy_Environment			0.0019	0.0020			-0.0126	-0.0124
			(0.45)	(0.47)			(-1.36)	(-1.32)
Dummy_Social			0.0043	0.0051			-0.0039	-0.0036
			(1.12)	(1.31)			(-0.49)	(-0.44)
Dummy_Governance			0.0000	0.0008			-0.0129	-0.0126
			(0.00)	(0.07)			(-0.54)	(-0.53)
Dummy_Products			0.0024	0.0024			-0.0049	-0.0047
			(0.63)	(0.63)			(-0.59)	(-0.57)
Dummy_Shareholder Engagement			(omitted)	(omitted)			(omitted)	(omitted)
Dummy_Positive Screening			-0.0020	-0.0024			-0.0013	-0.0015
			(-1.10)	(-1.29)			(-0.33)	(-0.35)
Dummy_Labels			0.0021	0.0019			0.0020	0.0020
			(0.78)	(0.73)			(0.32)	(0.32)
Log Age	0.0001	0.0001	0.0001	0.0001	-0.0017	-0.0017	-0.0035	-0.0036
	(0.03)	(0.05)	(0.02)	(0.03)	(-0.48)	(-0.48)	(-0.94)	(-0.95)
Log Size	0.0027***	0.0027***	0.0027***	0.0028***	0.0004	0.0004	0.0010	0.0010
	(4.38)	(4.39)	(4.19)	(4.27)	(0.29)	(0.30)	(0.62)	(0.62)
Total Expense Ratio	-0.0005	-0.0004	-0.0003	0.0000	-0.0056*	-0.0057*	-0.0051	-0.0050
	(-0.26)	(-0.21)	(-0.13)	(0.00)	(-1.78)	(-1.78)	(-1.57)	(-1.54)
Dummy_Global	0.0000	-0.0001	0.0009	0.0009	-0.0061	-0.0061	-0.0033	-0.0033
	(0.00)	(-0.03)	(0.34)	(0.34)	(-1.22)	(-1.21)	(-0.61)	(-0.60)
Year dummies	Included				Included			
Number of observations	17,365				4,907			
Number of mutual funds	250				197			

Table 2.27. Regression results for European funds (without UK) – expansion and recession periods

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used, and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The sample includes 217 SRI equity mutual funds for the expansion and recession periods defined in section 2.5. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods				**Recession Periods**			
	Model (2.2)	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**	**Model (2.2)**	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**
Screening Intensity	0.0002 (1.45)	-0.0005 (-0.08)	0.0011*** (2.59)	0.0006 (0.84)	0.0002 (0.21)	0.0006 (0.16)	0.0028 (1.22)	0.0029 (0.64)
Squared Screening Intensity		0.0000 (0.48)		0.0000 (0.71)		-0.0000 (-0.11)		-0.0000 (-0.01)
Dummy_Environment			0.0005 (0.26)	0.0006 (0.29)			-0.0142 (-1.29)	-0.0142 (-1.27)
Dummy_Social			0.0010 (0.58)	0.0012 (0.72)			-0.0036 (-0.39)	-0.0037 (-0.38)
Dummy_Governance			-0.0007 (-0.14)	-0.0004 (-0.10)			-0.0126 (-0.50)	-0.0126 (-0.49)
Dummy_Products			-0.0031** (-2.05)	-0.0031** (-2.02)			-0.0057 (-0.63)	-0.0057 (-0.63)
Dummy_Shareholder Engagement			(omitted)	(omitted)			(omitted)	(omitted)
Dummy_Positive Screening			-0.0015* (-1.79)	-0.0016* (-1.88)			-0.0018 (-0.38)	-0.0018 (-0.37)
Dummy_Labels			0.0000 (0.04)	-0.0000 (-0.02)			0.0032 (0.46)	0.0033 (0.46)
Log Age	0.0006 (0.59)	0.0006 (0.61)	0.0003 (0.26)	0.0003 (0.27)	-0.0020 (-0.48)	-0.0020 (-0.47)	-0.0043 (-0.95)	-0.0042 (-0.94)
Log Size	0.0005* (1.83)	0.0005* (1.85)	0.0005* (1.96)	0.0006** (2.02)	0.0008 (0.46)	0.0008 (0.47)	0.0014 (0.77)	0.0014 (0.77)
Total Expense Ratio	-0.0004 (-0.49)	-0.0004 (-0.45)	-0.0003 (-0.29)	-0.0002 (-0.23)	-0.0056 (-1.64)	-0.0056 (-1.64)	-0.0049 (-1.40)	-0.0049 (-1.39)
Dummy_Global	-0.0000 (-0.05)	-0.0001 (-0.07)	-0.0004 (-0.33)	-0.0004 (-0.34)	-0.0038 (-0.67)	-0.0038 (-0.66)	-0.0005 (-0.08)	-0.0005 (-0.08)
Year dummies	Included				Included			
Number of observations	14,621				4,426			
Number of mutual funds	217				173			

Table 2.28. Regression results for US funds – expansion and recession periods

This table reports the results from regressions of financial performance on a number of social and control variables. The dependent variable is the risk-adjusted performance (RAP) associated with SRI funds. Explanatory variables include *Screening Intensity*, defined as the number of screens used, and its square (*Squared Screening Intensity)*, and the following dummy variables: *Environment, Social, Governance, Products, Shareholder Engagement*, which take a value of 1 if the fund focuses on environmental, social, governance, products, shareholder engagement, respectively, and 0 otherwise; *Positive Screening* is defined as the number of positive screens employed by the fund; *Labels* is a dummy variable equal to 1 if the fund has received at least one social label, and 0 otherwise. Control variables include: *Size,* measured by the Log of fund's total net assets (in millions of US dollars); *Age,* measured as the Log of the number of months since the fund's inception; *Total Expense Ratio*, a measure of the total costs associated with managing and operating an investment fund; *Global*, a dummy variable that takes the value of 1 if the fund invests internationally, and 0 otherwise. The sample includes 80 SRI equity mutual funds for the expansion and recession periods defined in section 2.5. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods				**Recession Periods**			
	Model (2.2)	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**	**Model (2.2)**	**Model (2.3)**	**Model (2.4)**	**Model (2.5)**
Screening Intensity	0.0001	0.0029	-0.0015	0.0152***	0.0023	0.0038	-0.0011	-0.0316
	(0.11)	(1.19)	(-1.06)	(3.16)	(0.83)	(0.22)	(-0.12)	(-0.91)
Squared Screening Intensity		-0.0002		-0.0008***		-0.0001		0.0015
		(-1.19)		(-3.61)		(-0.09)		(0.91)
Dummy_Environment			0.0003	-0.0290**			-0.0555	-0.0003
			(0.04)	(-2.54)			(-0.91)	(-0.00)
Dummy_Social			0.0023	-0.0136*			0.0693	0.0954
			(0.32)	(-1.71)			(1.36)	(1.63)
Dummy_Governance			0.0254***	0.0265***			0.0453	0.0305
			(2.65)	(3.04)			(0.61)	(0.40)
Dummy_Products			-0.0080	-0.0397***			0.0503	0.1193
			(-0.86)	(-3.26)			(0.73)	(1.16)
Dummy_Shareholder Engagement			0.0002	0.0027			-0.0047	-0.0183
			(0.02)	(0.34)			(-0.08)	(-0.28)
Dummy_Positive Screening			-0.0007	-0.0004			-0.0014	-0.0020
			(-0.68)	(-0.39)			(-0.24)	(-0.33)
Dummy_Labels			0.0087	0.0086			-0.0463	-0.0494
			(1.44)	(1.56)			(-1.13)	(-1.20)
Log Age	0.0019	0.0027	-0.0029	0.0021	0.0170	0.0169	0.0211	0.0199
	(0.26)	(0.37)	(-0.41)	(0.31)	(0.73)	(0.71)	(0.87)	(0.81)
Log Size	-0.0022	-0.0023	-0.0018	-0.0022	-0.0036	-0.0035	-0.0042	-0.0040
	(-1.30)	(-1.35)	(-1.05)	(-1.36)	(-0.37)	(-0.35)	(-0.41)	(-0.39)
Total Expense Ratio	-0.0097	-0.0099	-0.0129**	-0.0119**	0.0427	0.0429	0.0674*	0.0673*
	(-1.64)	(-1.67)	(-2.10)	(-2.13)	(1.28)	(1.27)	(1.80)	(1.80)
Dummy_Global	0.0036	0.0060	-0.0018	0.0022	-0.0918*	-0.0918*	-0.1113**	-0.1085**
	(0.53)	(0.83)	(-0.25)	(0.33)	(-1.96)	(-1.95)	(-2.22)	(-2.16)
Year dummies	Included				Included			
Number of observations	7,507				1,142			
Number of mutual funds	80				67			

Considering the whole sample (table 2.25), there are no significant relationships in periods of recession. However, the curvilinear relationship between screening intensity and financial performance, as well as the positive and significant coefficients previously obtained for the variables Governance, Labels and Size hold in expansion periods. With regard to European funds (table 2.26), the positive effect of funds' size on performance persists in expansion periods, whilst Total Expense Ratio impacts negatively returns in recession periods. For European funds excluding UK (table 2.27), some interesting results emerge in expansion periods. Both the positive relationship between screening intensity and financial performance and the positive impact of size on returns are preserved. In addition, the number of screens related to products and positive screens have a negative impact on performance, for a level of significance of 5% and 10%, respectively. This means that excluding "sin" stocks and incorporating positive screens damages the performance of European funds (with the exception of UK) during "good times". Regarding US funds (table 2.28), all the previously identified relationships remain significant in periods of expansion. Additionally, social screens and the Total Expense Ratio seem to detract funds' returns. In recession times, the Total Expense Ratio seems to have a positive effect on returns, while the global dummy has the opposite effect.

To ensure the robustness of our results, we performed several unreported analyses[51]. First, like Barnett and Salomon (2006), we added each social variable (ENV, SOC, GOV, PROD, SHENG, PSCR, and LAB) in different orders and separately into the regressions. The results did not change substantially. Also, since extreme values of the observed variables can distort estimates of the regressions' coefficients, we proceeded to detect outliers graphically. Only one point whose value differed substantively from the other observations was excluded[52]. The main results persist for the samples affected.

Second, we dropped those funds that reported extreme screening intensity values (fewer than 4 and greater than 12) to test for other influential points. Some results concerning the global sample, and the US differ from those previously obtained. For the whole sample, when we exclude the extreme points, we obtain a linear positive and statistically significant relationship between screening intensity and returns. Also, some social variables become significant, namely the dummies Products and Shareholder Engagement, and the positive screening intensity. Screening on shareholder engagement has a positive impact on performance, while screening on products has a negative effect. The number of positive screens also impacts performance negatively. Regarding US funds, some types of screens emerge as

[51] The results, not reported for the sake of space, are available upon request.
[52] This observation refers to September 2011 in relation to the French fund LBPAM Responsible Actions Europe (ISIN FR0010940882).

relevant: social-screened funds have lower returns, whilst shareholder engagement-screened funds benefit in terms of performance. Differently from the global sample, the number of positive screens has a positive impact on financial performance.

Third, like Barnett and Salomon (2006), we split the sample into low (1-4 screens), medium (5-12 screens), and high (13-16 screens) screening intensity subsets to decompose the screening patterns of the funds. The results remain unchanged except for the global sample, whose differences are manifested at the medium level, and explained in the previous paragraph.

Finally, to determine whether the funds' behavior has changed over time, we split the sample into an early period from 2003 to 2008, and a later period from 2009 to 2014[53]. Concerning the whole sample, and the European (except UK) and US subsamples, the results previously obtained for the relationship between screening and returns hold for the 2009 to 2014 subperiod. In addition, products screens seem to have a negative impact on the returns of European (except UK) funds for the years from 2009 to 2014. With regard to control variables, age seems to erode the performance of European (with and without UK) funds for the 2003-2008 subperiod, while there are mixed results for the global dummy: the variable is positive (negative) and statistically significant for the early (later) period. For the global sample, we also find that global funds have lower returns during 2009 to 2014.

2.6. Conclusions

Researchers often claim that evidence on the impact of considering social and financial objectives in the performance of investment portfolios is unclear, questionable, or inconsistent. This study contributes to the literature by investigating the relationship between the risk-adjusted performance and the screening activities of a dataset of 330 US and European SRI mutual funds for the period 2003-2014.

In general, our results are consistent with the SRI fund literature in the sense that there does not seem to be a financial sacrifice for investors in highly screened funds. In particular, our study extends previous academic research that investigates the heterogeneity within socially screened funds by exploring the impact of the number and type of the social screens on financial returns, the effects of using positive screening techniques as well as sectoral/transversal screens, and the potential of social labels to generate distinct patterns of risk-adjusted returns.

[53] We do not perform this analysis on the UK and Scandinavian subsamples due to insufficient data.

Considering the global sample and the US subsample, we find an inverted U-shaped pattern between SRI fund financial performance and screening intensity. Although the shape of the curvilinear relationship is different from the one documented by Barnett and Salomon (2006), we interpret these findings as indicative that portfolio theory and stakeholder theory are actually complementary, instead of conflicting. The results are consistent with the existence of a trade-off between selectivity and diversification in the sense that when we intensify screening, we expect to form a portfolio composed of better firms (that comply with ESG standards), but we also significantly reduce the ability to fully diversify the portfolio. Initially, we are still able to create diversified portfolios; yet, from a certain level of screening, the adverse effects of excluding potentially profitable options from the portfolio become more evident. The results obtained for intermediate levels of screening (4 to 12 screens) corroborate this conclusion: the relationship between selectivity and diversification is such that the global sample exhibits a positive relationship between the number of screens and returns. Notwithstanding, for both the global sample and the US, the risk-adjusted performance for the maximum screening intensity is higher than the one achieved for the minimum screening intensity.

Differently, for Europe (excluding UK) and in particular for Scandinavian SRI funds, there is a linear positive relationship between screening intensity and financial performance. Although European countries have different histories, cultures and values, the exclusion of the UK, whose socially responsible investing approach is more based on negative screening, may uncover a greater homogeneity in continental Europe which, according to Renneboog *et al*. (2008a), is more focused on "best-in-class" screening strategies. In relation to Scandinavia, it is worth mentioning that it is a mature market for socially responsible investments, and the cultural homogeneity of the region is reflected in a common approach to CSR and responsible investing, as demonstrated in the regulatory frameworks and standards aimed at promoting sustainable practices in financial management (Jensen, 2016).

The application of sectoral and transversal screens (instead of total screening intensity) seems to indicate that the relationships obtained for Europe (without UK), US and Scandinavia are due to the exclusion of entire sectors, and not to transversal criteria applied to all firms. In relation to UK funds, our results show that only sectoral screens decrease fund performance (transversal screens have no impact) and are thus consistent with those of Capelle-Blancard and Monjon (2014) for French funds. This finding reinforces the paradigm of modern portfolio theory concerning the impact of the lack of diversification: in the UK, despite the market dimension, the elimination of entire sectors creates financial constraints.

When we incorporate qualitative differences on screening policies, we find some relationships between performance and particular screens. For the whole sample and US funds, we find that screening for governance has a positive effect on performance. Corporate scandals such as Enron and WorldCom during the 2000's have placed the topic of corporate governance on investors' social agenda. The definition of stronger legal and regulatory frameworks, as well as more detailed guidelines and transparent procedures have strengthened this trend and its relevance for public opinion, thus favoring good governance practices. Additionally, we also show that US funds that exclude firms with excessive negative environmental impact, or that exclude entire sectors related to alcohol, gambling, or tobacco, among others, suffer a financial penalty. By its nature, most environmental factors are long-term or very long-term. Therefore, investments to mitigate environmental risks may impact negatively SRI fund performance in the period under evaluation, but generate higher returns over a longer period of time. The conclusion in relation to shunned stocks is in line with the empirical literature that finds that "sin" stocks have higher expected returns than otherwise comparable stocks. Since companies in sectors of "wrongly earned money" tend to have a stable (or addicted) customer base, which makes the stocks less sensitive to market fluctuations (Landier and Nair, 2009), its exemption from the portfolio might detract financial performance.

Concerning positive screening strategies, when we remove extreme points of screening intensity, it emerges as a relevant factor. Nevertheless, the results are mixed: US funds meeting superior ESG standards have higher financial performance but when we consider the whole sample of SRI funds, the financial performance is negatively affected by the number of positive screens. Interestingly, consistent with Silva and Cortez (2016), whose findings stress a tendency for certified green funds to perform better than uncertified green funds, our main results also indicate that funds that are certified with sustainability labels tend to have a better financial performance. This conclusion contradicts skeptics of socially responsible investing that question whether SRI funds are just conventional funds in disguise. Social labels are assigned by independent entities to reassure investors about the social and ethical standards of the fund in which they are investing, and they can play a critical role in providing more transparency to the SRI market, thereby allowing investors to make more informed investment decisions.

Furthermore, our evidence indicates that for the global sample, Europe (with and without UK) and UK alone, larger funds have better financial performance. This result holds for expansion market cycles. So, consistent with Renneboog *et al.* (2008b), we argue that SRI funds are not subject to decreasing returns to scale. In relation to fees, Renneboog *et al.* (2008b)

document that management fees significantly reduce the risk-adjusted returns of SRI funds. In general, we find that the Total Expense Ratio has a neutral effect on returns (with the exception of UK, where it emerges as a financial advantage). Yet, we corroborate their conclusions for European (US) funds in recession (expansion) business cycles. In periods of turmoil, we also find that fees represent a financial advantage for US funds, whereas global US funds have lower returns.

Finally, we show that in periods of expansion US socially responsible investors pay a cost for incorporating additional social screens in their investment decisions. We show a similar effect of screens related to products, and positive screens, in Europe (except UK). Interestingly, when considering the global sample, and European (without UK) and US subsamples, we observe that the results obtained for the whole period are driven by those obtained in expansion periods.

There are several reasons why we should expect discrepancies in the way responsible investment affects performance in different countries/regions. Sandberg *et al.* (2009) suggest that are three kind of explanations for the heterogeneity in the SRI funds, namely: a) cultural and ideological differences between regions and countries; b) differences in values, norms and ideology between different actors involved in the SRI process (SRI stakeholders); and c) the market setting in which SRI actors operate. We illustrate this statement: the empirical evidence for the 13 countries in our sample is mixed, and the results are not geographically homogeneous. Each country/region has a unique social, political, legal, institutional context that determines the degree of development of the SRI market and, consequently, the outline of the relationship between social screening and financial returns.

In fact, there is no clear trend in the literature about the existence and nature of the relationship between social screens and financial performance worldwide. Geographically, evidence to date is quite limited: Barnett and Salomon (2006) and Lee *et al*. (2010) focus on US funds, Humphrey and Lee (2011) examine Australian funds, Laurel (2011) analyzes European funds, Capelle-Blancard and Monjon (2014) evaluate French funds and, finally, Renneboog *et al.* (2008) consider funds from Europe, North America and Asia-Pacific (although on an aggregate level only). Clearly, additional research is needed in order to get a more complete picture on this subject.

Another relevant issue concerns the consequences of the global financial crisis of 2008 on socially responsible investments. This event might have changed investors' perception and awareness concerning SRI practices, but most studies on the relationship between screening and performance do not consider 2008 and subsequent years. For example, Barnett and

Salomon (2006) and Lee *et al.* (2010), that show a curvilinear (U-shaped) and negative relationship between screening and returns for US funds, respectively, look at periods prior to this event. Differently, we find an inverted U-shaped effect but considering the period from 2003 to 2014. The effects of the international financial crisis may contribute to explain the different results of this study.

It is worth mentioning that the methodology used to assess fund performance and investment styles is crucial in analyzing whether and how screening effects SRI fund performance. By way of example, Barnett and Salomon (2006) and Renneboog *et al*. (2008b) measure the risk-adjusted performance assuming that each fund's beta is constant over the entire life of the fund. In this essay, the risk-adjusted returns are computed on the basis of the Carhart (1997) four-factor model in a 36 months rolling basis, thereby considering time-varying risk. Another limitation concerns the little variance in screening strategies across time. Some papers consider that these variables of interest vary very little (e.g., Barnett and Salomon, 2006; Humphrey and Lee, 2011) but employ methodologies consistent with variables that change normally over time. Given the data collected, we assume that the screening variables are static, and so apply a between effects model, what we believe to be a more robust methodology to estimate the regressions on our panel data.

In light of the differences concerning the time periods under analysis, methodologies used for assessing risk-adjusted performance and geographic regions analyzed, research on the relationship between the screening characteristics and the financial performance is still a work in progress. Yet, our essay contributes to the ongoing research providing relevant findings concerning the global sample, the world leader in terms of socially responsible finance and investing (US), as well as European SRI markets (like UK and Scandinavia).

APPENDICES

Appendix 2.1. Sample of US SRI funds

FUND	NAME	ISIN	DOMICILE
1	Alger Green Fund; A	US0155664099	USA
2	Allianzgi Global Water Fund; A	US01900A1060	USA
3	Amana Developing World Fund	US0228653079	USA
4	Amana Mutual Funds Trust Growth Fund	US0228652089	USA
5	Amana Mutual Funds Trust Income Fund	US0228651099	USA
6	American Mutual Fund; A	US0276811058	USA
7	American Trust Allegiance Fund	US0079891067	USA
8	Appleseed Fund	US90470K3703	USA
9	Ariel Appreciation Fund; Investor	US0403372065	USA
10	Ariel Focus Fund; Investor	US04035F1075	USA
11	Ariel Fund; Investor	US0403371075	USA
12	Ave Maria Catholic Values Fund	US8085302086	USA
13	Ave Maria Growth Fund	US8085303076	USA
14	Ave Maria Opportunity Fund	US8085307036	USA
15	Ave Maria Rising Dividend Fund	US8085306046	USA
16	Ave Maria World Equity Fund	US8085308026	USA
17	Azzad Ethical Mid Cap Fund	US0550602066	USA
18	Boston Common International Fund	US74316J1108	USA
19	Calvert Aggressive Allocation Fund; A	US1316186477	USA
20	Calvert Capital Accumulation Fund; A	US1316493030	USA
21	Calvert Conservative Allocation Fund; A	US1316186964	USA
22	Calvert Global Energy Solutions Fund; C	US13161P8216	USA
23	Calvert Global Equity Income; A	US1316198845	USA
24	Calvert Global Water Fund; Y	US13161P7713	USA
25	Calvert International Opportunities Fund; A	US1316498815	USA
26	Calvert Moderate Allocation Fund; A	US1316187384	USA
27	Calvert Small Cap Value Fund; A	US13161P5089	USA
28	Calvert Social Index; B	US1315827774	USA
29	Calvert Social Investment Fund Equity Portfolio; A	US1316183086	USA
30	Calvert VP SRI Large Cap Value Portfolio	US8661673074	USA
31	Calvert World Values International Equity Fund; A	US1316491059	USA
32	DFA Emerging Markets Social Core Equity Portfolio	US2332033636	USA
33	DFA International Sustainability Core 1 Portfolio	US2332031994	USA
34	DFA International Value ex Tobacco Portfolio	US23320G5475	USA
35	DFA US Social Core Equity 2 Portfolio	US2332032984	USA
36	DFA US Sustainability Core 1 Portfolio	US2332032158	USA
37	Domini Social Equity Fund	US2571321007	USA
38	Dreyfus Third Century Fund, Inc; Z	US26201E6068	USA
39	Epiphany FFV Fund; A	US29427N1037	USA
40	Eventide Gilead Fund	US62827L6829	USA

Appendix 2.1. Sample of US SRI funds (continued)

FUND	NAME	ISIN	DOMICILE
41	Fidelity Select Environmental and Alternative Energy Portfolio	US3163905744	USA
42	Firsthand Alternative Energy Fund	US3379418276	USA
43	Gabelli SRI Fund, Inc; I	US3624014086	USA
44	Green Century Equity Fund	US3927683058	USA
45	Guinness Atkinson Alternative Energy Fund	US4020315044	USA
46	LKCM Aquinas Growth Fund	US5018858754	USA
47	LKCM Aquinas Small-Cap Fund	US5018858002	USA
48	LKCM Aquinas Value Fund	US5018858838	USA
49	MFS Blended Research Core Equity Fund; R1	US55273W5417	USA
50	Neuberger Berman Socially Responsive Fund	US6412246059	USA
51	New Alternatives Fund; A	US6418681044	USA
52	New Covenant Growth Fund	US6436421019	USA
53	Northern Global Sustainability Index Fund	US6651303082	USA
54	Parnassus Core Equity Fund; Investor	US7017691012	USA
55	Parnassus Endeavor Fund	US7017658698	USA
56	Parnassus Fund	US7017651099	USA
57	Parnassus Mid Cap Fund	US7017658854	USA
58	Parnassus Small Cap Fund	US7017658771	USA
59	Pax MSCI International ESG Index Fund; Institutional	US7042237427	USA
60	Pax World Growth Fund	US7042234036	USA
61	Pax World Small Cap Fund; Institutional	US7042238177	USA
62	Portfolio 21 Global Equity Fund; Retail	US7429355883	USA
63	Praxis Growth Index Fund; A	US74006E8434	USA
64	Praxis International Index Fund; I	US74006E7022	USA
65	Praxis Small Cap Fund; A	US74006E7931	USA
66	Praxis Value Index Fund; A	US74006E6032	USA
67	Sentinel Sustainable Core Opportunities Fund; A	US81728B7266	USA
68	Sentinel Sustainable Mid Cap Opportunities Fund; I	US81728B6680	USA
69	SSgA IAM Shares Fund; N	US7849246498	USA
70	Steward Global Equity Income Fund; Institutional	US8603248548	USA
71	TIAA-CREF Social Choice Equity Fund	US87244V5003	USA
72	Timothy Plan Aggressive Growth Fund; A	US8874328136	USA
73	Timothy Plan International Fund; A	US8874326312	USA
74	Timothy Plan Large/Mid Cap Value Fund; A	US8874326072	USA
75	Timothy Plan Small Cap Value Fund; C	US8874328391	USA
76	UBS International Sustainable Equity Fund; P	US90262H3619	USA
77	Vanguard FTSE Social Index Fund; Investor	US9219103036	USA
78	Walden Mid Cap Fund	US1011568003	USA
79	Walden Small Cap Innovations Fund	US1011562063	USA
80	Washington Mutual Investors Fund; A	US9393301067	USA

Appendix 2.2. Sample of European SRI funds

FUND	NAME	ISIN	DOMICILE
1	3 Banken Nachhaltigkeitsfonds	AT0000701156	Austria
2	Allianz Invest Nachhaltigkeitsfonds; A	AT0000A0AZV3	Austria
3	Bawag PSK Oeko Sozial Stock; A	AT0000A06Q23	Austria
4	ERSTE Responsible Stock Austria; T	AT0000706528	Austria
5	ERSTE Responsible Stock Europe Emerging; T	AT0000A09YL3	Austria
6	ERSTE Responsible Stock Europe; T	AT0000645973	Austria
7	ERSTE Responsible Stock Global; T	AT0000646799	Austria
8	ERSTE WWF Stock Climate Change; T	AT0000A054H4	Austria
9	ERSTE WWF Stock Environment; A	AT0000705660	Austria
10	Kepler Ethik Aktienfonds; A	AT0000675657	Austria
11	Kepler Oeko Energien; A	AT0000A0AMH0	Austria
12	Klassik MegaTrends; A	AT0000820139	Austria
13	S EthikAktien; T	AT0000681168	Austria
14	S Generation	AT0000A0JGB6	Austria
15	S Generation Plus	AT0000A04UC1	Austria
16	Superior 4 - Ethik Aktien; A	AT0000993043	Austria
17	Superior 6 - Global Challenges; T	AT0000A0AA78	Austria
18	TVG Zukunftsfonds; A	AT0000A05H82	Austria
19	Volksbank Ethik - Invest	AT0000708367	Austria
20	Candriam Sustainable Europe; C	BE0173540072	Belgium
21	Candriam Sustainable North America; C	BE0173901779	Belgium
22	Candriam Sustainable Pacific; C	BE0174191768	Belgium
23	Candriam Sustainable World; C	BE0946893766	Belgium
24	KBC Eco Agri Institutional; B	BE6228913586	Belgium
25	KBC Eco Alternative Energy	BE0175280016	Belgium
26	KBC Eco Climate Change	BE0946844272	Belgium
27	KBC Eco Fund Impact Investing	BE0175718510	Belgium
28	KBC Eco Fund Water	BE0175479063	Belgium
29	KBC Eco World	BE0133741752	Belgium
30	KBC Institutional SRI Euro Equities	BE0175761940	Belgium
31	Petercam Equities Europe Sustainable; A	BE0940001713	Belgium
32	Petercam Equities World Sustainable; B	BE0058652646	Belgium
33	BankInvest Basis Etik SRI	DK0010310077	Denmark
34	Carnegie Fund - Worldwide Ethical 1; A	LU0122292328	Denmark
35	Etik Invest Human Nordiske Aktier	DK0060087476	Denmark
36	Actions Nord Sud; P	FR0010400093	France
37	Actions Planete Durable; P	FR0010429076	France
38	Allianz Citizen Care SRI; I	FR0010727792	France
39	Allianz Europe Equity Climate Transition; R	FR0010116137	France
40	Allianz Valeurs Durables; RC	FR0000017329	France
41	ALM Actions Zone Euro ISR	FR0000984346	France
42	Amundi Actions Euro ISR; P	FR0010458745	France
43	Amundi Actions Europe ISR; P	FR0000991432	France
44	Amundi Actions France ISR; I C	FR0010263491	France
45	Amundi Actions USA ISR; P C	FR0010153320	France
46	Amundi Funds - Equity Global Aqua; AE C	LU0272932475	France
47	Amundi Valeurs Durables; P	FR0000991424	France
48	AXA - Label Europe Actions; S	FR0007073713	France
49	AXA Euro Valeurs Responsables; C	FR0000982761	France
50	AXA WF Framlington Eurozone RI; A	LU0545089723	France

Appendix 2.2. Sample of European SRI funds (continued)

FUND	NAME	ISIN	DOMICILE
51	AXA WF Framlington Human Capital; AC	LU0316218527	France
52	BNP Paribas Developpement Humain; P C	FR0010077412	France
53	BNP Paribas Euro Valeurs Durables; C	FR0010137166	France
54	BNP Paribas Immobilier Responsable Classic; C	FR0010156216	France
55	BNP Paribas Retraite Responsable Horizon; I	FR0000174617	France
56	Echiquier Major	FR0010321828	France
57	Echiquier Major Gestione Patrimoniale In Fondi	FR0010581728	France
58	Ecofi Enjeux Futurs; I	FR0010596759	France
59	Epargne Etique Actions	FR0000004970	France
60	Ethique et Partage - CCFD	FR0000970899	France
61	FCM Evolution; I	FR0010358689	France
62	Federal Actions Ethiques; P	FR0000442949	France
63	Federal Planete Bleue; P	FR0010583245	France
64	Federis ISR Euro; C/D	FR0007045950	France
65	Fructi Actions Européennes; C	FR0000976292	France
66	Fructi Euro ISR	FR0010032169	France
67	HSBC Sustainable Euroland Equity; A	FR0000437113	France
68	LBPAM Responsable Actions Environnement; D	FR0010750901	France
69	LBPAM Responsable Actions Europe	FR0010940882	France
70	LBPAM Responsable Actions Monde; A	FR0010622696	France
71	LBPAM Responsable Actions Solidaire; C	FR0010871905	France
72	LCL Actions Developpement Durable Euro	FR0000989006	France
73	LCL Actions Etats-Unis ISR; C	FR0000985152	France
74	LCL Actions USA ISR	FR0000994816	France
75	LFR Euro Developpement Durable; I	FR0010526079	France
76	MACIF Croissance Durable et Solidaire; C	FR0000983819	France
77	MACIF Sélection Développement Durable MG Environnement Monde; C	FR0010508333	France
78	MAIF Investissement Responsable Europe; I	FR0010696815	France
79	MAM Human Values; C	FR0000448987	France
80	MG Croissance Durable Europe; C	FR0000971186	France
81	MG Croissance Durable France; C	FR0000427452	France
82	Mirova Global Transition Energy Equity Fund; IAE	LU0448199371	France
83	Oddo Generation Europe ESG; A	FR0000991960	France
84	OFI Euro Actions ISR; C	FR0000971160	France
85	Parvest Environmental Opportunities; C	LU0406802339	France
86	Parvest Global Environment; C	LU0347711466	France
87	Parvest Green Tigers; C	LU0823437925	France
88	Parvest Sustainable Equity Europe; C	LU0212189012	France
89	SG Actions Europe ISR; PC	FR0000444275	France
90	Allianz Euroland Equity SRI; W	LU0542502660	Germany
91	Allianz Global EcoTrends; A	LU0250028817	Germany
92	Allianz Global Sustainability; A	LU0158827195	Germany
93	Deka - UmweltInvest; CF	DE000DK0ECS2	Germany
94	Deutsche Invest I Clean Tech; LC	LU0298649426	Germany
95	Deutsche Invest I New Resources; LC	LU0237014641	Germany
96	DKB Oekofonds TNL	LU0355139220	Germany
97	DWS Water Sustainability Fund; LD	DE000DWS0DT1	Germany
98	DWS Zukunftsressourcen	DE0005152466	Germany
99	Invesco Umwelt and Nachhaltigkeitsfonds	DE0008470477	Germany
100	KCD - Union Nachhaltig Aktien	DE0005326532	Germany

Appendix 2.2. Sample of European SRI funds (continued)

FUND	NAME	ISIN	DOMICILE
101	LBBW Global Warming	DE000A0KEYM4	Germany
102	LBBW Nachhaltigkeit Aktien; I	DE000A0JM0Q6	Germany
103	MEAG Nachhaltigkeit; A	DE0001619997	Germany
104	Murphy & Spitz - Umweltfonds Deutschland	LU0360172109	Germany
105	terrAssisi Aktien; I	DE0009847343	Germany
106	UniNachhaltig Aktien Global	DE000A0M80G4	Germany
107	UniSector: Klimawandel; A	LU0315365378	Germany
108	Eurizon Azionario Internazionale Etico	IT0001083424	Italy
109	Candriam Equities L Sustainable Emerging Markets; C	LU0344046742	Luxembourg
110	Candriam Equities L Sustainable EMU; C	LU0344047559	Luxembourg
111	Candriam Equities L Sustainable Green Planet; C	LU0304860991	Luxembourg
112	Candriam Equities L Sustainable World; C	LU0113400328	Luxembourg
113	Candriam Fund Sustainable Equities Europe; C	LU0102766671	Luxembourg
114	DNB Fund ECO Absolute Return; A	LU0547714369	Luxembourg
115	DNB Fund Global Emerging Markets SRI; A	LU0090738252	Luxembourg
116	DNB Fund Global SRI; A	LU0029375739	Luxembourg
117	DNB Fund Renewable Energy	LU0302296149	Luxembourg
118	DNB Fund Scandinavia; A	LU0083425479	Luxembourg
119	DNB Fund Technology; A	LU0302296495	Luxembourg
120	DNB Fund TMT Absolute Return; A	LU0547714526	Luxembourg
121	Oeko-Aktienfonds	LU0037079380	Luxembourg
122	OekoWorld Klima; C	LU0301152442	Luxembourg
123	OekoWorld OekoVision Classic; C	LU0061928585	Luxembourg
124	OekoWorld Water for Life; C	LU0332822492	Luxembourg
125	ONE Sustainable Fund - Global Environment; B	LU0594231770	Luxembourg
126	SEB OekoLux	LU0036592839	Luxembourg
127	Aegon Duurzaam Index Aandelen Fonds	NL0009415272	Netherlands
128	ASN Duurzaam Aandelenfonds	NL0000441301	Netherlands
129	ASN Milieu & Waterfonds	NL0000280501	Netherlands
130	NN Duurzaam Aandelen Fonds	NL0006311789	Netherlands
131	NN(L) Global Sustainable Equity; P	LU0119216553	Netherlands
132	RZL Euro Aandelenfonds	NL0000291086	Netherlands
133	Triodos Renewables Europe Fund; I	LU0254372179	Netherlands
134	Triodos Sustainable Equity Fund; I	LU0309381191	Netherlands
135	Triodos Sustainable Pioneer Fund; R	LU0278272843	Netherlands
136	DNB Global Etisk (IV)	NO0010337520	Norway
137	DNB Gront Norden	NO0010102866	Norway
138	DNB Miljoinvest	NO0010102890	Norway
139	KLP AksjeNorden Indeks	NO0010272396	Norway
140	KLP AksjeNorge	NO0010272388	Norway
141	Aktie-Ansvar Europa	SE0000735797	Sweden
142	Aktie-Ansvar Sverige	SE0000735789	Sweden
143	CB - Save Earth; R	LU0354788688	Sweden
144	Cicero SRI Sverige	SE0000731135	Sweden
145	Handelsbanken Funds - Global Ethical; A	LU0381617769	Sweden
146	KPA Etisk Aktiefond	SE0000885105	Sweden
147	Nordea 1 - Climate and Environment Equity; BI	LU0348927095	Sweden
148	SEB Hallbarhetsfond Global	SE0000434151	Sweden
149	Swedbank Robur Ethica Global	SE0000537680	Sweden
150	Swedbank Robur Ethica Global Mega	SE0001003864	Sweden

Appendix 2.2. Sample of European SRI funds (continued)

FUND	NAME	ISIN	DOMICILE
151	Swedbank Robur Ethica Sverige	SE0000709016	Sweden
152	Swedbank Robur Ethica Sverige Mega	SE0000987216	Sweden
153	Swedbank Robur Talenten Aktiefond Mega	SE0000542987	Sweden
154	Asselsa Small & Mid Caps Switzerland	CH0016421205	Switzerland
155	Cadmos Fund Management - Guile Emerging Markets Engagement; A	LU0412997545	Switzerland
156	Cadmos Fund Management - Guile European Engagement; A	LU0269642889	Switzerland
157	Carnot Efficient Energy Fund; D	LU0330111302	Switzerland
158	CS (Lux) Global Responsible Equity Fund; B	LU0395641813	Switzerland
159	EIC Renewable Energy Fund EUR; A	CH0028361159	Switzerland
160	Ethos - Equities CH Indexed Corporate Governance; E	CH0023568071	Switzerland
161	Ethos - Equities Europe ex CH; E	CH0023568139	Switzerland
162	Ethos - Equities North America RPF; E	CH0044128327	Switzerland
163	Ethos - Equities North America; E	CH0023568287	Switzerland
164	Ethos - Equities Pacific; E	CH0026795473	Switzerland
165	Ethos - Equities World ex CH; E	CH0023568337	Switzerland
166	H & A Prime Values Equity; A	LU0470356352	Switzerland
167	JSS Multi Label SICAV - New Energy Fund; B	LU0121747215	Switzerland
168	JSS OekoSar Equity - Global; P	LU0229773345	Switzerland
169	JSS Sustainable Equity - Europe; P	LU0058891119	Switzerland
170	JSS Sustainable Equity - Global Emerging Markets; P	LU0485309743	Switzerland
171	JSS Sustainable Equity - Global; P	LU0097427784	Switzerland
172	JSS Sustainable Equity - New Power; P	LU0288930869	Switzerland
173	JSS Sustainable Equity - USA; P	LU0526864581	Switzerland
174	JSS Sustainable Equity - Water Fund; P	LU0333595436	Switzerland
175	LSF - Active Solar; C	LU0377294268	Switzerland
176	Pictet - Clean Energy; I	LU0280430405	Switzerland
177	Pictet - Environmental Megatrend Selection; P	LU0503632951	Switzerland
178	Pictet - Ethos CH - Swiss Sustainable Equities; P	CH0008897636	Switzerland
179	Pictet - European Sustainable Equities; I	LU0144509550	Switzerland
180	Pictet - Timber; I	LU0340558823	Switzerland
181	Pictet - Water; I	LU0104884605	Switzerland
182	Quantex Environmental Fund	CH0025706174	Switzerland
183	Raiffeisen Fonds - Clean Technology; A	LU0401025746	Switzerland
184	Raiffeisen Fonds - Future Resources; A	LU0401026397	Switzerland
185	Raiffeisen Futura Global Stock; A	CH0011981005	Switzerland
186	Raiffeisen Futura Swiss Stock; A	CH0011980981	Switzerland
187	RobecoSAM Global Small Cap Equities; B	LU0280770172	Switzerland
188	RobecoSAM Smart Energy Fund; B	LU0175571735	Switzerland
189	RobecoSAM Smart Materials Fund; B	LU0175575991	Switzerland
190	RobecoSAM Sustainable Agribusiness Equities; D	LU0374106754	Switzerland
191	RobecoSAM Sustainable European Equities; D	LU0187077218	Switzerland
192	RobecoSAM Sustainable Global Equities; C	LU0188782675	Switzerland
193	RobecoSAM Sustainable Healthy Living Fund; B	LU0280770768	Switzerland
194	RobecoSAM Sustainable Water Fund; B	LU0133061175	Switzerland
195	SWC (CH) AZF Nachhaltigkeit Kapitalgewinn; AA	CH0107478346	Switzerland
196	SWC (CH) EF Nachhaltigkeit International; N	CH0034335502	Switzerland
197	SWC (CH) EF Nachhaltigkeit Large Cap; AA	CH0028360268	Switzerland
198	SWC (CH) EF Nachhaltigkeit Small & Mid Cap; AA	CH0037048102	Switzerland
199	Swisscanto (CH) Equity Fund Green Invest; A	CH0009074300	Switzerland
200	Swisscanto (LU) EF Green Invest Emerging Markets; B	LU0338548034	Switzerland

Appendix 2.2. Sample of European SRI funds (continued)

FUND	NAME	ISIN	DOMICILE
201	Swisscanto (LU) Equity Fund Global Climate Invest; B	LU0275317336	Switzerland
202	Swisscanto (LU) Equity Fund Global Water Invest; B	LU0302976872	Switzerland
203	Swisscanto (LU) PF Green Invest Equity; B	LU0136171559	Switzerland
204	Tareno Waterfund; R1	LU0319773478	Switzerland
205	Target Investment Fund Sustainable; B	CH0038340821	Switzerland
206	UBS (Lux) Equity Fund - Global Sustainable Innovators; P	LU0130799603	Switzerland
207	UBS (Lux) Equity Fund - Global Sustainable; P	LU0076532638	Switzerland
208	UBS (Lux) Equity SICAV - Emerging Markets Sustainable; P	LU0346595837	Switzerland
209	UBS (Lux) Equity SICAV - Sustainable GIobal Leaders; P	LU0456449528	Switzerland
210	UBS (Lux) Equity SICAV - Water; P	LU0456449445	Switzerland
211	Vontobel Fund (CH) - Ethos Equity Swiss Mid & Small; A	CH0023568022	Switzerland
212	Vontobel Fund (CH) - Sustainable Swiss Equity; A	CH0046922354	Switzerland
213	Vontobel Fund Clean Technology; B	LU0384405600	Switzerland
214	Vontobel Fund Future Resources; A	LU0384406087	Switzerland
215	Vontobel Fund MTX Sustainable Emerging Markets Leaders; B	LU0571085413	Switzerland
216	Vontobel Fund New Power; B	LU0138259048	Switzerland
217	Vontobel MTX Sustainable Asian Leaders (Ex-Japan) Equity; A	LU0384409180	Switzerland
218	Aberdeen Global - Ethical World Equity; A2	LU0566482674	United Kingdom
219	Aberdeen Global - Responsible World Equity; A2	LU0278938138	United Kingdom
220	Alquity SICAV - Alquity Africa; B	LU0455925882	United Kingdom
221	BGF New Energy; A2	LU0124384867	United Kingdom
222	CF Canlife European	GB0005632913	United Kingdom
223	CF Canlife Japanese Growth	GB0005636112	United Kingdom
224	Eden Tree Amity European; A	GB0008446626	United Kingdom
225	Eden Tree Amity International; B	GB0008449075	United Kingdom
226	Eden Tree Amity UK; A	GB0009371310	United Kingdom
227	F&C Responsible Global Equity	GB0030833650	United Kingdom
228	F&C Responsible Sharia Global Equity; X	LU0383250940	United Kingdom
229	F&C Responsible UK Equity Growth	GB0030833981	United Kingdom
230	F&C Responsible UK Income	GB0030835580	United Kingdom
231	FP WHEB Sustainability; A	GB00B4LDCG53	United Kingdom
232	Halifax Ethical; C	GB0031811622	United Kingdom
233	Henderson Global Care Growth; A	GB0005027221	United Kingdom
234	Henderson Global Care UK Income; A	GB0005027338	United Kingdom
235	HSBC GIF Global Equity Climate Change; AC	LU0323239441	United Kingdom
236	Jupiter Ecology	GB0005812150	United Kingdom
237	Jupiter JGF Global Ecology Growth; L	LU0231118026	United Kingdom
238	Jupiter Responsible Income	GB0008337569	United Kingdom
239	Kames Ethical Equity; A	GB0007452484	United Kingdom
240	Old Mutual Ethical; A	GB00B0JZPC21	United Kingdom
241	Premier Ethical Fund; A	GB00B4VBB957	United Kingdom
242	Premier Global Utilities Income; C	GB0031637738	United Kingdom
243	Royal London Sustainable Leaders Trust; A	GB0001615102	United Kingdom
244	Royal London UK Ethical Equity; B	GB00B5B49T77	United Kingdom
245	Sarasin EquiSar Socially Responsible; A	GB00B43H4F86	United Kingdom
246	Schroder Global Climate Change; A	GB00B23DH314	United Kingdom
247	Scottish Widows Environmental Investor; A	GB0031632010	United Kingdom
248	SUNARES Sustainable Natural Resources	LU0344810915	United Kingdom
249	SVM All Europe SRI Fund; A	GB00B1FL7S17	United Kingdom
250	WAY Green Portfolio; R	GB00B3KWWT95	United Kingdom

CHAPTER 3 – THE DYNAMICS OF ETHICAL MONEY: CASH FLOWS AND RETURNS

3.1. Introduction

The rise of socially conscious investing is one of the most important financial developments of the last decades. Nevertheless, although this phenomenon continues to gain momentum, there are many questions unanswered beyond the well-known discussion of whether ethical investors sacrifice performance for the sake of ideology. For instance, a relevant issue that has emerged in the socially responsible investment literature focuses on the shape of the flow-performance relationship in this segment of the mutual fund industry. When investors incorporate other criteria than purely financial ones in their investment decisions, does the pattern of the money flows into and out of funds change? And are socially responsible investors able to select funds that will generate higher future performance?

The literature on conventional funds has documented an asymmetric relationship between fund performance and the subsequent money flows (e.g., Ippolito, 1992; Goetzmann and Peles, 1997; Sirri and Tufano, 1998), in the sense that investors are more sensitive to good past performance than to bad past performance (investors are prompt to invest in funds with recent prior success, but slow to withdraw capital from funds with poor recent performance). However, and perhaps reflecting the fact that fund investors are a heterogeneous group, this relationship is not observed in the same way for all kinds of funds. For example, Del Guercio and Tkac (2002) show that the flow-performance relationship is approximately symmetric in the pension fund segment, while Cashman *et al.* (2014) document that investors in hybrid funds (funds that invest in a mix of equity and debt) are much less sensitive to fund performance than investors in domestic and international equity funds. Additionally, James and Karceski (2006) find evidence that institutional and retail investors chase returns differently, and Christoffersen and Xu (2017) only capture a dampening effect of attrition on the flow-performance sensitivity for retail flows (they find no effect for institutional flows).

As such, the main purpose of this essay is to investigate how socially responsible investors react to past performance, and if their reaction is similar to conventional investors. One might expect that the shape of the flow-performance relationship of the two kinds of investors differs, since their motivations, incentives, and constraints, are distinct. In line with our first essay, we will consider the influence of non-financial characteristics (intensity and types of the screening activities) on the response of socially responsible fund flows to

performance. Additionally, we analyze if SRI funds that receive most of the cash flows perform better in the future compared to those that receive less cash flows. Finally, we evaluate the flow-performance relationship across different market states. This is a topic that has gained increasing attention in the financial literature but has not been much explored in the context of flow-performance issues.

The contributions of the study are several. First and foremost, we conduct several analyses which can improve the understanding of the behavior of socially responsible investors. We extend previous studies on the flow-performance relationship of SRI funds, such as Bollen (2007), Benson and Humphrey (2008), and Renneboog *et al.* (2011) by not only integrating social screening as a determinant of the flow-performance relationship, but also by considering other social dimensions beyond screening intensity and types, namely the use of sectoral and transversal screens, positive screening strategy, and whether funds are awarded with social labels. Second, our dataset includes funds from US and Europe whereas previous studies focus mainly in the US market. We investigate the flow-performance relationship for SRI and conventional funds in 12 countries, and perform our analysis not only at the global level but also for different geographic areas, namely the US, Europe, Europe without UK, and UK. This allows us to integrate SRI cultural heterogeneity in the analysis and discuss the results for regions that dominate a large part of the responsible investment practices worldwide. Third, our timeframe captures expansion and recession periods which, to the best of our knowledge, is an issue that has not been previously explored in the flow-performance literature. Investors, in general, may react differently to fund performance in "good" and "bad" times, and this analysis may shed light on socially responsible investors' sensitivity to fund performance.

Concerning the flow-performance relationship, our results at the global level show that socially responsible investors seem to evaluate and respond to fund performance at monthly and annual intervals, and in opposite directions, i.e., there is evidence of a negative response to current returns, and positive response to past returns. Differently, conventional investors tend to respond (negatively) over a shorter window than a year, although when we focus on the US and UK subsamples conventional fund flows are (negatively) sensitive to annual returns. We also find significant persistence in UK socially responsible money flows, suggesting that UK socially responsible investors tend to reinvest in funds they already possess. Moreover, we conclude that in recession periods for the global sample and European (with and without UK) subsamples, past flows have a negative effect on money flows to SRI funds. Regarding the convexity in the flow-performance relationship, although we show that conventional (SRI) investors tend to react to past best (worst) performing funds, we do not find a pattern of

investors rushing into funds with good performance, while tending to stay with funds with poor performance.

Our findings also indicate that some social variables influence the flow-performance relationship of US and European funds. For US funds, we capture the sensitivity of the flow-performance relationship to screening intensity, types of screens (environment, products, governance, and shareholder engagement), positive screening and social labels. Concerning the European subsample, transversal, products and positive screens affect money flows, while UK socially responsible money flows exhibit a negative reaction to social labels.

With regard to the ability of socially responsible investors to predict future performance, we find a positive relationship between past average flows and next month's returns for US socially responsible funds, as high inflow funds seem to outperform in the future. This "smart" money effect is only observable when we consider the simple model (without social variables), and holds for both expansion and recession market states. Differently, for European (excluding UK) funds, we find a "smart" money effect when we consider total screening intensity, or the number of sectoral and transversal screens, and this effect is preserved in recession times. Interestingly, in recession periods, we also report evidence of a "smart" money effect in the global sample (in the model without social variables) and in the European subsample (in the model with social variables, for both total number of screens, and number of sectoral and transversal screens). Considering UK SRI funds, past flows have a negative effect on money flows, i.e., we document a "dumb" money effect, but only in recessions and without considering the social factors.

Furthermore, our empirical evidence shows that some social attributes affect funds' abnormal returns, namely in the global sample and US subsample. At the global level, in recession periods, positive screening strategies have a positive impact in abnormal returns. For the whole period, US SRI funds benefit from the application of governance screens and certification by social labels. The positive impact of social labels holds for expansion and recession periods. For recessions, there is also a positive effect of transversal and positive screens on future abnormal returns, whereas sectoral and social screens seem to detract abnormal performance.

Finally, for most analyses and subsamples, size seems to have a negative impact on fund flows, i.e., smaller funds benefit from larger flows.

3.2. Prior research

3.2.1. Investors' reaction to funds' past performance

The information content of funds' returns is one of the oldest and most popular topics in finance (Lynch and Musto, 2003), and there is still much controversy in the literature regarding the question of whether historical information can be used to predict future returns. Despite the exponential growth experienced by the SRI fund industry in most developed economies, little is known about how investors allocate their money to socially responsible funds. Extensive research has been conducted on the flow-performance relationship for non-SRI funds, but the response of ethical fund flows to past performance is less explored.

SRI funds serve a different clientele (with different investment needs) than their conventional peers. This conjecture implies distinct drivers of SRI fund flows, that should be reflected in the relationship between flows and returns. The underlying argument is that consumers of the SRI attribute have a different utility function (from conventional investors) and, even between them, there is dissemblance regarding the type of screening strategy that is implemented[54].

In general, and regardless of distinct periods, methodologies, and measures, Ippolito (1992), Capon *et al.* (1996), Gruber (1996), Chevalier and Ellison (1997), Sirri and Tufano (1998), among others, find that past performance is an important source of information for investors, and there is evidence that investors react to it (Johnson, 2007) by rewarding good performing funds with increased cash flows (Chevalier and Ellison, 1997; Sirri and Tufano, 1998). Nevertheless, while empirical evidence from the flow-performance literature suggests that investors use past returns to choose the funds to invest in, evidence on whether fund performance persists is so far not clear (e.g., Brown and Goetzmann, 1995; Elton *et al*., 1996; Carhart, 1997). In fact, although in the context of efficient markets the flow-performance relationship is a financial anomaly, as Bollen (2007) points out, Ippolito (1992), Lynch and Musto (2003) and Berk and Green (2004) interpret this relationship as a reflection of investors updating their beliefs about managerial ability and expected mutual fund returns.

Some papers also analyze the existence of a "smart" money (e.g., Renneboog *et al*., 2011), or a "dumb" money (e.g., Frazzini and Lamont, 2008) effect, i.e., they examine if the money flows to past "winners" will result in good ("smart" money) or poor ("dumb" money)

[54] Considering their motivation, Derwall *et al.* (2011) distinguish socially responsible investors that are values-driven from those that are profit-seeking.

future returns.

In sum, this second essay is intended to analyze the flow-performance relationship for SRI funds and how their social characteristics explain it. We contribute to the literature by evaluating if the flow reaction of US and European SRI funds and conventional funds to past performance is similar, and if there is some predictability (in terms of future performance) incorporated in the money flows. Further, we will consider the heterogeneity of the social screens applied, and differentiate the flow-performance relationship over different market conditions ("good" and "bad" times), what we believe to be a valuable contribution of this essay.

3.2.2. The flow-performance relationship – studies on conventional funds

Although there is still no consensus on performance persistence in the mutual fund industry, there are some studies that strongly support the conjecture that funds' track records contain information about future performance (e.g., Grinblatt and Titman, 1992; Brown and Goetzmann, 1995; Vidal-García, 2013; Vidal-García *et al*., 2016). Thus, despite the controversy on whether fund performance persists, investors' reaction to past performance seems to indicate that this is a factor that plays an important role in fund selection[55].

With regard to the flow-performance relationship, a myriad of academic papers (e.g., Ippolito, 1992; Gruber, 1996; Goetzmann and Peles, 1997; Sirri and Tufano, 1998) provide evidence that superior past performance attracts large inflows, and flows are less sensitive to past performance when past performance is poor. This convex relation between flows and performance indicates that poor performers are not punished to the same extent that strong performers are rewarded (Bollen, 2007) which, according to Goetzmann and Peles (1997), is one of the greatest mysteries in the mutual fund industry.

The evidence provided in Gruber (1996) is consistent with the fact that the flows of new money into the past best performing funds are much larger than the flows of money out of the past poor performing funds – the money invested in losing funds tends to be sticky –, and that future performance is, in part, predictable from past performance. Goetzmann and Peles (1997) explain this type of investor behavior with respect to fund flows by cognitive dissonance theory,

[55] Some articles call attention to survivorship bias as a potential source of "friction" in performance persistence studies. The underlying logic is that the best performers tend to survive, while the worst performers tend to be eliminated, or merged into other funds. For example, Brown *et al.* (1992) argue that studies that conclude that past performance helps to predict future performance suffer from potentially severe survivorship biases that may induce a repeat winner phenomenon. Nevertheless, Brown and Goetzmann (1995), for example, find performance persistence in a dataset relatively free of survivorship bias.

thus suggesting that investor psychology may affect the fund-switching decision – investors tend to adjust their beliefs to justify the discrepancy between past performance (taken as a reference when choosing their fund) and poor current performance. Questionnaires taken from two groups of mutual fund investors for the period 1976 to 1988 suggest that investor aversion to switching from poor performers may be explained by overly optimistic perceptions of past mutual fund performance, i.e., in order to feel good about previous decisions, investors tend to neglect bad information regarding fund performance.

Using a dataset of 690 US equity mutual funds over the period 1971-1990, Sirri and Tufano (1998) find that funds' consumers base their allocation decisions on prior performance, and do it asymmetrically: the money flows disproportionately flock to high performing funds but fail to flee from lower performing funds at the same rate. The authors argue that this asymmetry may be justified by the fact that well-performing funds receive substantial advertising and media attention.

However, Del Guercio and Tkac (2002) show that the asymmetric nature of the flow-performance relationship does not seem to be observed for all types of investors. These authors compare the relation between flows and performance for mutual funds and pension funds. In contrast to mutual fund investors, pension clients punish poorly performing managers by withdrawing assets under management, and do not flock disproportionately to recent "winners". In turn, the results of Johnson (2007) show that "new" and "old" shareholders have a similar response to lagged returns: they both buy shares during periods of good returns. However, the outflows are essentially unrelated to fund returns (the returns do not affect the shareholders' decision to remove assets from the fund), since they may simply reflect what the authors perceive as shareholders buying new funds rather than selling old funds. In a recent paper addressing US domestic equity funds during the period 1998-2012, Christoffersen and Xu (2017) apply an attrition measure to explore the heterogeneity among fund investors. The authors show that higher attrition corresponds to a lower flow-performance sensitivity (in inflows and outflows), and that attrition has a smaller effect on the flow-performance sensitivity of institutional flows (because of their more homogeneous performance sensitivity in comparison to retail flows).

Interestingly, Ferreira *et al.* (2012) document that there are marked differences in the flow-performance relationship across countries, suggesting that the findings about US mutual funds (concerning its shape) do not apply universally. The authors analyze how equity mutual fund flows depend on past performance across 28 countries during 2001 to 2007. Their results show that in less developed countries the flow-performance relationship is less convex due to

a higher investor sophistication and lower participation costs.

Likewise, Huang *et al*. (2007) discuss the role of two types of mutual fund participation costs – information and transaction costs – in shaping the flow-performance relationship. They argue that the higher the participation costs, the higher the rate of return a fund must earn before a large number of investors choose the fund. Huang *et al.* (2007) also observe that convexity in the flow-performance relationship has declined over time in the US, which is consistent with lower participation costs and investors becoming more sophisticated over time. The importance of search costs (costs that investors must bear to identify and gather information before buying a new mutual fund) had already been emphasized by Sirri and Tufano (1998) as a potential explanation for the flow-performance relationship. In fact, according to Sirri and Tufano (1998), search costs seem to be an important determinant of flows: high performance appears to be most salient for funds that exert higher marketing effort, as measured by higher fees.

The discussion on the asymmetric nature of the flow-performance relationship is also linked with the topic we will discuss in the third essay, namely fund managers' risk-taking behavior. An obvious example is Chevalier and Ellison (1997), which argue that the shape of the flow-performance relationship creates incentives for fund managers to increase or decrease the riskiness of the fund. These authors document that greater flow sensitivity to performance is associated with greater fund manager risk-taking, as fund managers stand to gain significant flows if they do well, but not to lose them significantly if they perform poorly. Furthermore, the pioneer study of Brown *et al.* (1996) interprets the flow-performance relationship in the context of the discussion of the pattern of tournament behavior among mutual fund managers, and Johnson (2007) contends that if investors are less sensitive to poor performers than they are to good performers, then the managers' incentives to shift risk is even greater than assumed in previous studies.

Finally, two relevant studies examine the flow-performance relationship from a theoretical viewpoint, namely Lynch and Musto (2003) and Berk and Green (2004). Lynch and Musto (2003) present a model in which investment companies can exercise an option to abandon poorly performing strategies and/or fire bad managers. Since poor returns are not likely to be informative about future performance, investors will respond less strongly to bad performance (even though they buy in response to good returns), leading to convexity in the flow-performance relationship. In turn, Berk and Green (2004) develop a model in which Bayesian investors use past mutual fund performance to update beliefs about managerial ability as manifested in expected returns. Investors rationally respond to good performance because of what it reveals about manager ability, but diseconomies of scale resulting from net fund

inflows eliminate the managers' ability to generate persistent abnormal returns. Huang *et al.* (2012) are somewhat in line with these two papers, in the sense that the authors outline systematic empirical evidence that shows that the flow-performance relationship is consistent with the existence of sophisticated investors who are able of rational learning.

3.2.3. The flow-performance relationship – studies on SRI funds

The dynamics of investors' cash flows in the SRI mutual fund market has been less explored. Still, SRI mutual funds are a very specific fund type – socially responsible investors gain both financial and non-financial utility from their investment choice (Benson and Humphrey, 2008) – and its analysis may represent a significant contribution to the academic literature on investor behavior.

The fund selection process of socially responsible investors may be explained by several factors. First, it might be difficult for SRI investors to find a substitute fund that meets their exact non-financial criteria should they become dissatisfied with their current SRI fund. For example, investors who are mainly concerned with environmental issues are not likely to derive non-financial utility from a SRI fund that excludes alcohol or gambling companies from its portfolio (Benson and Humphrey, 2008). Second, investors are reluctant to change funds because it is costly to search for different funds. Besides the search costs that conventional investors also face (Sirri and Tufano, 1998; Huang *et al*., 2007), socially conscious investors face additional search costs, given that it is difficult for them to access information on the extent to which the so-called SRI funds actually comply with the ethical standards stated in their prospectuses[56].

According to Bollen (2007), one of the first studies on the determinants of money flows in the SRI fund industry, investors may have a multi-attribute utility function that is not only based on the standard risk-reward optimization but also incorporates a set of personal and societal values. Thereafter, one should expect less sensitive SRI money flows to past performance, meaning that social investors chase past performance, but their decision to invest or withdraw their money might be less affected by past negative performance than the decision of conventional funds investors. Considering a sample of US equity mutual funds over the 1980-2002 period, Bollen (2007) finds evidence that socially responsible investors exhibit a

[56] Several recent studies question whether SRI funds really incorporate social and ethical criteria or are simply conventional funds in disguise. For a detailed discussion of this issue see, for example, Wimmer (2013), and Utz and Wimmer (2014).

significantly larger response to positive returns than investors in conventional funds, but a smaller response to negative returns than investors in conventional funds. Additionally, the monthly volatility of fund flows in SRI funds is significantly lower than the volatility of conventional fund flows. This result suggests that the extra-financial SRI attribute seems to dampen the rate at which investors trade mutual funds. Besides, the differences between SRI funds and their conventional counterparts are robust over time and persist as funds age.

In the same line of research, Benson and Humphrey (2008) focus on a sample of 144 SRI funds and 4449 conventional funds over the period 1991-2005, and show that SRI fund flows are less sensitive to returns than conventional fund flows. Nevertheless, the convex relation between flow and performance is similar for socially responsible and conventional investors. In addition, the authors show that socially responsible investors are more likely to invest in a fund they already own (i.e., socially responsible investors are less likely to switch funds compared to conventional investors). Like Cashman *et al.* (2014), who demonstrate that there is considerable persistence in monthly mutual fund flows, the authors find evidence that flows are persistent, and that the impact of the lagged flows on current flows is significantly higher for SRI funds than for conventional funds.

Using a large international dataset of funds over the period 1992 to 2003, Renneboog *et al*. (2011) assume SRI funds as a heterogeneous group, and explore the money inflows and outflows controlling for the screening intensity and types of screens. One of the main findings of the paper is that socially responsible investors seem to care less about past negative returns than do investors in conventional funds. Furthermore, the authors consider a question of critical importance: socially responsible investors' awareness of different types of social issues may depend on values that differ across countries and cultures. In line with the arguments of our first essay, Renneboog *et al.* (2011) conclude that the money flows and the flow-performance relationship crucially depend on the types and intensity of SRI screening activities. In fact, their results show that funds applying sin, ethical and social screens are significantly less sensitive to past returns than are conventional funds. Differently, funds applying environmental screens show a greater sensitivity to past returns than their conventional counterparts.

Focusing on religious funds, Pfeifer (2011) analyzes investors' stability[57], and compares it with the stability of other kind of investors (other SRI fund investors and conventional fund investors). The main conclusion of the paper is that religious mutual fund investors are the most stable ones, and past financial returns have little impact on their fund

[57] Pfeifer (2011) clarifies that stability is the extent to which investors hold onto their fund shares regardless of the performance in terms of past returns.

flow decisions. In a follow-up study, Pfeifer (2014) suggests that socially responsible corporations can be rewarded with more patient capital from ethically motivated investors. Employing a random sample of investors in MMA Praxis Mutual Funds, the author demonstrates that dual investors (those who also invest in conventional mutual funds besides SRI funds) are more loyal[58] to their SRI funds than to their conventional funds. Further, the author shows that ethical orientation induces loyalty, whereas economic motivations reduce it.

For a specific niche of investments – pension plans – in the Spanish market, Martí-Ballester (2015) shows that, over the period December 2007 to March 2013, ethical investors/consumers are more (less) sensitive to positive (negative) lagged returns than caring and traditional consumers, causing traditional consumers to contribute to pension plans that they already own.

Considering the inflows of SRI funds and their conventional counterparts in the US market over the period from 1993 to 2004, Osthoff (2016) finds that both types of investors seem to chase past top performing funds, but do not sell poor performing funds to the same extent. The author also documents that socially responsible investors care about the actual ethical standards of SRI funds (and not only with funds being labelled as socially responsible). Additionally, Osthoff (2016) shows a higher autocorrelation in flows for the socially responsible mutual funds than for conventional ones, in line with the conjecture that the SRI market segment has higher search costs and thus socially responsible investors are more likely to reinvest in the same fund they already own.

More recently, El Ghoul and Karoui (2017) examine the impact of different levels of CSR on fund flows and performance. Using a sample of 2,168 US equity funds over the period 2003 to 2011, the authors confirm a positive flow-performance relationship for the entire sample. Additionally, this relationship becomes weaker as the level of CSR increases (i.e., high-CSR funds are more likely to attract investors that are less sensitive to performance). Furthermore, the results show that flow persistence does not relate to funds' CSR, which is somewhat surprising considering that socially conscious investors may be less likely to switch from one fund to another.

3.2.4. Money flows forecast (dis)ability: "smart" money *versus* "dumb" money

In light of the extant empirical evidence on the convexity of the flow-performance

[58] Pfeifer (2014) defines loyalty as the continued investment in a mutual fund despite the belief that one is earning a lower return on investment.

relationship in the mutual fund industry, a natural question emerges: do investors show "hot hands" when selecting mutual funds? In other words, are investors' subscriptions and redemptions able to predict a fund future performance?

Warther (1995) is one of the first papers to address the issue at the macro level (aggregate cash flows into all mutual funds and market-wide returns). This study examines data on money flows into mutual funds and returns of stocks, bonds, and gold, and the empirical analysis provides supporting evidence of a positive relation between flows and subsequent returns. Later, Gruber (1996) and Zheng (1999) are two seminal studies that document the "smart" money effect, with money flows to conventional funds being able to predict short-term performance (i.e., investors possess fund selection ability).

Using a sample of 227 mutual funds during the period 1985-1994, Gruber (1996) finds that the risk-adjusted returns on new cash flows to funds is higher than the average returns for all investors in mutual funds. The author claims that the finding that investors can select actively managed funds that subsequently generate superior performance solves a prominent puzzle in the investments literature, namely why do investors put money in actively managed funds when their performance on average has been inferior to passive benchmarks. Subsequent work by Zheng (1999) analyzes a sample of 1,826 equity mutual funds during the period 1970-1993, and also shows that the short-term performance of funds that experience positive new money flows is significantly better than the performance of funds that experience negative new money flows. The author argues that this "smart" money effect is short-lived and mainly concentrated in small funds, and likely due to fund-specific information (and not to macroeconomic information or style effects).

Notwithstanding, Sapp and Tiwari (2004) find evidence that the "smart" money effect can be due to a momentum effect of stock returns[59]. Analyzing US equity mutual funds over the period 1970-2000, their results indicate that there is only evidence of a "smart" money effect based on a three-factor model. When the momentum factor initially uncovered by Jegadeesh and Titman (1993) and included in the performance model by Carhart (1997) is considered, the authors show that funds with higher investor fund flows do not outperform the funds with the existing stock of money.

For funds domiciled in 17 countries from North-America, Europe, and Asia-Pacific over the period 1991-2003, Renneboog *et al.* (2008b) investigate whether or not ethical investors are able to select the SRI funds that will generate superior performance in subsequent

[59] The study of Carhart (1997) also demonstrates that momentum is an important common factor in explaining stock returns. Furthermore, the author shows that the previously documented evidence of persistence in mutual fund performance is not robust to the momentum factor.

years. The evidence is mixed: socially responsible investors are unable to identify funds that will outperform in the future, whereas they show some fund selection ability in identifying funds that will perform poorly. Within the universe of UK mutual funds, and considering the 1992-2000 period, Keswani and Stolin (2008) observe that new investors tend to choose better funds, concluding that money is "smart". This result holds for both individual and institutional investors, and is driven by investors' fund buys rather than sells. Using monthly flows (estimated from 1991 onwards), the authors also find that, using there is a "smart" money effect in the US, comparable in magnitude to the one in the UK, even after controlling for the momentum factor.

More recently, for a sample of 65 US funds during January 1994 to September 2010, Muñoz *et al.* (2014b) find little evidence of the impact of fund flows on market timing ability. In fact, they only observe a weak effect for the positive screening fund sample when the lagged fund flow control is established. Moreover, the authors present certain evidence of the "smart" money effect among profit-seeking investors who pursue the persistent part of returns.

In contrast with the aforementioned studies, Frazzini and Lamont (2008) show that investors allocate their money to funds that perform poorly over subsequent years, while Renneboog *et al*. (2011) conclude that the future performance of SRI funds is worse when these funds attract more money flows (ethical money is not financially "smart"). These last findings are consistent with the assumption of decreasing returns to scale (i.e., returns decrease with fund size) formulated by Berk and Green (2004).

Frazzini and Lamont (2008) examine flows and stock returns of US domestic equity funds over the period 1980-2003. The authors find that individual investors, reallocating across different mutual funds, reduce their wealth in the long run (fund flows are "dumb" money). Additionally, they show that the "smart" money effect is confined to short horizons (at longer horizons the "dumb" money effect dominates), and that money runs into (out of) mutual funds that are exposed to growth (value) stocks. Renneboog *et al.* (2011) investigate whether or not socially responsible investors are good at identifying funds that will do well in the future, and how future returns depend on screens. The evidence suggests that there is no relation between past average flows and future returns for either conventional or SRI funds: high inflow funds neither outperform, or underperform, in the future. This finding is in line with the efficient market hypothesis, which states that investors cannot predict future fund returns, and with the fact that funds are confronted with decreasing returns to scale.

In a more recent paper, Feng *et al.* (2014) find that Chinese investors, as a whole, have no mutual fund selection ability. Using actively managed equity mutual funds between 2005

and 2011, the authors document mixed results: while institutional investors exhibit a "smart" money effect (i.e., they are able to move new money into (out of) future good (poor) performers), individual investors exhibit a "dumb" money effect.

In a slightly different line of research, Muñoz (2016) analyzes the cash flow timing skills of US socially responsible mutual fund investors from January 1991 to May 2015. The author concludes that socially responsible investors and conventional investors exhibit different cash flow timing skills, and also that, among socially responsible investors, timing skills vary according to the type of strategy implemented by the fund – green fund investors (the proxy for investors with a profit-seeking profile[60]) show worse timing skills (they behave in a similar way to conventional investors), while religious fund investors (the proxy for values-driven investors) make better cash flow timing decisions.

To sum up, several academic papers support the idea that SRI funds and their conventional counterparts behave differently with regard to the relationship between flows and performance. Specifically, we should expect distinct flow sensitivities to favorable and poor performance, and different levels of loyalty. Focusing on SRI funds, there is still scarce evidence that social characteristics influence the flow-performance relationship and the effects of past flows on abnormal returns (the dichotomy "smart" *versus* "dumb" money). Our essay is intended to strengthen and extend previous research concerning the role played by social screening in modelling the connection between money flows and returns.

3.3. Research hypotheses

Although all investors seek financial gains, the SRI clientele may have a different reaction to past performance, as they also derive non-financial utility from their investment choices (Benson and Humphrey, 2008). For instance, Bollen (2007) supports the hypothesis that socially responsible fund flows are less (more) sensitive to lagged negative (positive) returns than conventional fund flows. Considering the academic literature on the flow-performance relationship, it is also reasonable to expect that socially responsible investors are less willing to move capital from one fund to another, and more inclined to remain within the funds they hold compared to conventional investors. The evidence documented in previous

[60] Derwall *et al.* (2011) suggest that the socially responsible movement can be segmented in two different investor groups: first, values-driven investors, comprising those who base their investment decisions on social and personal values (they are willing to accept a loss in financial performance in exchange for non-financial utility), and second, profit-seeking investors, who use SRI as a strategy to attain an abnormal financial performance. The authors also state that negative screens are more associated with values-driven investors, whereas socially responsible practices other than sin and ethical screening are more connected with profit-seeking investors.

studies (e.g., Geczy *et al.*, 2005; Benson and Humphrey, 2008) is consistent with loyalty being an important characteristic of socially conscious investors. Furthermore, Pfeifer (2014) shows that ethical motivations drive asset stability (SRI funds' assets tend to be more stable than conventional funds' assets).

So, regarding the flow-performance relationship (flows' reaction to past performance) of SRI funds, we will test the next hypotheses:

Hypothesis 1: The flow-performance relationship of SRI funds is asymmetric (i.e., SRI investors pursue past top performing funds, but do not withdraw from poor performing funds to the same extent).

Hypothesis 2: The sensitivity of SRI investors to past performance is weaker compared to conventional investors (SRI investors tend to stick with the same funds).

In the spirit of Renneboog *et al*. (2011), we also assess the relevance of the screening characteristics in determining the shape of the flow-performance relationship of SRI funds. Renneboog *et al*. (2011) find that ethical money is less sensitive to past negative returns compared to conventional funds, especially when SRI funds primarily use negative or sin/ethical screens. Furthermore, money flows into funds with environmental screens are more sensitive to past positive returns than are conventional fund flows. This evidence is consistent with socially responsible investors being more concerned with non-financial attributes than with fund performance when choosing their investments. Thus, as in the first essay, we consider multiple dimensions of the screening strategy, which are likely to affect the performance and consequently the relationship of performance with money flows: screening intensity, type of screens (environment, social, governance, products, and shareholder engagement), sectoral and transversal screens, screening signal (positive *versus* negative), and labels.

Two competing theories well-known in the SRI literature (modern portfolio theory and stakeholder theory) explain how the number of social screens applied by SRI funds might impact financial performance. According to modern portfolio theory, the social screening process has an adverse effect on diversification and, consequently, the ultimate objective of wealth-maximization (Rudd, 1981). In contrast, stakeholder theory implies that social screens can be seen as instruments to detect managers' skills and superior corporate governance (Waddock and Graves, 1997). We thereby postulate the following hypothesis:

Hypothesis 3: The intensity of the screening activities impacts the flow-performance relationship of SRI funds.

The types of screens considered by SRI funds (i.e., the kind of social concerns they incorporate such as promoting businesses dedicated to environmentally sustainable technologies, or avoiding companies that profit from firearms or military weapons) may also have a different effect on performance. In fact, several papers (e.g., Barnett and Salomon, 2006; Renneboog *et al*., 2008b) show that specific screens have an influence on SRI fund performance. We employ the categories of screens defined by US SIF – The Forum for Sustainable and Responsible Investment (environment, social, governance, products, and shareholder engagement), and establish the following hypotheses:

Hypothesis 4a: The enforcement of environmental screening (e.g., climate/clean tech) influences the flow-performance relationship of SRI funds.

Hypothesis 4b: The enforcement of social screening (e.g., human rights) influences the flow-performance relationship of SRI funds.

Hypothesis 4c: The enforcement of governance screening (e.g., board issues) influences the flow-performance relationship of SRI funds.

Hypothesis 4d: The enforcement of products screening (e.g., alcohol) influences the flow-performance relationship of SRI funds.

Hypothesis 4e: The enforcement of shareholder engagement screening influences the flow-performance relationship of SRI funds.

According to Capelle-Blancard and Monjon (2014), who define the concepts of sectoral screens (screens that exclude entire sectors – e.g., alcohol or gambling) and transversal screens (screens that apply to all firms – e.g., commitment to international conventions as the United Nations Global Compact or the International Labor Organization Rights at Work), we further hypothesize that:

Hypothesis 5: The use of sectoral and transversal screens has an effect on the flow-performance relationship of SRI funds.

Moreover, multiple studies (e.g., Goldreyer *et al*., 1999; Humphrey and Lee, 2011; Nofsinger and Varma, 2014) find that funds using a strategy based on positive screening (selection of companies that comply with social standards) have a different performance from those applying a negative screening strategy (exclusion of companies that do not comply with social standards). Therefore, we will test the following hypothesis:

Hypothesis 6: The positive screening strategy impacts the flow-performance relationship of SRI funds.

Also in line with our first essay, we will evaluate if social labels (i.e., certifications awarded to SRI funds with the goal of providing investors with quality standards and more transparency) have an effect on the flow-performance relationship. So, we postulate the next hypothesis:

Hypothesis 7: The certification by social labels affects the flow-performance relationship of SRI funds.

Another relevant issue concerns the forecasting (dis)ability of ethical money. Academic studies reach contradictory conclusions concerning SRI and non-SRI funds: some papers document a "smart" money effect (e.g., Gruber, 1996; Zheng, 1999) whilst others exhibit a "dumb" money effect (e.g., Frazzini and Lamont, 2008; Renneboog *et al.*, 2011). Thereby, we establish the following mutual exclusive hypotheses:

Hypothesis 8a: High cash inflow SRI funds subsequently outperform low cash inflow SRI funds (the "smart" money hypothesis).

Hypothesis 8b: High cash inflow SRI funds subsequently underperform low cash inflow SRI funds (the "dumb" money hypothesis).

3.4. Data and methods

3.4.1. Sample description

Our sample consists of SRI and conventional mutual funds domiciled in 12 countries: Austria, Belgium, Denmark, France, Germany, Italy, Luxembourg, Netherlands, Norway, Sweden, United Kingdom, and United States of America. The dimension of the SRI market in the US and in Europe justifies the focus on these geographies. According to the 2016 Report from US SIF – The Forum for Sustainable and Responsible Investment, the market size of sustainable, responsible and impact investing in the US is 8.72 trillion dollars, which represents one-fifth of total investment under professional management. The European SRI market is growing steadily, having reached 158 billion euros of total assets under management in 2016 based on the 2016 Report from Vigeo Eiris.

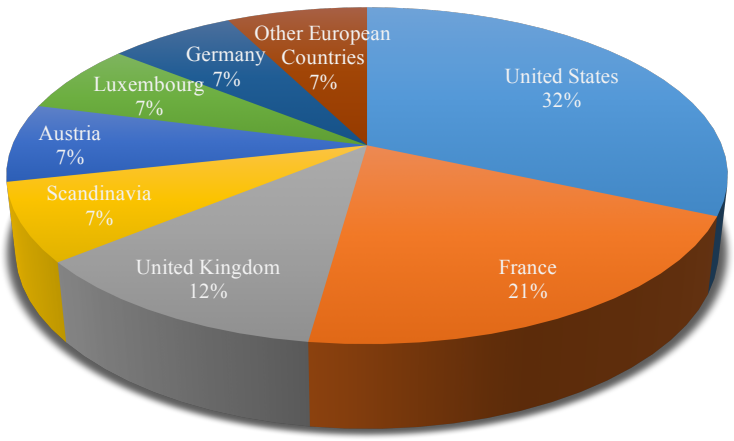
Concerning the US market, we started by selecting the funds listed in the US SIF Mutual Fund Performance Chart at the end of 2014, as well as the SRI Trends Reports published by the same organization from 2001 to 2012. These sources of information, together with the funds' prospectuses and websites, and the SEC files, allowed us to collect data on the social screening strategies (number and types of screens applied) for 80 US funds. With regard to European funds, we focused on geographic areas analyzed by the reports and studies from Vigeo Eiris and, given the diversity of terminology concerning SRI, looked for certain terms in the Datastream database (e.g., "Social, "Environment", "Green", "Ethical", among others). Subsequently, we compared the funds obtained from Datastream with the data from the website yourSRI, whose funds' fact sheets give detailed information on the screens, social labels, and financial characteristics for several SRI funds around the world. Although we were able to identify some dead funds both in the US and Europe, we acknowledge that the sample may suffer from survivorship bias.

Bollen (2007) argues that the volatility and cross-sectional variation of equity funds offer the richest opportunity for studying the dynamics of fund flows. Therefore, consistent with prior studies on the money flows of mutual funds (e.g., Bollen, 2007; Benson and Humphrey, 2008; Renneboog *et al*., 2011) and our first essay, we restrict our sample to equity funds. Following Ferreira *et al.* (2012), we only consider one class of each fund. So, in case of funds with different classes, we used the following criteria to select the fund class: age and assets under management. In other words, we first select the oldest class and, if the inception date is the same, we then use the class with higher assets under management.

To compare the performance of SRI and conventional funds, we selected a characteristics-matched sample of conventional equity funds. This matching procedure to select conventional funds is important, considering there are characteristics (such as fund size and age) that have been recognized in the literature as being determinants of fund returns. Neglecting them could confound the performance associated with those characteristics with that due to social attributes[61]. So, for each SRI fund, we selected three conventional funds with similar Lipper objectives, number of years since inception, and total net assets[62]. We first identified conventional funds with the same Lipper objective, and inception dates within a year of the SRI fund inception date. Next, the three conventional funds closest in total net assets are chosen. For some SRI funds, conventional fund matches were not found due to the one-year age criteria being too restrictive. In such cases, we relaxed the fund inception date criteria to within three years and if we still did not achieve three matched funds, we dropped the age criteria completely. For Swiss funds and other 13 SRI funds included in the sample used in our first essay, we were not able at all to identify conventional matches. So, our final sample comprises 253 SRI funds and 759 conventional funds from January 2003 to December 2014[63]. Figure 3.1. illustrates the distribution of the total number of funds (socially responsible and conventional funds) per country.

Figure 3.1. Percentage of funds per country

This figure shows the distribution of the total number of funds (SRI funds and conventional funds) by the 12 countries considered in the sample.



[61] Examples of papers that analyze the determinants of fund returns include Otten and Bams (2002), Chen *et al.* (2004), and Ferreira *et al.* (2013).
[62] Previous SRI fund performance studies that also use investment objectives, age and size as matching criteria include Gregory *et al.* (1997), Kreander *et al.* (2005), Humphrey and Lee (2011), Muñoz *et al.* (2014a), and Nofsinger and Varma (2014).
[63] Tables 3.1 to 3.4 in appendix list all US and European socially responsible and conventional funds in our sample.

Both SRI and non-SRI funds in our sample have at least 24 monthly observations of returns and total net assets. Funds' returns and total net assets for the sample period are extracted from CRSP (US funds) and Datastream (European funds)[64]. Annual returns are computed by annualizing monthly returns. Any unreported monthly observations are treated as missing values.

3.4.2. Fund flows

Fund flows are usually inferred from changes in a fund's total net assets and returns (Bollen, 2007). Although some studies use fund flows expressed in absolute terms (e.g., Benson and Humphrey, 2008), we employ the relative version to compute fund flows (as in Sirri and Tufano, 1998; Renneboog *et al*., 2011; Ferreira *et al*., 2012), and define $Flow_{i,t}$ as the net growth of fund *i* in time *t* – if $Flow_{i,t}$ is higher (lower) than zero, then the fund *i* has registered net inflows (outflows) at time *t*. Thus, we will compute the money flows of fund *i* during month *t* as follows[65]:

$$Flow_{i,t} = \frac{TNA_{i,t} - TNA_{i,t-1}\left(1 + RM_{i,t}\right)}{TNA_{i,t-1}} \quad (3.1)$$

Where $TNA_{i,t}$ and $TNA_{i,t-1}$ are the monthly total net assets under management (in million US dollars) for fund *i* at time *t* and *t*-1, respectively, and $RM_{i,t}$ is the monthly return of fund *i* at time *t*.

3.4.3 Social variables

We will employ the social variables defined in our first essay, namely screening intensity, screening types, positive screening strategy, and labels.

Screening intensity is measured as the total number of screens enforced by each fund. This variable is comprised between 1 (minimum screening intensity) and 16 (maximum screening intensity), and its construction is based on the categories of screens defined by US SIF. Alternatively, we employ the number of sectoral screens (screens that exclude entire

[64] For 4 UK funds, we detected an atypical and extremely high value for the return observation of July 2012. So, we assumed the average between the observations of the previous (June 2012) and following (August 2012) periods as the value for the observation of July 2012.
[65] As robustness analysis, we will employ the fund flows in the absolute form.

sectors), and the number of transversal screens (screens that apply to all firms). Sectoral screens vary from 1 to 8, and transversal screens from 1 to 4. The screening types are defined by 5 dummy variables which correspond to the 16 screens used by US SIF, specifically environment (screens related to climate, clean technology, pollution, toxics and other environmental issues), social (screens associated with community development, diversity and equal employment, human rights, labor relations and Sudan), governance (screens that account for board and executive pay issues), products (screens that exclude companies involved in alcohol, animal welfare, defense/weapons, gambling and tobacco products) and shareholder engagement. Positive screening strategy is proxied by the number of positive screens applied by each fund, whilst the variable labels is assessed through a dummy variable that identifies funds that have been certified with at least one social label.

As mentioned earlier, for the US funds, we collected the information on the social variables (except for the dummy labels) on the US SIF Mutual Fund Performance Chart at the end of year 2014, as well as on the funds' prospectuses and websites, and SEC files. For the European funds, data was obtained from the yourSRI fact sheets. From the fact sheets we also extracted information for the social labels awarded to US funds.

3.4.4. Control variables

Following previous studies, we include control variables that have been previously recognized in the literature as being able to affect monetary flows of mutual funds, namely size, age, expenses and lagged flow.

Chevalier and Ellison (1997), Sirri and Tufano (1998) and Sawicki and Finn (2002), among others, document both age- and size-effects, in the sense that the pattern of the flow-performance relationship is more pronounced among younger and smaller funds. With regard to age, Huang *et al.* (2007, 2012) show that the level of flows and their sensitivity to past performance are lower for older funds. Concerning size, Berk and Green (2004) assume decreasing returns to scale, meaning that fund returns worsen with fund size, and that new money inflows chasing past returns can have a negative impact on future performance. Bergstresser and Poterba (2002) and Ruenzi (2005) report a negative impact of the expense ratio on fund flows. This type of evidence is supported by Huang *et al*. (2007), which state that a higher expense ratio lowers the level of flows after controlling the effect of the expense ratio on reducing information costs. However, according to Berk and Green (2004), funds with higher annual expenses attract more money flows, suggesting that expenses reflect the quality

of management. Aligned with Cashman *et al*. (2014), who document persistence in fund flows, Benson and Humphrey (2008) and Ferreira *et al.* (2012) are two studies on the flow-performance relationship that demonstrate that past flows are relevant (and have a positive effect) in explaining current flows.

In our study, we define the variable *Age* as the number of months since the fund's inception (for surviving funds, the variable is computed with reference to 31 December 2014; for missing funds, it is calculated up to the liquidation or merger date). *Size* is measured by the fund total net assets (TNA) in million US dollars, while *Total Expense Ratio* is a measure of the total costs associated with managing and operating a fund. Monthly data on funds' TNA and Total Expense Ratio are obtained from CRSP (US funds' TNA) and Datastream (European funds' TNA, and US and European funds' expense ratio)[66], while the inception dates are extracted from Bloomberg and Morningstar websites. Finally, *Lagged Flow* is the monthly flow (calculated as shown in section 3.4.2) lagged by one period.

Table 3.1. reports the descriptive statistics of the main variables in our study. Table 3.1.A. exhibits the descriptive statistics (mean, standard deviation, maximum and minimum) of returns, flows and fund characteristics by type of funds (socially responsible and conventional funds). Tables 3.1.B. and 3.1.C. show the mean and standard deviation of returns, flows and fund characteristics of SRI funds and conventional funds by geographic region.

[66] Monthly data on European funds' TNA are a courtesy of Thomson Reuters.

Table 3.1.A. Descriptive statistics by type of funds (SRI funds and conventional funds)

This table reports the descriptive statistics (mean, standard deviation, maximum and minimum) of monthly money flows, monthly and annual returns, total net assets, total expense ratio and age. The statistics are computed over time (2003-2014) and across funds.

	Monthly Flow	**Monthly Return**	**Annual Return**	**Total Net Assets ($ millions)**	**Total Expense Ratio (%)**	**Age (months)**
Socially responsible funds						
Mean	0.0865027	0.0070952	0.0943678	580.0118	1.492466	120.859
Standard Deviation	5.413941	0.0685698	0.2427464	3,939.496	0.6522504	90.62245
Maximum	756.8836	2.627437	3.340637	73,034.90	9.8	504
Minimum	-3.146091	-0.7146767	-0.7183315	0	0	1
Nr. Observations	27,339	27,872	26,941	27,419	25,170	27,872
Conventional funds						
Mean	0.9849899	0.0067538	0.0919808	381.9568	0.9434132	103.4717
Standard Deviation	124.0323	0.0525757	0.2165924	2,103.285	0.9964383	93.3964
Maximum	31,357.46	4.848619	4.775173	73,313.5	15.3	989
Minimum	-4.841225	-0.98991	-0.9942905	0	0	1
Nr. Observations	82,266	84,353	81,721	82,874	68,083	84,370

Table 3.1.B. Descriptive statistics of SRI funds by geographic region

This table reports the mean and standard deviation of monthly money flows, monthly and annual returns, total net assets, total expense ratio and age. The statistics are computed over time (2003-2014) and across SRI funds.

	US		**Europe**		**UK**		**Europe (except UK)**	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Monthly Flow	0.0887865	4.671419	0.0853883	5.741598	0.0357797	0.9347844	0.0955547	6.288284
Monthly Return	0.0084409	0.0820865	0.0064564	0.0611078	0.007451	0.0541747	0.0062401	0.0625128
Annual Return	0.1021093	0.2411581	0.0906755	0.2434201	0.1072937	0.2421664	0.0870376	0.2435505
Total Net Assets ($ millions)	1,313.285	6,708.69	223.6085	894.9702	83.73449	97.48785	252.3932	979.2875
Total Expense Ratio (%)	1.232415	0.490059	1.628656	0.6844789	1.527313	0.8631516	1.653382	0.6308531
Age (months)	126.5408	105.496	118.1619	82.49622	164.3046	95.86546	108.1308	75.659

Table 3.1.C. Descriptive statistics of conventional funds by geographic region

This table reports the mean and standard deviation of monthly money flows, monthly and annual returns, total net assets, total expense ratio and age. The statistics are computed over time (2003-2014) and across conventional funds.

	US		Europe		UK		Europe (except UK)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Monthly Flow	0.150655	10.30639	1.463837	155.4087	0.6918487	35.25166	1.632875	170.7869
Monthly Return	0.007762	0.0513362	0.0061863	0.0532528	0.0068798	0.0474246	0.0060305	0.054476
Annual Return	0.1044741	0.2224002	0.0848526	0.2128817	0.0877172	0.1830417	0.0842074	0.2190391
Total Net Assets ($ millions)	643.6113	3,351.901	232.6814	690.3919	257.5685	737.0612	227.2264	679.6216
Total Expense Ratio (%)	0.0127864	0.0042149	1.627174	0.7864599	1.453371	0.6436786	1.647686	0.7991528
Age (months)	132.4918	118.9109	87.14217	70.24571	109.3404	103.9132	82.15592	59.00882

Comparing SRI funds with their conventional peers, we should note that, although the average TNA is higher for SRI funds and the range of variation of TNA is similar for both kinds of funds, the average flow of conventional funds (0.9849899) is much higher than that of SRI funds (0.0865027). With regard to the control variables, on average, SRI funds are older and face higher expenses. Geographically, while the mean value of TNA of US SRI funds is much higher than that of their European peers, US and European SRI funds exhibit a similar average monthly flow. On average, European SRI funds are younger and have higher costs. Differently, for the conventional subsample, the average fund flow of European funds (1.463837) is quite higher than that of US funds (0.150655), despite average TNA in Europe is about one third of average TNA in the US. Similar to the SRI subsample, conventional European funds are younger and face higher expenses.

Tables 3.2.A. and 3.2.B. present the correlation matrix concerning the main variables of our study for SRI funds and conventional funds, respectively.

Table 3.2.A. Correlation matrix for SRI funds

This table reports the pairwise correlations concerning the fund variables for SRI funds. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: monthly return (RM), 1 month lagged return (L1.RM), 2 month lagged return (L2. RM), 3 month lagged return (L3. RM), annual return (RA) and lagged annual return (L1. RA). Control variables are: lagged flow (L1. FLOW); lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); Total Expense Ratio, in percentage (TER); and lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE).

	FLOW	**L1. FLOW**	**RM**	**L1. RM**	**L2. RM**	**L3. RM**	**RA**	**L1. RA**	**L1. L_SIZE**	**L1. TER**	**L1. L_AGE**
FLOW	1.0000										
L1. FLOW	0.0005	1.0000									
RM	-0.0158	0.0116	1.0000								
L1. RM	-0.0121	-0.0156	0.0583	1.0000							
L2. RM	0.0081	-0.0124	-0.0146	0.0491	1.0000						
L3. RM	-0.0101	0.0087	0.1201	-0.0302	0.0412	1.0000					
RA	0.0091	0.0095	0.3243	0.3127	0.2588	0.1670	1.0000				
L1. RA	-0.0007	-0.0010	-0.0769	-0.0756	-0.0078	0.0351	-0.2436	1.0000			
L1. L_SIZE	-0.0279	0.0104	-0.0115	0.0080	0.0115	0.0141	-0.0113	0.0690	1.0000		
L1. TER	-0.0017	-0.0114	0.0274	-0.0064	-0.0071	-0.0053	-0.0205	-0.0488	-0.2585	1.0000	
L1. L_AGE	-0.0059	0.0055	-0.0040	-0.0110	-0.0091	0.0015	-0.0072	0.0457	0.4268	-0.1482	1.0000

Table 3.2.B. Correlation matrix for conventional funds

This table reports the pairwise correlations concerning the fund variables for conventional funds. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: monthly return (RM), 1 month lagged return (L1.RM), 2 month lagged return (L2. RM), 3 month lagged return (L3. RM), annual return (RA) and lagged annual return (L1. RA). Control variables are: lagged flow (L1. FLOW); lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); Total Expense Ratio, in percentage (TER); and lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE).

	FLOW	L1. FLOW	RM	L1. RM	L2. RM	L3. RM	RA	L1. RA	L1. L_SIZE	L1. TER	L1. L_AGE
FLOW	1.0000										
L1. FLOW	-0.0002	1.0000									
RM	-0.0055	-0.0010	1.0000								
L1. RM	-0.0034	-0.0032	0.0823	1.0000							
L2. RM	-0.0008	0.0011	0.0313	0.0826	1.0000						
L3. RM	-0.0019	0.0012	0.1337	0.0276	0.0857	1.0000					
RA	-0.0025	0.0016	0.3644	0.3628	0.2952	0.2129	1.0000				
L1. RA	-0.0009	-0.0015	-0.0506	-0.0418	0.0346	0.0589	-0.1662	1.0000			
L1. L_SIZE	-0.0293	-0.0049	-0.0052	0.0136	0.0199	0.0245	0.0047	0.0918	1.0000		
L1. TER	-0.0005	-0.0012	-0.0078	-0.0040	-0.0061	-0.0081	-0.0278	-0.0493	-0.1972	1.0000	
L1. L_AGE	-0.0126	-0.0046	0.0122	0.0082	0.0075	0.0072	0.0302	0.0411	0.3527	-0.1386	1.0000

Coefficients for socially responsible and conventional mutual funds seem to indicate that the correlations between the variables are not sufficiently high to indicate multicollinearity. For the SRI subsample, the variables flow and lagged flow are positively correlated (ρ = 0.0005); differently, for the conventional subsample, there is a negative correlation between fund flow and its lag (ρ = -0.0002). Moreover, although for SRI funds the flow variable is positively correlated with the two month lagged return and annual return variables, for conventional funds all return variables are negatively correlated with the monthly flow variable.

3.4.5. The flow-performance relationship

Much of the fund flow literature has focused on the relation between annual fund returns and flows (e.g., Sirri and Tufano, 1998; Del Guercio and Tkac, 2002; Bollen, 2007). However, there is evidence to suggest that investors make use of more recent information on performance to make investment decisions. For example, Cashman *et al*. (2014) find a relationship between flows and fund returns at monthly intervals, and Benson and Humphrey (2008) show that

investors consider both short- (monthly) and long-term (annual) performance in their investment decisions.

For investors, there is an increasing availability of timely information. For example, open-end funds are obliged to report daily net asset values of their portfolios, and to allow daily creations and redemptions to this net asset value making fund shares quite liquid. This allows mutual fund investors to react quickly on personal liquidity shocks and to adjust their investments according to individual beliefs about the health of the economy on a timely basis (Lückoff, 2011). Accordingly, we will model fund flows as a function of contemporaneous and past returns (monthly and annual frequencies) to assess if investors are responsive to current and/or past information. Current and three lags of monthly returns, and current and one lag of annual returns are incorporated. As mentioned above (section 3.4.4), we will also introduce past (lagged) fund flows as a determinant of contemporaneous fund flow to account for the persistence in fund flows identified by Cashman *et al*. (2014). Based on previous studies, we will also control for other factors that may also influence net cash flows to funds: age, size, and total expense ratio.

Since we include a lag of the dependent variable as explanatory variable (as in Benson and Humphrey, 2008), one of the possible econometric solutions is to estimate a dynamic panel data model in the Generalized Method of Moments (GMM) context, specifically the System GMM estimator. The studies of Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998) provide us an adequate framework to specify our models and accommodate the lagged flow. The GMM is traditionally associated with the work of Arellano and Bond (1991), who developed an estimator that uses differenced variables (that are not strictly exogenous) as instruments with all their available lags in levels. Later work by Arellano and Bover (1995) and Blundell and Bond (1998) reveals that the GMM estimator in first-differences offers rather poor instruments for the first-differenced variables (especially if the variables are close to a random walk), leading to the outline of System GMM estimator which combines the moment conditions of the model in first-differences and the model in levels. Nevertheless, after performing several tests using the GMM estimator (in which we consider a different number of instruments), and through the analysis of the statistics provided by the Data Analysis and Statistical Software (STATA), we conclude that this model is not adequate for our data structure.

Thus, although GMM is an interesting procedure to estimate our financial model that suggests that current behavior depends on past behavior (with regard to the persistence in fund flows), there is also another attractive alternative, namely the Least Squares Dummy Variable

(LSDV) estimator, also known as within (or fixed effects) estimator[67]. According to Verbeek (2012), when the dependent variable is correlated by construction with individual specific effects (in our model, the lagged dependent variable), the LSDV estimator is negatively biased but the bias becomes smaller when time (T) increases. Therefore, taking into account the complexity for implementing GMM (in general terms, regarding the possibility of over-instrumentalization, or concerning the specific structure of our data), and the fact that, for a larger T, the inconsistency of the LSDV estimator decreases considerably, we will employ the LSDV estimator. Specifically, we will model the flow-performance relationship for both subsamples – SRI funds and conventional funds – as follows:

$$Flow_{i,t} = \sum_{j=0}^{3} \alpha_j RM_{i,t-j} + \sum_{j=1}^{2} \alpha_{j+3} RA_{i,t}^{j} + \sum_{j=1}^{4} \alpha_{j+5} X_{i,t-1}^{j} + \mu_{i,t} \quad (3.2)$$

Where:

$RM_{i,t}$ is the monthly return on fund *i* at time *t*;
$RA^{1}_{i,t}$ is the annual return on fund *i* at time *t*;
$RA^{2}_{i,t}$ is the one-year lagged annual return on fund *i*;
$X^{1}_{i,t}$ is the size of fund *i* at time *t*, calculated as the logarithm of the $TNA_{i,t}$;
$X^{2}_{i,t}$ is the age of fund *i* at time *t*, calculated as the logarithm of the number of months since the fund's inception;
$X^{3}_{i,t}$ is the monthly expense ratio of fund *i* at time *t*;
$X^{4}_{i,t}$ is the monthly flow of fund *i* at time *t*; and
μ_{it} stands for the error term.

Equation (3.2) mimics the main model from Benson and Humphrey (2008), although we employ a distinct estimation methodology. Additionally, following Huang *et al.* (2007, 2012) and Ferreira *et al.* (2012), among others, and given that it is unclear whether investors focus on raw or risk-adjusted returns, we will also model the flow-performance relationship as

[67] In order to gain sensitivity on the relationship between the current flow and its lag, we performed a simple GMM regression on these two variables. For both conventional and SRI funds, the results indicate a weak (the coefficient associated with the lagged flow is close to zero) and non-significant relationship between the two variables. We proceed in the same way for the LSDV estimator. Differently, the results suggest a stronger (negative) and statistically significant relationship between current and past flows for SRI and non-SRI funds.

a function of risk-adjusted performance, as follows:

$$Flow_{i,t} = \alpha_0 RAR_{i,t} + \sum_{j=1}^{4} \alpha_j X_{i,t-1}^{j} + \mu_{i,t} \quad (3.3)$$

Where:

$RAR_{i,t}$ is the risk-adjusted return on fund *i* at time *t*.

Similar to our first essay, the risk-adjusted returns for both conventional and SRI subsamples are computed through the estimation of 36 monthly returns on a rolling monthly basis. We employ the Carhart (1997) four-factor model to estimate the regressions, as follows:

$$r_{it} - r_{f,t} = \alpha_i + \beta_{iMKT}(r_{mt} - r_{f,t}) + \beta_{iSMB} SMB_t + \beta_{iHML} HML_t + \beta_{iUMD} UMD_t + \varepsilon_{it} \quad (3.4)$$

Where:

r_{it} is the return of fund *i* in month *t*;
$r_{f,t}$ is the risk-free rate in month *t*;
r_{mt} is the market return in month *t*;
SMB_t, HML_t, and UMD_t are the *Small Minus Big* (i.e., return spread between a small cap portfolio and a large cap portfolio at time *t*), *High Minus Low* (i.e., return difference between a value stock portfolio and a growth stock portfolio at time *t*), and *Momentum* (i.e., difference in return between a portfolio of past winners and a portfolio of past losers at time *t*) factors;
α is the intercept;
β_{MKT}, β_{SMB}, β_{HML}, β_{UMD} are the factor loadings on the four factors (market, size, book-to-market, and momentum); and
ε_{it} stands for the error term.

We collect the risk factors (market, size, book-to-market, and momentum) and the US one-month Treasury-bill rate from the Professor Kenneth French Data Library. For domestic US funds, we use the Fama/French 3 factors plus the momentum factor, while for European funds that invest only in Europe, we employ the Fama/French European 3 factors plus the

momentum factor. The Kenneth French global factors are applied for funds that invest internationally.

Like Benson and Humphrey (2008), to measure the level of convexity (i.e., the relationship between good fund performance and flows *versus* the relationship between poor fund performance and flows), we will employ dummy variables for the best and worst SRI and conventional funds[68]. For this purpose, funds are divided into quartiles on the basis of their return and categorized as top (the best performing funds), bottom (the worst performing funds), or middle (the remaining funds) performers. For a fund to be classified as a top performer its performance must be in the top 25% of all funds, and not only in the top 25% of either the socially responsible or conventional fund category of funds. Thus, extending equation (3.2) to include dummy variables for the top and bottom performance quartiles on the contemporaneous and first lag of monthly and annual returns, results in the following equation:

$$Flow_{i,t} = \sum_{j=0}^{3} \alpha_j RM_{i,t-j} + \sum_{j=1}^{2} \alpha_{j+3} RA_{i,t}^{j} + \sum_{j=1}^{4} \alpha_{j+5} X_{i,t-1}^{j} + \sum_{j=0}^{1}\sum_{k=0}^{2} \gamma_{2j+k} RM_{i,t-j} * DM_{i,t-j}^{k} + \sum_{j=0}^{1}\sum_{k=1}^{2} \lambda_{2j+k} RA_{i,t}^{j+1} * DA_{i,t}^{2j+k} + \mu_{i,t} \quad (3.5)$$

Where:

$DM^1_{i,t}$ equals 1 if the month *t* return of fund *i* is ranked in the top performance quartile for that month, and 0 otherwise;

$DM^2_{i,t}$ equals 1 if the month *t* return of fund *i* is ranked in the bottom performance quartile for that month, and 0 otherwise;

$DA^1_{i,t}$ equals 1 if the annual return of fund *i* is ranked in the top performance quartile for that month, and 0 otherwise;

$DA^2_{i,t}$ equals 1 if the annual return of fund *i* is ranked in the bottom performance quartile for that month, and 0 otherwise;

$DA^3_{i,t}$ equals 1 if the lagged annual return of fund *i* is ranked in the top performance quartile for that month, and 0 otherwise; and

[68] There are some papers (e.g., Sirri and Tufano, 1998; Huang *et al*., 2007 Ferreira *et al*., 2012) that use a piecewise linear regression to examine the sensitivity of the flow-performance relationship at different levels of performance, but we chose to employ dummies as a procedure to measure the asymmetry of the relationship between money flows and returns.

$DA^4_{i,t}$ equals 1 if the lagged annual return of fund *i* is ranked in the bottom performance quartile for that month, and 0 otherwise.

Likewise, for risk-adjusted returns, we estimate the following equation:

$$Flow_{i,t} = \alpha_0 RAR_{i,t} + \sum_{j=1}^{4} \alpha_j X^j_{i,t-1} + \gamma_0 RAR_{i,t} * DR^1_{i,t} + \gamma_1 RAR_{i,t} * DR^2_{i,t} + \mu_{i,t} \quad (3.6)$$

Where:

$DR^1_{i,t}$ equals 1 if the month *t* risk-adjusted return of fund *i* is ranked in the top performance quartile for that month, and 0 otherwise;
$DR^2_{i,t}$ equals 1 if the month *t* risk-adjusted return of fund *i* is ranked in the bottom performance quartile for that month, and 0 otherwise.

Similar to equations (3.2) and (3.3), equations (3.5) and (3.6) are estimated using the LSDV estimator. While equations (3.2) and (3.5) replicate the main models from Benson and Humphrey (2008), equations (3.3) and (3.6) derive from the fact that we recognize the importance of also estimating the models using risk-adjusted returns.

Furthermore, in light of the study of Renneboog *et al.* (2011), we perform an analysis of the flow-performance relationship with social variables. While other studies implicitly assume that SRI funds are a homogeneous group, we consider that the flow-performance relationship of SRI funds may depend on its screening features. Similar to Renneboog *et al*. (2011), we interact the returns with the types of screens and screening intensity; yet, we incorporate more dimensions of screening (sectoral and transversal screening, positive screening intensity, and certification by social labels) although, due to the dimension of our dataset, we will not test the flow sensitivity to positive and negative returns. Additionally, whilst Renneboog *et al.* (2011) use the average raw return, the average CAPM-adjusted return and the average Carhart (1997) alphas as performance measures, in our work, returns are proxied by five measures: raw monthly returns, raw annual returns, risk-adjusted returns, average raw monthly returns, and average risk-adjusted returns. Therefore, to examine the effect of screening on the flow-performance relationship for SRI funds, we estimate the following equations:

$$Flow_{i,t} = \omega_0 + \omega_1 Return_{i,t} + \omega_2 Return_{i,t} * Screening\ Intensity_i + \omega_3 Return_{i,t} * Screening\ Types_i + \omega_4 Return_{i,t} * Positive\ Screening\ Intensity_i + \omega_5 Return_{i,t} * Labels_i + \omega_6 Screening\ Intensity_i + \omega_7 Screening\ Types_i + \omega_8 Positive\ Screening\ Intensity_i + \omega_9 Labels_i + \omega_{10} Size_{i,t-1} + \omega_{11} Age_{i,t-1} + \omega_{12} TER_{i,t-1} + \varepsilon_{i,t} \quad (3.7.a)$$

$$Flow_{i,t} = \tau_0 + \tau_1 Return_{i,[t-1,t-12]} + \tau_2 Return_{i,[t-1,t-12]} * Screening\ Intensity_i + \tau_3 Return_{i,[t-1,t-12]} * Screening\ Types_i + \tau_4 Return_{i,[t-1,t-12]} * Positive\ Screening\ Intensity_i + \tau_5 Return_{i,[t-1,t-12]} * Labels_i + \tau_6 Screening\ Intensity_i + \tau_7 Screening\ Types_i + \tau_8 Positive\ Screening\ Intensity_i + \tau_9 Labels_i + \tau_{10} Size_{i,t-1} + \tau_{11} Age_{i,t-1} + \tau_{12} TER_{i,t-1} + \varepsilon_{i,t} \quad (3.7.b)$$

Where:

$Return_{i,t}$ is proxied by:

- the monthly return of fund *i* at time *t*;
- the annual return of fund *i* at time *t*; or
- the risk-adjusted return of fund *i* at time *t*;

$Return_{i,[t-1,t-12]}$ is proxied by:

- the average monthly return of fund *i* between months *t*-1 and *t*-12; or
- the average risk-adjusted return of fund *i* between months *t*-1 and *t*-12;

$Screening\ Intensity_i$ represents the total number of screens of fund *i*, or the number of sectoral screens plus the number of transversal screens;

$Screening\ Types_i$ are dummy variables that represent the types of screens applied to fund *i*, namely Environment, Social, Governance, Products, and Shareholder Engagement;

$Positive\ Screening\ Intensity_i$ is the number of positive screens applied by fund *i*;

$Labels_i$ is a dummy variable that assumes the value of 1 if the fund *i* has been certified with at least one social label;

$Size_{i,t-1}$ is the logarithm of the TNA for fund *i* at time *t*-1;

$Age_{i,t-1}$ is the logarithm of the number of months since inception for fund *i* at time *t*-1; and

$TER_{i,t-1}$ is the total expense ratio for fund *i* at time *t*-1.

Following our first essay, we will estimate equations (3.7.a) and (3.7.b) using a between effects model. The fixed effects estimator only makes sense if the individuals in the sample are "one of a kind", and cannot be treated as a random sample from some population (Verbeek, 2012). Additionally, it eliminates from the model variables that are constant over time. Differently, the random effects focus on arbitrary individuals who have certain characteristics, allowing us to make inference with respect to the population (Verbeek, 2012). We performed a Hausman specification test, a statistic tool commonly used to decide between the fixed and random estimators, and rejected the null hypothesis that the random effects model is the preferred one. So, given that we have some time series variables and variables that do not vary in time, we believe that between effects is the most adequate estimator for our data in the sense that, although it neglects the time series component of the data, it explores the differences between individuals (i.e., the cross-sectional component of the data).

3.4.6. Money flows to SRI funds – "smart" money *versus* "dumb" money

An additional purpose of this research is to analyze whether ethical money flows are able to predict future fund performance, i.e., if SRI funds that receive most of the money inflows perform well in the future. Thus, we start by estimating the following regression:

$$Abnormal\ Return_{i,t} = \varphi_0 + \varphi_1 Flow_{i,[t-1,t-12]} + \varphi_2 Size_{i,t-1} + \varphi_3 Age_{i,t-1} + \varphi_4 TER_{i,t-1} + \varepsilon_{i,t} \quad (3.8)$$

Where:

$Abnormal\ Return_{i,t}$ is the risk-adjusted return of fund *i* in month *t* estimated through the Carhart (1997) 4-factor model; and
$Flow_{i,[t-1,t-12]}$ is the average money flow of fund *i* from months *t*-1 to *t*-12.

Finally, in the spirit of Renneboog *et al.* (2011), we investigate the impact of SRI features on future performance by estimating the next equation:

$$Abnormal\ Return_{i,t}$$
$$= \sigma_0 + \sigma_1 Flow_{i,[t-1,t-12]} + \sigma_2 Screening\ Types_i + \sigma_3 Screening\ Intensity_i$$
$$+ \sigma_4 Positive\ Screening\ Intensity_i + \sigma_5 Labels_i + \sigma_6 Size_{i,t-1} + \sigma_7 Age_{i,t-1}$$
$$+ \sigma_8 TER_{i,t-1} + \varepsilon_{i,t} \quad (3.9)$$

We employ a fixed effects model to estimate equation (3.8), and a between effects model to estimate equation (3.9). Similar to section 3.4.5 (namely equations 3.7.a and 3.7.b), since equation (3.9) incorporates the social variables, we consider that the between effects estimator is more robust and adequate to the analysis.

3.5. Empirical results

3.5.1. The flow-performance relationship for socially responsible and conventional funds

The main results concerning the flow-performance relationship for socially responsible and conventional funds (equation 3.2) are presented in Table 3.3.

When we focus on conventional funds, the results show that fund flows are negatively related to monthly returns, suggesting that investors only incorporate current return information in their investment decisions. Concerning the control variables, only the variable size is associated with conventional fund flows – the coefficient is significantly negative, meaning that larger funds receive less flows. The lagged flow exhibits a negative but not statistically significant coefficient. The results are slightly different for SRI funds. For the SRI subsample, the current monthly return shows a negative and statistically significant coefficient at the 5% level, while the coefficient of lagged annual returns is positive and statistically significant at the 5% level. Nevertheless, when we compare the coefficient associated with one month lagged return for both types of funds, it is quite evident that the negative response of conventional investors to current returns is more intense. The impact of the size variable is similar to conventional funds but there is also evidence of a positive and significant effect of expense ratio on flows. With regard to lagged flows, our results show a negative but non-significant coefficient.

Table 3.3. Flow-performance relationship for conventional and SRI funds

This table reports the results of panel data regressions on the flow-performance relationship for SRI and non-SRI funds. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: monthly return (RM), 1 month lagged return (L1.RM), 2 month lagged return (L2. RM), 3 month lagged return (L3. RM), annual return (RA) and lagged annual return (L1. RA). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 SRI funds and 759 conventional funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Monthly return (RM)	-5.942137*	-2.255356*	-8.227316	-8.399862	-3.083226	-0.899817**	-1.864726**	-0.342089*	-0.347845	-0.310542***
	(-1.71)	(-1.68)	(-1.38)	(-1.30)	(-0.31)	(-2.56)	(-2.03)	(-1.87)	(-1.59)	(-4.50)
1 Month lagged return (L1.RM)	-0.952512	0.126056	-1.707714	-1.549315	-2.325329	-0.122336	-0.815823	0.217127	0.257065	0.077416
	(-0.27)	(0.09)	(-0.28)	(-0.24)	(-0.23)	(-0.35)	(-0.88)	(1.19)	(1.17)	(1.12)
2 Month lagged return (L2.RM)	1.034461	-0.448205	2.104167	1.113101	18.82355*	-0.008796	-0.334738	0.194150	0.243366	-0.025049
	(0.30)	(-0.34)	(0.36)	(0.18)	(1.88)	(-0.03)	(-0.37)	(1.08)	(1.13)	(-0.37)
3 Month lagged return (L3.RM)	1.050847	1.802189	1.170921	0.406954	14.44103	0.279259	0.622325	0.036213	0.037731	0.098951
	(0.32)	(1.41)	(0.21)	(0.07)	(1.49)	(0.84)	(0.72)	(0.21)	(0.18)	(1.55)
Annual return (RA)	-0.238877	-0.475627	0.215515	0.770152	-9.198859*	-0.178968	-0.412990	-0.064218	-0.131372	0.073918*
	(-0.15)	(-0.65)	(0.08)	(0.26)	(-1.76)	(-0.96)	(-0.88)	(-0.54)	(-0.90)	(1.70)
Lagged annual return (L1.RA)	1.171732	0.517233	1.529935	1.85431	-4.855931	0.402341**	0.325074	0.154233	0.159050	0.020071
	(0.78)	(0.76)	(0.61)	(0.69)	(-0.98)	(2.25)	(0.65)	(1.53)	(1.31)	(0.47)
Size (L_SIZE)	-3.735042***	-1.159375***	-5.991897***	-6.001639***	-6.393969***	-0.470750***	-0.922287***	-0.183425***	-0.217876***	-0.054217***
	(-16.29)	(-13.23)	(-14.73)	(-13.25)	(-11.49)	(-15.53)	(-10.57)	(-11.15)	(-10.65)	(-9.80)
Age (L_AGE)	0.54791	0.302516	0.190132	-0.091677	6.69916***	-0.128971	-0.042718	0.022474	0.039946	0.042417***
	(0.79)	(1.11)	(0.16)	(-0.07)	(3.21)	(-1.47)	(-0.20)	(0.46)	(0.64)	(2.75)
Total expense ratio (TER)	-0.153927	35.04435	0.083798	0.139018	-0.510999	0.120415*	0.576117	0.013831	0.042052	-0.003371
	(-0.27)	(0.65)	(0.11)	(0.16)	(-0.43)	(1.93)	(1.50)	(0.51)	(0.96)	(-0.56)
Lagged flow (L1.FLOW)	-0.009991	-0.007715	-0.009056	-0.007941	-0.013494	-0.008052	-0.012644	0.001985	0.002530	0.065404***
	(-0.77)	(-1.28)	(-0.45)	(-0.31)	(-0.85)	(-1.22)	(-1.16)	(0.21)	(0.24)	(3.51)
Observations	64,221	27,756	36,465	32,579	3,886	23,685	8,303	15,382	12,512	2,870
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

In this sense, the empirical evidence seems to suggest that both types of investors incorporate current performance in their investment decisions, but only SRI investors respond to long-term past returns (there is no statistical significance concerning the conventional subsample).

In order to explore potential geographical differences in the pattern of the flow-performance relationship, we split our sample into the following groups: US, Europe, Europe without UK, and UK. In relation to US funds, and similar to the global sample, conventional and SRI money flows are a negative function of current returns (monthly returns). For both types of US investors, the coefficient for lagged flow lacks statistical significance, and the funds' size has a negative impact on flows. Considering Europe (full sample and excluding UK), table 3.3 shows that, for the European SRI subsample, monthly returns seem to affect money flows. The variable size is negative and statistically significant at the 1% level for all subsamples. Finally, for the sub-group of UK conventional investors, we find that annual returns impact flows negatively, while the second lag of monthly returns has the opposite effect. In contrast, for UK socially responsible investors, flows are a negative function of monthly returns, and a positive function of annual returns. Interestingly, UK SRI lagged flows are positively related with current flows (at the 1% significance level), i.e., UK socially responsible investors are more likely to reinvest in funds they already own. For both kinds of investors, funds' size (age) is negatively (positively) related to flows.

Table 3.4 presents the results of estimating equation (3.5), which analyzes the flow-performance relationship for the best and worst (in terms of returns) conventional and SRI funds. As mentioned before, it is relevant to analyze the sensitivity of flows for funds with different levels of past performance, in order to detect a possible convex or asymmetric relationship.

Table 3.4. Flow-performance relationship for conventional and SRI funds – top and bottom performance quartiles – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI and non-SRI funds for the top and bottom performance quartiles. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: monthly return (RM), 1 month lagged return (L1.RM), 2 month lagged return (L2. RM), 3 month lagged return (L3. RM), annual return (RA) and lagged annual return (L1. RA), top and bottom dummies for the current and first lag of monthly returns (DM^1 and DM^2, respectively), and top and bottom dummies for the current and first lag of annual returns (DA^1 and DA^2, respectively). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 SRI funds and 759 conventional funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Monthly return (RM)	-11.59265**	-3.402165*	-21.31759*	-22.87632*	-6.324414	-1.711913**	-3.102452*	-0.718527**	-0.827241*	-0.281132**
	(-1.99)	(-1.69)	(-1.94)	(-1.88)	(-0.43)	(-2.52)	(-1.83)	(-1.98)	(-1.83)	(-2.46)
1 Month lagged return (L1.RM)	-4.026632	0.793790	-6.948855	-6.708167	-10.08105	-0.382577	-1.612984	0.160982	0.177558	0.107035
	(-0.87)	(0.43)	(-0.89)	(-0.80)	(-0.70)	(-0.71)	(-1.07)	(0.59)	(0.53)	(1.16)
2 Month lagged return (L2.RM)	1.070495	-0.451036	2.503414	1.545338	18.4708*	-0.03731	-0.448447	0.193652	0.248326	-0.026679
	(0.32)	(-0.34)	(0.43)	(0.25)	(1.84)	(-0.11)	(-0.49)	(1.06)	(1.13)	(-0.39)
3 Month lagged return (L3.RM)	0.811138	1.826657	0.183739	-0.753035	14.91612	0.260066	0.529822	0.045320	0.051079	0.089395
	(0.24)	(1.42)	(0.03)	(-0.12)	(1.53)	(0.78)	(0.61)	(0.26)	(0.24)	(1.38)
Annual return (RA)	-2.774933	-2.086092**	-2.361546	-3.548955	0.720324	-0.325221	-1.018353	-0.010645	-0.097011	0.127453*
	(-1.09)	(-1.96)	(-0.53)	(-0.71)	(0.11)	(-1.01)	(-1.32)	(-0.06)	(-0.41)	(1.76)
Lagged annual return (L1.RA)	1.434791	0.765693	1.038591	0.844747	-2.004058	0.310195	0.455080	0.056458	0.033045	0.052679
	(0.77)	(1.00)	(0.30)	(0.22)	(-0.35)	(1.43)	(0.71)	(0.48)	(0.23)	(1.08)
Size (L_SIZE)	-3.752329***	-1.177824***	-6.014508***	-6.02894***	-6.495797***	-0.474061***	-0.928212***	-0.183687***	-0.217713***	-0.054273***
	(-16.31)	(-13.39)	(-14.74)	(-13.26)	(-11.62)	(-15.59)	(-10.61)	(-11.15)	(-10.64)	(-9.70)
Age (L_AGE)	0.575081	0.324309	0.208123	-0.112474	6.544943***	-0.130863	-0.052933	0.015892	0.028548	0.041290***
	(0.83)	(1.18)	(0.17)	(-0.08)	(3.09)	(-1.48)	(-0.24)	(0.32)	(0.45)	(2.67)
Total expense ratio (TER)	-0.147351	36.70121	0.089680	0.120980	-0.459101	0.119963*	0.559922	0.014388	0.041374	-0.003754
	(-0.26)	(0.68)	(0.12)	(0.14)	(-0.38)	(1.92)	(1.46)	(0.53)	(0.95)	(-0.62)
Lagged flow (L1.FLOW)	-0.009909	-0.007864	-0.008852	-0.007604	-0.014914	-0.008176	-0.012990	0.001666	0.002033	0.063108***
	(-0.76)	(-1.31)	(-0.44)	(-0.30)	(-0.94)	(-1.24)	(-1.19)	(0.18)	(0.19)	(3.38)
Monthly return – top ($RM*DM^1$)	7.47466	1.343831	17.86326	19.70025	-2.082251	0.666552	0.767200	0.451158	0.620757	-0.106540
	(0.98)	(0.44)	(1.33)	(1.34)	(-0.10)	(0.77)	(0.36)	(0.96)	(1.08)	(-0.65)
Monthly return – bottom ($RM*DM^2$)	11.09773	3.095549	21.08629	22.61829	15.38976	1.505891	3.191512	0.502407	0.572173	0.031914
	(1.19)	(0.90)	(1.24)	(1.22)	(0.60)	(1.60)	(1.26)	(1.03)	(0.95)	(0.19)
Lagged monthly return – top ($L1.RM*DM^1$)	7.878158	-1.668308	16.27054	17.41159	17.67954	0.180461	0.754092	-0.021057	0.000925	-0.110428
	(0.94)	(-0.54)	(1.07)	(1.04)	(0.81)	(0.22)	(0.33)	(-0.05)	(0.00)	(-0.70)
Lagged monthly return – bottom ($L1.RM*DM^2$)	6.364589	-0.771361	11.42335	11.42933	9.10103	0.492578	1.36624	0.173845	0.234939	-0.009588
	(0.83)	(-0.25)	(0.89)	(0.83)	(0.39)	(0.63)	(0.68)	(0.42)	(0.48)	(-0.06)
Annual return – top ($RA*DA^1$)	2.724433	1.718229**	2.367413	4.037228	-12.16248**	0.199761	0.524871	-0.017085	-0.008009	-0.068186
	(1.33)	(2.33)	(0.62)	(0.93)	(-2.21)	(0.84)	(0.88)	(-0.13)	(-0.05)	(-1.57)
Annual return – bottom ($RA*DA^2$)	0.486955	-0.703897	3.748084	4.620112	-8.603934	-0.081145	0.186651	0.078039	0.138860	-0.021973
	(0.18)	(-0.65)	(0.80)	(0.91)	(-1.02)	(-0.28)	(0.18)	(0.53)	(0.75)	(-0.41)

Table 3.4. Flow-performance relationship for conventional and SRI funds – top and bottom performance quartiles – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI and non-SRI funds for the top and bottom performance quartiles. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: monthly return (RM), 1 month lagged return (L1.RM), 2 month lagged return (L2. RM), 3 month lagged return (L3. RM), annual return (RA) and lagged annual return (L1. RA), top and bottom dummies for the current and first lag of monthly returns (DM^1 and DM^2, respectively), and top and bottom dummies for the current and first lag of annual returns (DA^1 and DA^2, respectively). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 SRI funds and 759 conventional funds for the period 2003-2014. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Lagged annual return – top ($L1.RA*DA^1$)	-0.338831 (-0.20)	-0.344887 (-0.57)	0.373934 (0.12)	1.170321 (0.33)	-4.533073 (-0.94)	0.157107 (0.74)	0.121868 (0.21)	0.040419 (0.37)	0.043575 (0.31)	-0.035121 (-1.03)
Lagged annual return – bottom ($L1.RA*DA^2$)	0.621861 (0.27)	-0.273806 (-0.29)	2.864029 (0.72)	3.035819 (0.70)	-0.174903 (-0.03)	0.127014 (0.57)	-0.328197 (-0.52)	0.243334** (2.07)	0.348245** (2.33)	-0.055716 (-1.37)
Observations	64,221	27,756	36,465	32,579	3,886	23,685	8,303	15,382	12,512	2,870
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Regarding conventional funds, the sign and significance of the variables are similar to those of table 3.3, namely concerning the negative and significant effect of monthly returns on money flows. When we consider the dummies for the top and bottom quartiles of current and past returns, there are no other statistically significant relationships between flows and short- and long-term performance whatever their past performance record is (top, middle and bottom performing funds). For the SRI subsample, consistent with table 3.3, investors react negatively to current monthly returns. Furthermore, like conventional funds, the coefficients associated with dummies for top and bottom performers are non-significant.

We further regress equation (3.5) for funds in different geographic areas. Focusing on the subsample of US conventional funds, the sign and significance of the coefficient on the monthly returns is consistent with table 3.3, but now annual returns also seem to impact negatively current money flows. Regarding the top and bottom quartiles of performance, one dummy emerges as significant to explain fund flows: in particular, there is a positive response to top performers in terms of past returns (annual returns). Turning to SRI funds, the results are similar to table 3.3, i.e., US socially responsible investors react negatively to funds' current returns. Table 3.4 shows that for European (full sample and without UK) conventional funds, monthly returns impact negatively money flows. For the group of socially responsible investors, current monthly returns also appear as negative and statistically significant. Moreover, there is a positive relationship between the performance of the worst SRI funds (in terms of lagged annual returns) and flows. With regard to the flow-performance results of UK funds, coefficients on the return variables are quite similar to those of table 3.3 for both conventional and SRI funds, and there is still persistence in SRI fund flows. Notwithstanding, for UK conventional funds, the variable annual returns loses statistical significance. Besides that, conventional investors are sensitive to top annual returns (the coefficient is negative and statistically significant at the 5% level). For the four geographical subsamples, fund size is negatively related with fund flows, meaning that smaller funds benefit from larger money flows. In addition, SRI funds (considering the global sample) with higher expense ratios and older UK funds receive higher money flows.

We run similar analysis for the flow-performance relationship employing risk-adjusted returns (equations 3.3 and 3.6). Tables 3.5 and 3.6 present the results for conventional and SRI subsamples without and with performance dummies, respectively.

Table 3.5. Flow-performance relationship for conventional and SRI funds (risk-adjusted returns)

This table reports the results of panel data regressions of the flow-performance relationship for SRI and non-SRI funds. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variable is the risk-adjusted return (RAR). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 socially responsible funds and 759 conventional funds for the period 2003-2014. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Risk-adjusted return (RAR)	0.000000 (0.17)	0.000000 (0.03)	0.000000 (0.11)	0.000000 (0.22)	-0.000000 (-0.28)	-0.137829*** (-2.90)	-0.384664*** (-16.45)	-0.085832 (-1.33)	-0.115404 (-1.37)	-0.025614 (-1.42)
Size (L_SIZE)	-1.303444*** (-16.92)	-0.151783*** (-7.47)	-2.317993*** (-16.66)	-1.35931*** (-10.77)	-14.36548*** (-16.78)	-0.083690*** (-9.32)	-0.025408*** (-7.25)	-0.128309*** (-8.93)	-0.150363*** (-8.37)	-0.049392*** (-10.32)
Age (L_AGE)	0.182243 (0.45)	0.087828 (0.88)	-0.420054 (-0.53)	-1.499336* (-1.91)	11.75984*** (3.06)	0.011147 (0.38)	0.016430* (1.69)	-0.052472 (-1.07)	-0.036716 (-0.59)	-0.043246*** (-2.61)
Total expense ratio (TER)	-0.078217 (-0.48)	-25.18244** (-1.99)	0.021765 (0.10)	0.027679 (0.13)	-2.049311 (-1.55)	-0.014421 (-0.79)	-0.019782 (-1.29)	-0.006628 (-0.28)	-0.005909 (-0.17)	-0.002229 (-0.40)
Lagged flow (L1.FLOW)	-0.016457*** (-3.83)	-0.012029* (-1.84)	-0.015831*** (-2.76)	-0.021014*** (-3.43)	-0.017575 (-1.08)	0.000345 (0.05)	-0.016172 (-1.45)	0.001661 (0.20)	0.001898 (0.21)	0.074526*** (4.04)
Observations	54,442	23,952	30,490	26,967	3,523	22,878	7,908	14,970	12,144	2,826
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.6. Flow-performance relationship for conventional and SRI funds (risk-adjusted returns) – top and bottom performance quartiles

This table reports the results of panel data regressions of the flow-performance relationship for SRI and non-SRI funds for the top and bottom performance quartiles. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables included: risk-adjusted return (RAR), and top and bottom dummies for risk-adjusted returns (DR^1 and DR^2, respectively). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 socially responsible funds and 759 conventional funds for the period 2003-2014. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Risk-adjusted return (RAR)	0.000000 (0.16)	0.000000 (0.03)	0.000000 (0.10)	0.000000 (0.20)	-0.000000 (-0.28)	-0.090278 (-0.63)	0.059448 (1.05)	-0.165777 (-0.78)	-0.311209 (-1.08)	0.019227 (0.34)
Size (L_SIZE)	-1.308673*** (-16.99)	-0.151546*** (-7.45)	-2.322204*** (-16.69)	-1.363805*** (-10.80)	-14.36458*** (-16.77)	-0.083134*** (-9.24)	-0.025665*** (-7.41)	-0.128729*** (-8.94)	-0.151966*** (-8.41)	-0.049388*** (-10.32)
Age (L_AGE)	0.202161 (0.50)	0.087439 (0.87)	-0.372606 (-0.47)	-1.45173* (-1.85)	11.75111*** (3.05)	0.0111157 (0.38)	0.013099 (1.37)	-0.052658 (-1.08)	-0.035610 (-0.57)	-0.043063*** (-2.60)
Total expense ratio (TER)	-0.072608 (-0.44)	-25.25655** (-1.99)	0.023975 (0.11)	0.029084 (0.14)	-2.050732 (-1.55)	-0.015107 (-0.83)	-0.020261 (-1.34)	-0.006309 (-0.27)	-0.006143 (-0.17)	-0.002350 (-0.42)
Lagged flow (L1.FLOW)	-0.01644*** (-3.82)	-0.012014* (-1.84)	-0.015808*** (-2.75)	-0.020996*** (-3.43)	-0.017582 (-1.08)	0.000327 (0.05)	-0.018100* (-1.65)	0.001676 (0.20)	0.001969 (0.21)	0.075422*** (4.08)
Risk-adjusted return – top ($RAR*DR^1$)	7.310957*** (2.60)	-0.335847 (-0.33)	9.183806** (2.14)	10.45888*** (2.66)	-1.962234 (-0.09)	-0.135683 (-0.79)	-0.854183*** (-11.87)	0.124059 (0.49)	0.300767 (0.89)	-0.054085 (-0.74)
Risk-adjusted return – bottom ($RAR*DR^2$)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	0.014313 (0.12)	-0.015285 (-0.37)	0.051074 (0.27)	0.102995 (0.41)	-0.042375 (-0.81)
Observations	54,442	23,952	30,490	26,967	3,523	22,878	7,908	14,970	12,144	2,826
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

For the conventional global sample and European (whole and except UK) subsample, our results indicate that money flows react positively to returns of the best performing funds. Moreover, there is clear evidence (except for the UK subsample) that past flows have a negative and significant effect on current flows. Focusing on the SRI universe, for the whole sample and US subsample, flows exhibit a negative reaction to funds' risk-adjusted returns for a significance level of 1%. US SRI flows also show a negative sensitivity to the performance of best performing funds. Interestingly, like shown for raw returns, there is strong persistence in UK SRI money flows, i.e., UK SRI investors tend to stick to funds they already possess. Differently, for the US, we find weak evidence that past flows detract current flows. Finally, when considering risk-adjusted returns, funds' size seems to weaken money flows for both the SRI and conventional subsamples, while there is mixed evidence concerning funds' age.

3.5.2. Non-financial attributes and money flows

The main empirical results for the flow-performance relationship considering social variables (equations 3.7.a and 3.7.b) are computed in tables 3.7 to 3.16. Tables 3.7 and 3.8 report the results for the global sample, and tables 3.9 to 3.16 present the evidence for geographical subsamples – US, Europe, Europe (excluding UK), and UK.

Table 3.7. Flow-performance relationship and screening characteristics

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 253 SRI funds for the period 2003-2014. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	-8.233119 (-0.77)	-0.243757 (-0.45)	-4.931924 (-0.52)	-0.296974 (-0.38)	-0.148772 (-0.28)
Return * SI	-1.857489 (-0.74)	0.00869 (0.06)	-2.050689 (-0.86)	-0.148909 (-0.74)	0.000901 (0.01)
Return * ENV	14.33148 (1.12)	0.265862 (0.33)	8.465081 (0.81)	0.272719 (0.31)	0.255401 (0.32)
Return * SOC	2.407936 (0.21)	0.085028 (0.13)	1.623775 (0.17)	0.014609 (0.02)	0.098843 (0.15)
Return * GOV	17.62458 (1.11)	-0.463841 (-0.38)	16.89621 (0.88)	1.143573 (0.79)	-0.560896 (-0.45)
Return * PROD	8.399948 (0.78)	-0.211656 (-0.29)	13.252 (1.31)	1.07102 (1.27)	-0.194479 (-0.24)
Return * SHENG	-15.90977 (-1.02)	-0.305706 (-0.29)	-8.206986 (-0.37)	-0.168507 (-0.10)	-0.151445 (-0.13)
Return * PSCR	-1.500035 (-0.41)	-0.136698 (-0.69)	0.024954 (0.01)	0.072206 (0.27)	-0.106652 (-0.55)
Return * LAB	8.853786 (1.35)	0.128611 (0.28)	5.561519 (0.94)	0.260757 (0.50)	0.091494 (0.19)
SI	0.016905 (0.78)	0.003225 (0.25)	0.017022 (0.91)	0.015399 (0.78)	0.002511 (0.20)
ENV	-0.101979 (-0.94)	0.032333 (0.45)	-0.041732 (-0.49)	-0.010235 (-0.11)	0.026109 (0.39)
SOC	-0.052449 (-0.54)	-0.009043 (-0.16)	-0.03659 (-0.48)	-0.022108 (-0.27)	-0.012643 (-0.24)
GOV	-0.126442 (-0.78)	-0.012340 (-0.12)	-0.112014 (-0.62)	-0.088741 (-0.52)	-0.009911 (-0.10)
PROD	-0.086083 (-0.96)	-0.037005 (-0.61)	-0.112221 (-1.45)	-0.112774 (-1.40)	-0.034115 (-0.58)
SHENG	0.110407 (0.75)	-0.065821 (-0.70)	0.037949 (0.22)	-0.006007 (-0.04)	-0.054863 (-0.58)
PSCR	0.014136 (0.43)	-0.013182 (-0.63)	-0.001143 (-0.04)	-0.007880 (-0.27)	-0.00871 (-0.47)
LAB	-0.048346 (-0.88)	0.020281 (0.52)	-0.013461 (-0.28)	-0.001468 (-0.03)	0.017804 (0.48)
L_SIZE	-0.032758*** (-4.52)	-0.033315*** (-4.48)	-0.033249*** (-4.61)	-0.032976*** (-4.54)	-0.033650*** (-4.53)
L_AGE	0.034027 (1.36)	0.035098 (1.40)	0.032744 (1.30)	0.031520 (1.23)	0.034602 (1.38)
TER	-0.060633*** (-2.72)	-0.058815*** (-2.71)	-0.056470** (-2.51)	-0.05379** (-2.55)	-0.058884*** (-2.71)
Observations	22,887	22,887	22,887	22,788	22,887
Year dummies	Included	Included	Included	Included	Included

Table 3.8. Flow-performance relationship and screening characteristics – sectoral and transversal screens

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 253 SRI funds for the period 2003-2014. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	-6.726512 (-0.61)	-0.104017 (-0.17)	-3.059951 (-0.32)	-0.167131 (-0.21)	-0.126586 (-0.20)
Return * SECT	-2.589366 (-0.93)	-0.002093 (-0.01)	-2.899246 (-1.12)	-0.217558 (-0.96)	0.013230 (0.08)
Return * TRANSV	1.045538 (0.15)	0.252214 (0.53)	1.079585 (0.17)	0.012369 (0.02)	0.084898 (0.18)
Return * ENV	15.32828 (1.16)	0.363602 (0.44)	8.781341 (0.83)	0.315714 (0.35)	0.312351 (0.39)
Return * SOC	-0.252048 (-0.02)	-0.177935 (-0.20)	-1.809876 (-0.16)	-0.175597 (-0.18)	0.035518 (0.04)
Return * GOV	7.505877 (0.44)	-0.822454 (-0.66)	9.604244 (0.49)	0.604888 (0.40)	-0.731673 (-0.58)
Return * PROD	9.510468 (0.87)	-0.207657 (-0.27)	15.170004 (1.46)	1.281036 (1.47)	-0.201967 (-0.25)
Return * SHENG	-18.10057 (-1.22)	-0.4074513 (-0.40)	-13.18284 (-0.64)	-0.411340 (-0.27)	-0.213475 (-0.20)
Return * PSCR	-2.091692 (-0.50)	-0.238553 (-1.03)	-0.382913 (-0.11)	0.042740 (0.14)	-0.164359 (-0.75)
Return * LAB	7.926351 (1.18)	0.058377 (0.13)	4.34943 (0.72)	0.199551 (0.38)	0.048125 (0.10)
SECT	0.018860 (0.83)	-0.000154 (-0.01)	0.018153 (0.93)	0.016026 (0.76)	0.000842 (0.06)
TRANSV	0.008964 (0.15)	0.043628 (0.93)	0.01857 (0.36)	0.027247 (0.49)	0.028036 (0.65)
ENV	-0.109554 (-0.98)	0.042293 (0.58)	-0.044355 (-0.51)	-0.013024 (-0.14)	0.030514 (0.46)
SOC	-0.053421 (-0.47)	-0.056654 (-0.71)	-0.047303 (-0.50)	-0.043970 (-0.42)	-0.043420 (-0.58)
GOV	-0.041049 (-0.25)	-0.049557 (-0.43)	-0.060797 (-0.35)	-0.044335 (-0.27)	-0.0262928 (-0.25)
PROD	-0.090392 (-1.00)	-0.038179 (-0.62)	-0.120911 (-1.55)	-0.125759 (-1.54)	-0.036659 (-0.61)
SHENG	0.125015 (0.88)	-0.077248 (-0.87)	0.071457 (0.43)	0.014022 (0.10)	-0.061413 (-0.70)
PSCR	0.017940 (0.46)	-0.026089 (-1.03)	-0.000231 (-0.01)	-0.007939 (-0.24)	-0.016269 (-0.75)
LAB	-0.041790 (-0.75)	0.014143 (0.36)	-0.005586 (-0.12)	0.005002 (0.09)	0.014987 (0.40)
L_SIZE	-0.033349*** (-4.55)	-0.033561*** (-4.49)	-0.034269*** (-4.69)	-0.034067*** (-4.63)	-0.033988*** (-4.54)
L_AGE	0.035407 (1.40)	0.035640 (1.41)	0.035680 (1.40)	0.033564 (1.30)	0.035815 (1.41)
TER	-0.060878*** (-2.72)	-0.057286*** (-2.63)	-0.056413** (-2.50)	-0.05375** (-2.52)	-0.057702*** (-2.63)
Observations	22,887	22,887	22,887	22,788	22,887
Year dummies	Included	Included	Included	Included	Included

Table 3.9. Flow-performance relationship and screening characteristics for US funds

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 80 SRI funds for the period 2003-2014. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	-3.954861 (-1.30)	-0.266017 (-0.73)	-3.612216 (-1.10)	-0.012627 (-0.04)	-0.675691 (-1.54)
Return * SI	-1.097187 (-1.31)	-0.038900 (-0.93)	-0.874311 (-0.93)	0.003757 (0.05)	-0.024219 (-0.56)
Return * ENV	9.619148** (2.36)	0.336927 (1.32)	7.503617* (1.70)	0.209521 (0.54)	0.191650 (0.75)
Return * SOC	0.540037 (0.15)	0.079082 (0.32)	-0.312731 (-0.10)	-0.026612 (-0.09)	0.079766 (0.35)
Return * GOV	0.104421 (0.02)	-0.308900 (-1.12)	-1.978769 (-0.38)	-0.369035 (-0.95)	-0.253024 (-0.88)
Return * PROD	12.48984*** (3.18)	0.523510** (2.31)	11.10427** (2.28)	0.551428 (1.41)	0.364901 (1.41)
Return * SHENG	-1.706054 (-0.35)	0.413754* (1.72)	0.324588 (0.06)	-0.214481 (-0.51)	0.374243 (1.52)
Return * PSCR	-1.915857** (-2.43)	-0.039515 (-0.77)	-0.766751 (-1.10)	-0.044933 (-0.77)	-0.009039 (-0.20)
Return * LAB	7.797365* (1.89)	-0.100878 (-0.52)	6.949759* (1.94)	0.303894 (1.02)	-0.001853 (-0.01)
SI	0.014590* (1.88)	-0.002295 (-0.52)	0.009446 (1.18)	0.000940 (0.13)	-0.001235 (-0.28)
ENV	-0.121312*** (-3.12)	0.013608 (0.53)	-0.083491** (-2.07)	-0.036760 (-0.88)	0.001165 (0.05)
SOC	-0.002864 (-0.08)	0.008312 (0.38)	-0.004973 (-0.17)	-0.007983 (-0.25)	0.002382 (0.13)
GOV	-0.029912 (-0.73)	-0.026077 (-1.14)	0.001539 (0.03)	0.024034 (0.53)	-0.016414 (-0.73)
PROD	-0.138163*** (-3.37)	0.046756** (2.22)	-0.100512** (-2.27)	-0.057743 (-1.39)	0.034112 (1.48)
SHENG	0.009771 (0.24)	0.031216 (1.34)	0.001728 (0.04)	0.035498 (0.97)	0.027418 (1.16)
PSCR	0.019564*** (2.74)	-0.001596 (-0.29)	0.00846 (1.33)	0.005640 (0.90)	0.001901 (0.44)
LAB	-0.062945* (-1.80)	-0.013702 (-0.69)	-0.048650 (-1.66)	-0.021436 (-0.75)	-0.000582 (-0.03)
L_SIZE	-0.004115* (-1.93)	-0.007990*** (-3.07)	-0.006345*** (-2.95)	-0.005831** (-2.65)	-0.008047*** (-3.03)
L_AGE	0.016178* (1.73)	0.015525 (1.33)	0.014394 (1.43)	0.010045 (1.01)	0.013575 (1.14)
TER	0.022947** (2.30)	0.00602 (0.50)	0.013442 (1.32)	0.007128 (0.71)	0.002602 (0.21)
Observations	7,910	7,910	7,910	7,910	7,910
Year dummies	Included	Included	Included	Included	Included

Table 3.10. Flow-performance relationship and screening characteristics – sectoral and transversal screens – for US funds

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 80 SRI funds for the period 2003-2014. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	-3.206122 (-1.05)	-0.417263 (-1.08)	-2.771951 (-0.86)	0.089028 (0.32)	-0.811847* (-1.79)
Return * SECT	-0.705995 (-0.63)	0.054533 (0.69)	-1.057648 (-0.91)	-0.040668 (-0.47)	0.059263 (0.76)
Return * TRANSV	-1.282457 (-0.50)	-0.280928 (-1.57)	0.953483 (0.38)	0.276185 (1.45)	-0.249392 (-1.41)
Return * ENV	8.028604* (1.79)	0.273412 (1.00)	7.09775 (1.63)	0.215968 (0.58)	0.163850 (0.61)
Return * SOC	-0.3871368 (-0.10)	0.469261 (1.24)	-1.522273 (-0.42)	-0.220356 (-0.67)	0.448496 (1.23)
Return * GOV	-2.74647 (-0.53)	-0.303395 (-1.07)	-6.703723 (-1.26)	-0.809245* (-1.98)	-0.244942 (-0.84)
Return * PROD	11.06943** (2.47)	0.339882 (1.26)	10.66415** (2.07)	0.575203 (1.39)	0.221762 (0.76)
Return * SHENG	-3.788018 (-0.79)	0.337428 (1.49)	-1.923494 (-0.36)	-0.271009 (-0.68)	0.328257 (1.43)
Return * PSCR	-1.846516** (-2.19)	-0.034279 (-0.63)	-0.839512 (-1.17)	-0.062608 (-1.06)	-0.007844 (-0.17)
Return * LAB	9.438698** (2.24)	-0.048562 (-0.22)	6.339312 (1.65)	0.238996 (0.79)	0.027649 (0.13)
SECT	0.012582 (1.28)	0.003696 (0.47)	0.009969 (1.07)	0.003636 (0.44)	0.003570 (0.50)
TRANSV	0.015825 (0.71)	-0.014690 (-0.91)	-0.000138 (-0.01)	-0.021100 (-1.00)	-0.011242 (-0.78)
ENV	-0.110489*** (-2.68)	0.007096 (0.26)	-0.079162 (-1.99)	-0.035788 (-0.88)	-0.002451 (-0.10)
SOC	0.006861 (0.17)	0.021319 (0.77)	-0.004409 (-0.11)	0.004176 (0.10)	0.012624 (0.53)
GOV	0.006198 (0.14)	-0.016320 (-0.59)	0.042975 (0.97)	0.066997 (1.58)	-0.008639 (-0.33)
PROD	-0.127797*** (-2.84)	0.030616 (1.19)	-0.094714** (-2.07)	-0.055989 (-1.32)	0.022216 (0.84)
SHENG	0.030243 (0.75)	0.024661 (1.13)	0.020884 (0.52)	0.041542 (1.16)	0.022730 (1.06)
PSCR	0.019085** (2.49)	-0.001707 (-0.28)	0.008803 (1.36)	0.007358 (1.17)	0.001503 (0.32)
LAB	-0.076746** (-2.16)	-0.006228 (-0.27)	-0.044315 (-1.42)	-0.015946 (-0.55)	0.004947 (0.24)
L_SIZE	-0.004204* (-1.93)	-0.009954*** (-3.40)	-0.006287*** (-2.86)	-0.005133** (-2.28)	-0.009937*** (-3.28)
L_AGE	0.01747* (1.82)	0.017765 (1.51)	0.014984 (1.46)	0.009807 (0.98)	0.015879 (1.32)
TER	0.024479** (2.33)	0.001908 (0.15)	0.013096 (1.24)	0.008765 (0.86)	-0.000572 (-0.04)
Observations	7,910	7,910	7,910	7,910	7,910
Year dummies	Included	Included	Included	Included	Included

Table 3.11. Flow-performance relationship and screening characteristics for European funds

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 173 SRI funds for the period 2003-2014. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	-4.551856 (-0.27)	-0.055511 (-0.07)	-8.255598 (-0.59)	-0.213375 (-0.20)	0.009585 (0.01)
Return * SI	-2.934683 (-0.66)	0.045308 (0.17)	-4.590881 (-1.20)	-0.305195 (-0.93)	0.040309 (0.15)
Return * ENV	21.48178 (1.09)	0.070953 (0.05)	15.94688 (1.04)	0.566877 (0.45)	0.257062 (0.20)
Return * SOC	4.480586 (0.23)	0.100901 (0.10)	7.062563 (0.49)	0.406778 (0.35)	0.195555 (0.19)
Return * GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PROD	14.45137 (0.86)	-0.290769 (-0.26)	22.23987 (1.51)	1.776269 (1.52)	-0.279572 (-0.23)
Return * SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PSCR	-2.985753 (-0.43)	-0.224248 (-0.45)	0.891280 (0.14)	0.085237 (0.16)	-0.261955 (-0.53)
Return * LAB	4.254276 (0.45)	-0.456631 (-0.63)	7.274389 (0.86)	0.308169 (0.44)	-0.524278 (-0.69)
SI	0.027362 (0.79)	0.014116 (0.64)	0.035899 (1.27)	0.030567 (0.98)	0.012993 (0.63)
ENV	-0.117575 (-0.78)	0.015530 (0.14)	-0.063359 (-0.56)	-0.027689 (-0.22)	0.027145 (0.25)
SOC	-0.064740 (-0.43)	-0.032018 (-0.36)	-0.074316 (-0.69)	-0.065066 (-0.57)	-0.028404 (-0.33)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	-0.146098 (-1.21)	-0.083478 (-0.98)	-0.175131* (-1.76)	-0.188094* (-1.78)	-0.077259 (-0.96)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	0.013913 (0.24)	-0.022656 (-0.49)	-0.012472 (-0.26)	-0.007343 (-0.14)	-0.023537 (-0.56)
LAB	-0.016677 (-0.21)	-0.016749 (-0.29)	-0.022121 (-0.32)	-0.003845 (-0.05)	-0.015357 (-0.27)
L_SIZE	-0.040109*** (-3.65)	-0.041320*** (-3.78)	-0.041039*** (-3.78)	-0.041190*** (-3.76)	-0.041094*** (-3.78)
L_AGE	0.043074 (1.19)	0.049516 (1.41)	0.044885 (1.24)	0.040466 (1.08)	0.047221 (1.35)
TER	-0.083792*** (-2.76)	-0.091848*** (-3.04)	-0.085636*** (-2.79)	-0.074866*** (-2.65)	-0.092569*** (-3.07)
Observations	14,977	14,977	14,977	14,878	14,977
Year dummies	Included	Included	Included	Included	Included

Table 3.12. Flow-performance relationship and screening characteristics – sectoral and transversal screens – for European funds

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 173 SRI funds for the period 2003-2014. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	2.582226 (0.15)	0.774538 (0.83)	-4.963618 (-0.33)	-0.137593 (-0.12)	0.708930 (0.78)
Return * SECT	-2.764265 (-0.62)	0.130301 (0.49)	-4.876061 (-1.25)	-0.339982 (-1.04)	0.100068 (0.37)
Return * TRANSV	15.3822 (0.90)	2.039373* (1.80)	3.826216 (0.24)	0.086168 (0.07)	1.752006 (1.59)
Return * ENV	31.21843 (1.43)	1.698788 (1.11)	21.62566 (1.20)	0.918503 (0.63)	1.691473 (1.12)
Return * SOC	-3.147418 (-0.15)	-1.084168 (-0.89)	3.944437 (0.22)	0.312424 (0.21)	-0.802649 (-0.65)
Return * GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PROD	8.777976 (0.51)	-0.856785 (-0.74)	21.68355 (1.42)	1.886794 (1.58)	-0.625055 (-0.51)
Return * SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PSCR	-14.31948 (-1.19)	-1.565294* (-1.83)	-4.641553 (-0.41)	-0.188942 (-0.22)	-1.408711* (-1.70)
Return * LAB	2.347721 (0.25)	-0.576755 (-0.80)	5.182595 (0.60)	0.250612 (0.35)	-0.530033 (-0.70)
SECT	0.025892 (0.74)	0.022615 (1.01)	0.036654 (1.28)	0.032562 (1.04)	0.019777 (0.95)
TRANSV	-0.026731 (-0.23)	0.256635** (2.17)	0.058204 (0.61)	0.074888 (0.75)	0.222000** (1.99)
ENV	-0.146201 (-0.87)	0.211844 (1.44)	-0.052620 (-0.42)	-0.006640 (-0.05)	0.194389 (1.41)
SOC	-0.053275 (-0.30)	-0.176406 (-1.56)	-0.101354 (-0.76)	-0.106401 (-0.75)	-0.153431 (-1.43)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	-0.123106 (-1.00)	-0.138651 (-1.56)	-0.184228* (-1.76)	-0.209309* (-1.91)	-0.119681 (-1.44)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	0.049264 (0.58)	-0.184044** (-2.06)	-0.021723 (-0.31)	-0.029547 (-0.40)	-0.160773* (-1.93)
LAB	-0.007834 (-0.10)	-0.022528 (-0.39)	-0.010897 (-0.16)	0.001740 (0.02)	-0.014146 (-0.25)
L_SIZE	-0.040570*** (-3.69)	-0.041980*** (-3.87)	-0.041883*** (-3.85)	-0.042295*** (-3.83)	-0.042031*** (-3.88)
L_AGE	0.039868 (1.10)	0.047390 (1.36)	0.044938 (1.24)	0.040192 (1.08)	0.047107 (1.35)
TER	-0.085232*** (-2.81)	-0.086098*** (-2.85)	-0.086254*** (-2.81)	-0.076576*** (-2.70)	-0.086476*** (-2.85)
Observations	14,977	14,977	14,977	14,878	14,977
Year dummies	Included	Included	Included	Included	Included

Table 3.13. Flow-performance relationship and screening characteristics for European funds (without UK)

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 143 SRI funds for the period 2003-2014. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	-1.866667 (-0.08)	1.254032 (0.58)	-14.07263 (-0.71)	-0.707875 (-0.40)	5.951288 (1.13)
Return * SI	-3.710644 (-0.70)	0.155548 (0.47)	-4.705794 (-1.02)	-0.257754 (-0.63)	0.082878 (0.25)
Return * ENV	34.81884 (1.34)	0.381070 (0.22)	37.83114* (1.74)	2.114828 (1.06)	0.705872 (0.40)
Return * SOC	12.64165 (0.50)	-0.071703 (-0.05)	22.18136 (1.08)	1.91701 (1.05)	0.083624 (0.06)
Return * GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PROD	18.94988 (0.98)	-0.969951 (-0.65)	29.74969* (1.76)	2.352749* (1.77)	-0.561471 (-0.37)
Return * SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PSCR	-6.680657 (-0.66)	-0.352019 (-0.54)	-6.379061 (-0.68)	-0.605455 (-0.69)	-0.31888 (-0.49)
Return * LAB	-0.747851 (-0.06)	-0.781786 (-0.84)	1.883818 (0.17)	-0.120322 (-0.13)	-0.718755 (-0.78)
SI	0.029016 (0.72)	0.017822 (0.67)	0.035372 (1.07)	0.024746 (0.65)	0.012392 (0.49)
ENV	-0.180884 (-0.97)	0.051695 (0.35)	-0.163755 (-1.14)	-0.135779 (-0.79)	0.068102 (0.49)
SOC	-0.153867 (-0.82)	-0.062683 (-0.53)	-0.196693 (-1.41)	-0.220672 (-1.39)	-0.056871 (-0.51)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	-0.175543 (-1.30)	-0.108434 (-1.07)	-0.220539* (-1.96)	-0.241426** (-2.01)	-0.079553 (-0.85)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	0.042069 (0.56)	-0.027698 (-0.46)	0.029974 (0.48)	0.052691 (0.69)	-0.021431 (-0.38)
LAB	0.001611 (0.02)	-0.053441 (-0.74)	-0.003515 (-0.04)	0.016433 (0.18)	-0.043592 (-0.64)
L_SIZE	-0.055046*** (-4.13)	-0.049824*** (-3.79)	-0.055325*** (-4.23)	-0.055458*** (-4.17)	-0.051066*** (-3.92)
L_AGE	0.080564* (1.71)	0.077446 (1.60)	0.085943* (1.84)	0.080794* (1.66)	0.071436 (1.50)
TER	-0.105110*** (-2.98)	-0.112355*** (-3.10)	-0.110845*** (-3.08)	-0.093747*** (-2.80)	-0.11126*** (-3.08)
Observations	12,143	12,143	12,143	12,077	12,143
Year dummies	Included	Included	Included	Included	Included

Table 3.14. Flow-performance relationship and screening characteristics – sectoral and transversal screens – for European funds (without UK)

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 143 SRI funds for the period 2003-2014. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	0.671317 (0.03)	1.090055 (0.50)	-14.52213 (-0.73)	-0.96293 (-0.54)	5.665444 (1.07)
Return * SECT	-2.421232 (-0.45)	0.201059 (0.60)	-4.794286 (-1.02)	-0.280112 (-0.68)	0.124427 (0.37)
Return * TRANSV	40.43109 (1.40)	1.646563 (1.15)	5.012089 (0.20)	1.076367 (0.55)	1.257412 (0.91)
Return * ENV	65.03186** (2.01)	1.767943 (0.84)	47.46202* (1.68)	3.455278 (1.41)	1.802316 (0.88)
Return * SOC	-3.865722 (-0.14)	-0.757737 (-0.47)	21.62307 (0.91)	1.492669 (0.67)	-0.456890 (-0.28)
Return * GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PROD	9.207596 (0.46)	-1.11846 (-0.74)	30.09848* (1.72)	2.458205* (1.83)	-0.695410 (-0.45)
Return * SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PSCR	-36.42557* (-1.72)	-1.407584 (-1.24)	-13.97133 (-0.74)	-1.547874 (-1.07)	-1.152972 (-1.06)
Return * LAB	3.187925 (0.25)	-0.682013 (-0.73)	1.337874 (0.12)	0.007019 (0.01)	-0.629205 (-0.67)
SECT	0.023134 (0.57)	0.024399 (0.90)	0.036656 (1.09)	0.027017 (0.71)	0.017907 (0.70)
TRANSV	-0.107617 (-0.71)	0.205994 (1.42)	0.080095 (0.68)	0.047042 (0.38)	0.166566 (1.24)
ENV	-0.280359 (-1.31)	0.215609 (1.11)	-0.145049 (-0.90)	-0.139079 (-0.76)	0.199388 (1.11)
SOC	-0.133444 (-0.64)	-0.156608 (-1.13)	-0.254980 (-1.57)	-0.260780 (-1.39)	-0.136960 (-1.04)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	-0.139768 (-1.02)	-0.137207 (-1.32)	-0.237239** (-2.01)	-0.265366** (-2.16)	-0.105398 (-1.09)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	0.140463 (1.18)	-0.157253 (-1.36)	0.010075 (0.11)	0.044647 (0.46)	-0.126430 (-1.19)
LAB	-0.028815 (-0.28)	-0.040701 (-0.56)	0.001520 (0.02)	0.010711 (0.11)	-0.032519 (-0.47)
L_SIZE	-0.053913*** (-4.06)	-0.050563*** (-3.84)	-0.055486*** (-4.23)	-0.056563*** (-4.22)	-0.051555*** (-3.94)
L_AGE	0.081934* (1.75)	0.081119* (1.67)	0.088089* (1.88)	0.086579* (1.76)	0.073623 (1.54)
TER	-0.104036*** (-2.96)	-0.105340*** (-2.85)	-0.111032*** (-3.07)	-0.095099*** (-2.84)	-0.105315*** (-2.85)
Observations	12,143	12,143	12,143	12,077	12,143
Year dummies	Included	Included	Included	Included	Included

Table 3.15. Flow-performance relationship and screening characteristics for UK funds

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 30 SRI funds for the period 2003-2014. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	3.811763 (0.47)	1.463992 (0.79)	8.03024 (0.46)	0.075897 (0.12)	-0.765443 (-0.31)
Return * SI	-0.509413 (-0.28)	-0.224637 (-0.39)	0.411689 (0.14)	0.002053 (0.02)	0.077267 (0.11)
Return * ENV	3.591194 (0.47)	-0.184349 (-0.30)	-2.454388 (-0.47)	0.747178 (1.55)	0.373420 (0.44)
Return * SOC	-0.585773 (-0.10)	1.702134 (1.03)	3.016035 (0.58)	-0.073033 (-0.24)	-0.628424 (-0.34)
Return * GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PROD	1.611312 (0.18)	-0.092994 (-0.05)	-5.269879 (-0.26)	0.336099 (0.50)	0.728944 (0.25)
Return * SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PSCR	-1.92688 (-0.61)	-0.290282 (-0.24)	-2.437598 (-0.23)	-0.373491 (-1.10)	0.081191 (0.05)
Return * LAB	-0.331038 (-0.10)	0.101448 (0.28)	-2.602045 (-0.74)	-0.198183 (-1.27)	-0.034147 (-0.08)
SI	0.00699 (0.49)	-0.020383 (-0.30)	0.001808 (0.10)	0.002871 (0.28)	0.014361 (0.17)
ENV	-0.030193 (-0.46)	-0.016829 (-0.22)	0.015629 (0.27)	-0.08228 (-1.50)	0.052467 (0.53)
SOC	0.010919 (0.25)	0.209575 (1.06)	-0.010161 (-0.32)	0.009225 (0.31)	-0.065093 (-0.32)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	-0.021288 (-0.29)	-0.037053 (-0.15)	0.025043 (0.20)	-0.035477 (-0.54)	0.066143 (0.20)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	0.019146 (0.71)	-0.040293 (-0.29)	0.016177 (0.19)	0.044656 (1.09)	0.002486 (0.01)
LAB	-0.067201** (-3.07)	-0.035225 (-0.74)	-0.050467 (-1.07)	-0.048109* (-2.55)	-0.052387 (-0.92)
L_SIZE	0.001857 (0.83)	-0.000504 (-0.22)	0.001547 (0.42)	-0.000263 (-0.15)	0.000334 (0.14)
L_AGE	-0.015363 (-1.94)	-0.023487** (-4.18)	-0.024078* (-2.46)	-0.018529* (-2.93)	-0.022956** (-3.37)
TER	0.022362* (2.21)	0.011951 (1.85)	0.022953 (1.42)	0.020475 (2.33)	0.015104* (2.15)
Observations	2,834	2,834	2,834	2,801	2,834
Year dummies	Included	Included	Included	Included	Included

Table 3.16. Flow-performance relationship and screening characteristics – sectoral and transversal screens – for UK funds

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 30 SRI funds for the period 2003-2014. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	-1.809349 (-0.11)	8.378935 (1.55)	-17.71476 (-0.36)	-0.854140 (-0.82)	2.903824 (0.50)
Return * SECT	3.127299 (0.66)	-0.533138 (-1.02)	0.132537 (0.03)	0.148014 (0.90)	-0.425613 (-0.48)
Return * TRANSV	-35.81632 (-0.48)	23.40984 (1.58)	3.97198 (0.07)	0.667725 (0.40)	10.31813 (0.58)
Return * ENV	-18.96248 (-0.41)	17.30402 (1.60)	-17.12309 (-0.49)	0.584750 (0.74)	8.01637 (0.61)
Return * SOC	16.29305 (0.37)	-15.77056 (-1.50)	-21.78427 (-0.28)	-1.688793 (-0.93)	-6.966627 (-0.54)
Return * GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PROD	-0.415157 (-0.04)	-0.059003 (-0.03)	15.91358 (0.36)	0.341959 (0.44)	0.978456 (0.32)
Return * SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PSCR	9.744035 (0.35)	-12.01302 (-1.56)	17.2375 (0.46)	0.035739 (0.06)	-4.811098 (-0.54)
Return * LAB	2.701626 (0.32)	-5.199029 (-1.54)	-1.671928 (-0.24)	-0.145137 (-0.63)	-2.048905 (-0.54)
SECT	-0.019606 (-0.53)	-0.055409 (-0.90)	0.001198 (0.05)	-0.014452 (-0.84)	-0.041588 (-0.41)
TRANSV	0.310928 (0.47)	2.816261 (1.58)	-0.054965 (-0.12)	-0.085898 (-0.48)	1.195322 (0.58)
ENV	0.182437 (0.43)	2.12513 (1.61)	0.202630 (0.60)	-0.019321 (-0.21)	0.986819 (0.61)
SOC	-0.196031 (-0.40)	-1.884807 (-1.50)	0.148808 (0.27)	0.175083 (0.90)	-0.833722 (-0.54)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	0.030101 (0.42)	-0.040909 (-0.18)	-0.073172 (-0.32)	-0.013485 (-0.16)	0.130248 (0.37)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	-0.062321 (-0.30)	-1.471301 (-1.57)	-0.142592 (-0.49)	-0.009304 (-0.13)	-0.569618 (-0.55)
LAB	-0.105775 (-1.37)	-0.692802 (-1.67)	0.007928 (0.07)	-0.035392 (-1.13)	-0.306062 (-0.65)
L_SIZE	0.003000 (1.44)	-0.000423 (-0.23)	-0.001275 (-0.17)	0.000898 (0.42)	0.000118 (0.05)
L_AGE	-0.008751 (-0.37)	-0.021266** (-4.43)	-0.014342 (-0.67)	-0.014504 (-1.71)	-0.026584* (-3.08)
TER	0.033699 (1.67)	0.011839 (2.00)	0.003878 (0.10)	0.009795 (0.72)	0.015751 (2.12)
Observations	2,834	2,834	2,834	2,801	2,834
Year dummies	Included	Included	Included	Included	Included

At the global level, the results for the different performance measures seem to indicate that, in general, the flow-performance relationship does not depend on screening.

When we focus on the US subsample, some interesting results emerge. Specifically, table 3.9 shows that screening intensity has a positive impact on fund flows in the case of average monthly returns. With regard to the types of screens, money flows to US SRI funds exhibit a negative sensitivity to environmental screens (when we consider average and regular monthly returns). In relation to products screens, the evidence is mixed: when we measure performance through average and regular monthly returns, products screens have a negative impact on flows but, for average risk-adjusted returns, products screens enhance sensitivity of flow to performance. We should also note that the positive screening strategy has a positive effect (at the 1% significance level) on flows when we apply average monthly returns as measure of performance, whilst there is weak evidence (at the 10% significance level) that the certification by social labels has the opposite effect. As shown in table 3.9, some interaction terms also seem to affect fund flows. In particular, we find that evidence of a positive flow sensitivity to (average and regular) monthly returns of funds applying environmental and products screens, and to average risk-adjusted returns of funds that employ products and shareholder engagement screens. Furthermore, some coefficients associated with the interaction between the other social variables – number of positive screens and labels – and returns are statistically significant: US SRI flows benefit from (average and regular) monthly returns of funds certified by social labels, whereas they are detracted by average monthly returns of funds that apply a positive screening strategy. Considering the number of sectoral and transversal screens (table 3.10), the results are quite similar. Environmental and products screens, and the dummy labels affect negatively US money flows, while the number of positive screens has a positive impact. Regarding the interaction terms, the results show a positive effect of environmental and product screens, and labels, and a negative effect of positive screens when we consider average monthly returns. Besides that, flows react negatively to annual returns of funds applying governance screens.

For the European subsample, empirical results presented in table 3.11 show that only products screens seem to impact money flows. Particularly, there is weak evidence (at the 10% significance level) of a negative sensitivity of money flows to funds that employ products screens when we consider monthly and annual returns. This conclusion holds after substituting the total number of screens by the number of sectoral and transversal screens (table 3.12). Nevertheless, there are also other significant results, namely a positive (negative) impact of the number of transversal (positive) screens on European money flows for both measures of risk-

adjusted returns. For the same performance measures, we find that the coefficient associated with the interaction of positive screening strategy with returns is negative and statistically significant at the 10% level. In a different way, flows exhibit a positive sensitivity to average risk-adjusted returns of funds applying transversal screens.

Focusing on European (without UK) funds, the results presented in tables 3.13 and 3.14 show a statistically significant impact of some screening features on money flows. Like the European whole sample, products screening has a negative effect on flows in the case of monthly and annual returns, and for both total screening intensity and number of sectoral and transversal screens. Empirical evidence from tables 3.13 and 3.14 also indicates that flows are positively sensitive to monthly and annual returns of funds that enforce products screening, and to monthly returns of funds that enforce environmental screening. From table 3.14 (sectoral and transversal screens), it should be also pointed that flows react negatively to average monthly returns of funds applying a positive screening strategy, for a significance level of 10%.

Finally, for UK SRI funds (tables 3.15 and 3.16), we find that the flow-performance is merely influenced by the dummy labels: for average monthly returns and annual returns, the certification by social labels has a negative impact on flows sensitivity.

Thus, in general, we conclude that social screening significantly influences the flow-performance relationship for US and European funds. In particular, we should highlight the negative impact on money flows of the certification by social labels for US and UK subsamples, and of products screening for US and European (with and without UK) subsamples. When we reconcile the results on the control variables for all samples, we conclude that size has a negative impact on money flows, whilst there is mixed evidence for total expense ratio and age. For the global sample and European (whole and without UK) subsamples, expense ratio seems to affect negatively fund flows. Differently, for US and UK, a higher expense ratio enhances money flows. Concerning the variable age, older US and European (without UK) funds benefit from larger flows, while the opposite occurs for UK funds.

3.5.3. "Smart" money *versus* "dumb" money

After analyzing how SRI investors react to past performance, we now wish to investigate whether funds that receive more cash inflows perform better in the future – the "smart" money effect. Tables 3.17 to 3.19 report the empirical results concerning the relationship between average flows and future returns for SRI funds (equations 3.8 and 3.9).

Table 3.17. SRI funds' flows and future abnormal performance

This table reports the results from the regressions of the determinants of the abnormal returns for SRI funds by geographic region/country (global, US, Europe, Europe except UK, and UK). The dependent variable is the four-factor-adjusted return of fund *i* in month *t*. The independent variable is the average money flow of fund *i* from months *t*-1 to *t*-12 (Flow $_{t-1, t-12}$), and control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The global sample includes 253 SRI funds for the period 2003-2014. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Global	*US*	*Europe*	*Europe (except UK)*	*UK*
Flow $_{[t-1,t-12]}$	-0.002933 (-0.12)	0.032161* (1.75)	-0.005775 (-0.18)	0.00091 (0.02)	0.104812 (0.12)
L_SIZE	-0.009345 (-1.08)	-0.007400*** (-4.24)	-0.004521 (-0.33)	-0.006106*** (-2.69)	-0.007045 (-0.10)
L_AGE	0.046587 (1.24)	0.008817 (1.45)	0.080602 (1.29)	0.024461** (2.31)	0.326125 (0.98)
TER	-0.074203*** (-3.93)	-0.007411 (-1.01)	-0.079079*** (-3.25)	0.000806 (0.19)	-0.285626** (-2.40)
Observations	20,286	6,971	13,315	10,817	2,498
Year dummies	Included	Included	Included	Included	Included

Table 3.18. SRI funds' flows and future abnormal performance – the impact of social screening

This table reports the results from the regressions of the determinants of the abnormal returns for SRI funds by geographic region/country (global, US, Europe, Europe except UK, and UK). The dependent variable is the four-factor-adjusted return of fund *i* in month *t*. The independent variables include: average money flow of fund *i* from months *t*-1 to *t*-12 (Flow $_{t-1, t-12}$), total number of screens applied by each fund (SI), types of screens employed by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), number of positive screens applied by each fund (PSCR), and a dummy variable – LAB – that assumes the value of 1 if the fund has been certified with at least on SRI label. The control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The global sample includes 253 SRI funds for the period 2003-2014. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Global	*US*	*Europe*	*Europe (except UK)*	*UK*
Flow $_{[t-1,t-12]}$	-0.096582 (-1.12)	-0.017746 (-0.43)	-0.129060 (-1.22)	0.004433** (2.11)	-0.592770 (-0.05)
SI	0.00519 (0.67)	-0.00028 (-0.40)	0.015295 (1.01)	0.000410 (1.27)	0.266279 (1.35)
ENV	0.001849 (0.04)	-0.000756 (-0.18)	-0.027488 (-0.38)	0.000786 (0.47)	-0.085189 (-0.17)
SOC	-0.045254 (-1.30)	-0.001091 (-0.31)	-0.078825 (-1.31)	0.000046 (0.03)	-0.57173 (-1.15)
GOV	0.005406 (0.08)	0.009802** (2.10)	(omitted)	(omitted)	(omitted)
PROD	-0.051718 (-1.20)	-0.002404 (-0.53)	-0.102684 (-1.54)	-0.000653 (-0.47)	-0.991619 (-0.92)
SHENG	-0.026178 (-0.41)	-0.001682 (-0.40)	(omitted)	(omitted)	(omitted)
PSCR	0.002593 (0.33)	0.000118 (0.26)	0.004239 (0.15)	-0.000886 (-1.37)	-0.176867 (-0.58)
LAB	-0.022772 (-0.86)	0.004814* (1.71)	-0.030620 (-0.69)	-0.000401 (-0.43)	0.325281 (0.45)
L_SIZE	-0.028596*** (-3.80)	-0.001041 (-1.25)	-0.039333*** (-3.41)	0.000152 (0.59)	-0.189439** (-2.37)
L_AGE	0.007523 (0.27)	-0.001148 (-0.28)	0.008929 (0.22)	0.002354** (2.56)	-0.052716 (-0.14)
TER	-0.040848* (-1.89)	-0.007555** (-2.38)	-0.044532 (-1.44)	-0.000214 (-0.32)	-0.671423* (-2.19)
Observations	20,286	6,971	13,315	10,817	2,498
Year dummies	Included	Included	Included	Included	Included

Table 3.19. SRI funds' flows and future abnormal performance – the impact of sectoral and transversal screens

This table reports the results from the regressions of the determinants of the abnormal returns for SRI funds by geographic region/country (global, US, Europe, Europe except UK, and UK). The dependent variable is the four-factor-adjusted return of fund *i* in month *t*. The independent variables include: average money flow of fund *i* from months *t*-1 to *t*-12 (Flow $_{t-1, t-12}$), number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, types of screens employed by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), number of positive screens applied by each fund (PSCR), and a dummy variable – LAB – that assumes the value of 1 if the fund has been certified with at least on SRI label. The control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The global sample includes 253 SRI funds for the period 2003-2014. * *p-value < 0.10;* ** *p-value < 0.05;* *** *p-value < 0.01*

	Global	*US*	*Europe*	*Europe (except UK)*	*UK*
Flow $_{[t-1,t-12]}$	-0.094799 (-1.10)	-0.016405 (-0.40)	-0.123981 (-1.16)	0.004427** (2.09)	-2.174649 (-0.17)
SECT	0.008347 (0.91)	-0.001082 (-1.00)	0.015149 (1.00)	0.000411 (1.26)	0.335907 (1.43)
TRANSV	-0.009760 (-0.39)	0.001612 (0.60)	-0.018259 (-0.32)	0.000454 (0.35)	0.101621 (0.30)
ENV	0.001320 (0.03)	-0.000156 (-0.04)	-0.048581 (-0.61)	0.000817 (0.43)	-0.017512 (-0.03)
SOC	-0.023773 (-0.48)	-0.004114 (-0.77)	-0.055268 (-0.78)	0.000015 (0.01)	-0.546664 (-1.06)
GOV	0.023936 (0.36)	0.009004** (2.21)	(omitted)	(omitted)	(omitted)
PROD	-0.053614 (-1.22)	-0.001171 (-0.25)	-0.095244 (-1.41)	-0.000662 (-0.46)	-0.953518 (-0.85)
SHENG	-0.017419 (-0.29)	-0.001590 (-0.42)	(omitted)	(omitted)	(omitted)
PSCR	0.004326 (0.51)	0.000048 (0.10)	0.023734 (0.56)	-0.000912 (-0.90)	-0.153944 (-0.48)
LAB	-0.023711 (-0.89)	0.004429 (1.57)	-0.030338 (-0.68)	-0.000400 (-0.43)	0.148076 (0.18)
L_SIZE	-0.028144*** (-3.72)	-0.001058 (-1.27)	-0.039007*** (-3.37)	0.000152 (0.59)	-0.179632* (-2.13)
L_AGE	0.005139 (0.19)	-0.001284 (-0.31)	0.008606 (0.21)	0.002354** (2.55)	-0.176414 (-0.39)
TER	-0.041899* (-1.94)	-0.007615** (-2.38)	-0.043943 (-1.42)	-0.000215 (-0.32)	-0.665558* (-2.10)
Observations	20,286	6,971	13,315	10,817	2,498
Year dummies	Included	Included	Included	Included	Included

The estimation results for equation 3.8 (table 3.17) seem to indicate a "smart" money effect for US funds, i.e., US SRI funds that receive more flows outperform in the future (at the 10% significance level). This "smart" money effect is not driven by momentum, as Sapp and Tiwari (2004) claim, as the return measure is adjusted for the momentum factor as in Carhart (1997). When we incorporate the social variables (table 3.18), the "smart" money effect found for US disappears whilst, for Europe excluding the UK, there is evidence (for a significance level of 5%) that past average flows boost current abnormal performance, i.e., there is evidence of a "smart" money effect. Table 3.18 also shows that governance screens and social labels have a positive impact on future abnormal returns of US SRI funds. Finally, the replacement of the total number of screens by the number of sectoral and transversal screens (table 3.19), reinforces the "smart" money effect for European (except UK) SRI funds. Moreover, the

positive impact of governance screens on abnormal returns found for US funds holds, for a significance level of 5%. Concerning the control variables, tables 3.17 to 3.19 show that size has a negative effect on returns for the global sample, and for all subsamples. The funds' age impacts positively performance for the European (excluding UK) subsample, and the expense ratio detracts the abnormal returns for the global sample and all subsamples with the exception of Europe (without UK).

Thus, to sum up, we find weak evidence of a "smart" money effect for US SRI funds in the simple model (without social variables), and stronger evidence of a "smart" money effect for European (except UK) SRI funds in the model with social variables (for both total screening intensity, and number of sectoral and transversal screens).

3.5.4. Market states – expansion and recession periods

Our sample period (January 2003 to December 2014) includes expansion and recession periods. In this sense, it is possible that the aggregate results on the flow-performance relationship are not informative of investors' reaction in different market conditions. So, following several recent studies on SRI funds (e.g., Areal *et al*., 2013; Nofsinger and Varma, 2014; Leite and Cortez, 2015), that find that SRI fund performance is market-state dependent, we will investigate the influence of expansion and recession periods on investors' behavior. To the best of our knowledge, this is the first study to analyze the flow-performance relationship in different market states.

The market states are identified according to the geographic region considered. Similar to first essay, for US funds, we use the NBER business cycles to identify recession and expansion periods. The NBER identifies a single recession period during our sample period (2003-2014), namely from December 2007 until June 2009, that corresponds to the international financial crisis. For the Euro Area funds, we use the cycles provided by the CEPR. The CEPR distinguishes two recession periods for the Euro Area: January 2008 to April 2009, and July 2011 to March 2013. Besides the effects of the international financial crisis, the more recent recession period in Europe is associated to the Euro Sovereign debt crisis that affected several European countries severely. For UK and Scandinavian funds, we employ the business cycles of the ECRI. The ECRI identifies one recession period for the UK during the sample period – May 2008 to January 2010; for Scandinavia, given the cultural homogeneity of the countries included, we employ the business cycles provided for Sweden: April 2008 to March 2009. The remaining periods are considered periods of expansion. We follow a simple

approach and run the regressions separately for expansion and recession periods. Tables 3.20 to 3.40 present the results.

Focusing on the global sample, there are substantial differences when we split the data into expansion and recession market states. Table 3.21 shows that, for conventional funds, monthly returns lose significance in recession periods, but annual returns have a negative impact on flows. Also in recession times, the first and second lags of monthly returns emerge as positive and statistically significant at the 1% level. In addition, in expansion periods, lagged flows have a negative effect on flows, at the 1% significance level. The effect of funds' age differs depending on the market state, i.e., the coefficient is positive (negative) and statistically significant at the 1% (10%) level for expansion (recession) periods. For SRI funds, in recessions, the first lag of monthly returns emerges as positive and statistically significant at the 1% level, while past flows show a negative and statistically significant impact on current flows.

When we introduce the dummies for top and bottom quartiles (tables 3.22 and 3.23), conventional and SRI funds exhibit additional significant relationships. For conventional funds, in expansion periods, the lagged annual returns have a positive impact on fund flows, while past flows have the reverse impact. Furthermore, there is weak evidence that top performers concerning lagged annual returns are punished with lower money flows. In recession market states, similar to the base model, monthly returns lose significance. Also, annual returns seem to penalize flows, whilst the two lagged monthly performance has a positive impact on flows. SRI funds exhibit a similar response in expansions (in comparison to the whole sample period) but, during recession periods, the first lag of monthly returns presents a positive and significant coefficient, whereas the lagged flow shows a negative one. Additionally, bottom performers in terms of monthly (lagged annual) returns have a positive impact on flows in expansion (recession) periods.

Taking into account risk-adjusted returns (tables 3.24 to 3.27), our results show a negative impact of past flows on current money flows for conventional funds in both expansion and recession periods, and for SRI funds only in recession periods. In addition, risk-adjusted returns seem to affect negatively socially responsible flows, whilst conventional top performers benefit from higher money flows. The variable size has a negative effect across both samples and market states.

Table 3.20. Flow-performance relationship for conventional and SRI funds – expansion periods

This table reports the results of panel data regressions on the flow-performance relationship for SRI and non-SRI funds. The dependent variable is the monthly flow (FLOW) calculated as [$TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})$]/ $TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: monthly return (RM), 1 month lagged return (L1.RM), 2 month lagged return (L2. RM), 3 month lagged return (L3. RM), annual return (RA) and lagged annual return (L1. RA). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 SRI funds and 759 conventional funds for expansion periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Monthly return (RM)	-2.740758**	-4.128654**	-1.60187	-0.791039	-7.858819	-1.401328***	-2.71172**	-0.313782	-0.312467	-0.282926***
	(-2.43)	(-2.22)	(-1.14)	(-1.13)	(-0.56)	(-2.59)	(-2.24)	(-1.01)	(-0.80)	(-3.00)
1 Month lagged return (L1.RM)	-0.559239	-1.196774	0.380611	0.918534	-10.38364	-0.663342	-1.769843	0.165748	0.206973	0.100003
	(-0.49)	(-0.64)	(0.27)	(1.30)	(-0.75)	(-1.23)	(-1.45)	(0.53)	(0.52)	(1.07)
2 Month lagged return (L2.RM)	0.142612	-1.381435	1.438983	-0.363186	28.36746**	-0.231793	-0.767218	0.254733	0.317467	0.064361
	(0.13)	(-0.76)	(1.06)	(-0.54)	(2.02)	(-0.44)	(-0.64)	(0.84)	(0.83)	(0.69)
3 Month lagged return (L3.RM)	1.522453	1.924449	1.521985	-0.065436	23.83048*	0.144184	0.463515	-0.012522	-0.008522	0.081909
	(1.43)	(1.06)	(1.17)	(-0.10)	(1.71)	(0.29)	(0.40)	(-0.04)	(-0.02)	(0.90)
Annual return (RA)	0.320500	-0.207970	0.102192	0.209490	-9.360702	-0.039768	-0.279086	-0.007827	-0.094802	0.072194
	(0.69)	(-0.23)	(0.18)	(0.72)	(-1.40)	(-0.17)	(-0.53)	(-0.05)	(-0.46)	(1.30)
Lagged annual return (L1.RA)	0.567249	0.627048	0.594272	0.485303*	-5.943514	0.459174**	0.323188	0.162025	0.139673	0.041215
	(1.34)	(0.76)	(1.14)	(1.88)	(-0.96)	(1.99)	(0.56)	(1.13)	(0.80)	(0.78)
Size (L_SIZE)	-1.377451***	-1.403018***	-1.359501***	-0.542733***	-6.855309***	-0.572433***	-1.06342***	-0.199930***	-0.253102***	-0.054271***
	(-20.83)	(-13.51)	(-15.49)	(-11.96)	(-10.93)	(-14.67)	(-10.53)	(-8.89)	(-8.57)	(-8.40)
Age (L_AGE)	0.655256***	0.507335	0.792121***	0.238087*	7.12252***	-0.156751	-0.091043	0.035917	0.092932	0.049604***
	(3.38)	(1.59)	(3.15)	(1.83)	(3.00)	(-1.37)	(-0.35)	(0.53)	(1.01)	(2.67)
Total expense ratio (TER)	-0.154833	25.2475	-0.065239	-0.039048	-0.328648	0.158003*	0.527613	0.023308	0.105623	-0.002762
	(-0.85)	(0.41)	(-0.36)	(-0.42)	(-0.25)	(1.89)	(1.22)	(0.62)	(1.36)	(-0.41)
Lagged flow (L1.FLOW)	-0.013203***	-0.009101	-0.018135***	-0.041273***	-0.015010	-0.009060	-0.014066	0.002061	0.002879	0.062970***
	(-3.01)	(-1.40)	(-3.06)	(-7.39)	(-0.87)	(-1.22)	(-1.20)	(0.19)	(0.23)	(3.11)
Observations	50,198	23,612	26,586	23,259	3,327	18,555	7,241	11,314	8,872	2,442
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.21. Flow-performance relationship for conventional and SRI funds – recession periods

This table reports the results of panel data regressions on the flow-performance relationship for SRI and non-SRI funds. The dependent variable is the monthly flow (FLOW) calculated as [$TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})$]/ $TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: monthly return (RM), 1 month lagged return (L1.RM), 2 month lagged return (L2. RM), 3 month lagged return (L3. RM), annual return (RA) and lagged annual return (L1. RA). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 SRI funds and 759 conventional funds for recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Monthly return (RM)	-17.37675	-0.012321	-22.83358	-25.40591	-0.308156***	-0.314411***	-0.118086	-0.395993***	-0.387513***	-0.397072***
	(-1.41)	(-0.02)	(-1.19)	(-1.24)	(-5.12)	(-6.75)	(-1.35)	(-7.21)	(-6.31)	(-8.92)
1 Month lagged return (L1.RM)	35.93846***	1.923798***	39.25144**	38.333*	0.462770***	0.219692***	0.393292***	0.189749***	0.210942***	0.139370***
	(2.86)	(2.88)	(2.02)	(1.84)	(7.15)	(4.58)	(4.16)	(3.35)	(3.31)	(2.70)
2 Month lagged return (L2.RM)	37.25237***	2.852817***	44.68758**	44.02414*	0.190918***	0.066294	0.197001**	0.042143	0.081393	-0.269130***
	(2.83)	(4.20)	(2.14)	(1.94)	(3.05)	(1.37)	(2.28)	(0.72)	(1.21)	(-5.92)
3 Month lagged return (L3.RM)	20.76982	0.286933	33.37193	30.90547	0.041665	0.065170	0.099123	0.052450	0.048093	0.223024***
	(1.55)	(0.44)	(1.57)	(1.32)	(0.75)	(1.35)	(1.13)	(0.91)	(0.71)	(5.46)
Annual return (RA)	-29.36439***	-2.388553***	-33.03673**	-32.90513**	-0.173776***	-0.027120	0.011374	-0.056150	-0.076260	0.025150
	(-3.02)	(-3.65)	(-2.42)	(-2.22)	(-3.47)	(-0.51)	(0.10)	(-0.91)	(-1.11)	(0.48)
Lagged annual return (L1.RA)	-3.857052	-0.392586	2.308345	2.522873	-0.010404	0.144574***	0.275853**	0.140965***	0.157520***	-0.102226*
	(-0.38)	(-0.52)	(0.17)	(0.17)	(-0.16)	(3.37)	(2.10)	(2.99)	(3.07)	(-1.91)
Size (L_SIZE)	-38.65106***	-2.52538***	-43.81465***	-44.23716***	-0.108093***	-0.113109***	-0.222001***	-0.107957***	-0.110084***	-0.007725
	(-22.17)	(-16.45)	(-19.80)	(-19.34)	(-5.64)	(-13.75)	(-6.88)	(-12.49)	(-12.00)	(-0.35)
Age (L_AGE)	-9.256992*	-1.45906***	-9.992693	-10.19632	0.008134	-0.026801	0.071390	-0.035559	-0.037957	0.015669
	(-1.79)	(-3.11)	(-1.53)	(-1.51)	(0.12)	(-1.23)	(0.88)	(-1.53)	(-1.51)	(0.51)
Total expense ratio (TER)	2.517629	-141.7129*	2.609219	2.587515	-0.071568	-0.000317	-0.160261	0.001311	0.002303	-0.001765
	(0.92)	(-1.80)	(0.80)	(0.77)	(-0.80)	(-0.02)	(-0.90)	(0.08)	(0.14)	(-0.09)
Lagged flow (L1.FLOW)	0.045796	-0.044407***	0.057186	0.058118	-0.026210	-0.052142***	0.006084	-0.061084***	-0.062791***	0.142077***
	(1.10)	(-2.87)	(1.16)	(1.14)	(-0.48)	(-3.62)	(0.19)	(-3.78)	(-3.69)	(2.62)
Observations	14,023	4,144	9,879	9,320	559	5,130	1,062	4,068	3,640	428
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.22. Flow-performance relationship for conventional and SRI funds – top and bottom performance quartiles – expansion periods – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI and non-SRI funds for the top and bottom performance quartiles. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: monthly return (RM), 1 month lagged return (L1.RM), 2 month lagged return (L2. RM), 3 month lagged return (L3. RM), annual return (RA) and lagged annual return (L1. RA), top and bottom dummies for the current and first lag of monthly returns (DM^1 and DM^2, respectively), and top and bottom dummies for the current and first lag of annual returns (DA^1 and DA^2, respectively). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 SRI funds and 759 conventional funds for expansion periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10;* ** *p-value < 0.05;* *** *p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Monthly return (RM)	-4.671215**	-6.469646**	-2.200787	-0.130087	-9.848773	-3.1043***	-5.07685**	-1.270224**	-1.668893**	-0.285133*
	(-2.25)	(-2.25)	(-0.72)	(-0.08)	(-0.48)	(-2.93)	(-2.21)	(-2.04)	(-2.00)	(-1.82)
1 Month lagged return (L1.RM)	-1.126209	-1.420171	-0.773654	-0.172284	-19.81551	-1.192186	-2.907694	-0.023033	-0.063223	0.133067
	(-0.77)	(-0.55)	(-0.44)	(-0.20)	(-1.01)	(-1.45)	(-1.48)	(-0.05)	(-0.11)	(1.01)
2 Month lagged return (L2.RM)	0.170819	-1.467011	1.660327	-0.229984	28.7944**	-0.211175	-0.835411	0.309355	0.421423	0.060619
	(0.16)	(-0.80)	(1.21)	(-0.34)	(2.04)	(-0.40)	(-0.69)	(1.02)	(1.10)	(0.64)
3 Month lagged return (L3.RM)	1.519939	1.81656	1.698189	0.093634	24.61878*	0.098080	0.450945	-0.038152	-0.036325	0.076908
	(1.42)	(1.00)	(1.27)	(0.14)	(1.75)	(0.19)	(0.39)	(-0.13)	(-0.10)	(0.85)
Annual return (RA)	-0.019641	-2.358059	1.01134	0.166101	6.690922	-0.149606	-0.597092	0.094515	0.002717	0.112218
	(-0.02)	(-1.58)	(0.90)	(0.29)	(0.62)	(-0.32)	(-0.57)	(0.33)	(0.01)	(1.12)
Lagged annual return (L1.RA)	1.227388**	1.22213	1.572164**	0.714476*	-2.798409	0.315285	0.286156	0.076481	0.034395	0.084992
	(2.26)	(1.32)	(2.04)	(1.83)	(-0.39)	(1.10)	(0.37)	(0.47)	(0.17)	(1.36)
Size (L_SIZE)	-1.38305***	-1.415655***	-1.360592***	-0.537946***	-6.93624***	-0.574705***	-1.065685***	-0.200737***	-0.251870***	-0.054206***
	(-20.84)	(-13.60)	(-15.43)	(-11.80)	(-11.03)	(-14.71)	(-10.52)	(-8.92)	(-8.51)	(-8.16)
Age (L_AGE)	0.666418***	0.500005	0.804632***	0.251584*	6.970456***	-0.164958	-0.105586	0.031115	0.083685	0.049638***
	(3.43)	(1.57)	(3.19)	(1.93)	(2.91)	(-1.43)	(-0.41)	(0.46)	(0.90)	(2.65)
Total expense ratio (TER)	-0.141423	26.87914	-0.043482	-0.036802	-0.136003	0.156302*	0.520558	0.024838	0.104497	-0.002438
	(-0.78)	(0.43)	(-0.24)	(-0.40)	(-0.10)	(1.87)	(1.20)	(0.66)	(1.34)	(-0.36)
Lagged flow (L1.FLOW)	-0.013276***	-0.009303	-0.018337***	-0.041442***	-0.016622	-0.009293	-0.014505	0.001633	0.002106	0.060849***
	(-3.02)	(-1.43)	(-3.09)	(-7.42)	(-0.97)	(-1.25)	(-1.24)	(0.15)	(0.17)	(3.00)
Monthly return – top ($RM*DM^1$)	1.76082	2.556967	0.148569	-1.14078	-10.31075	1.825282	2.500919	1.021571	1.454948	-0.103384
	(0.71)	(0.64)	(0.04)	(-0.65)	(-0.34)	(1.46)	(0.91)	(1.40)	(1.55)	(-0.48)
Monthly return – bottom ($RM*DM^2$)	4.847974	5.919349	3.183027	0.689847	22.88866	3.100809*	4.901468	1.72701*	2.352841*	0.117095
	(1.38)	(1.14)	(0.64)	(0.27)	(0.62)	(1.92)	(1.36)	(1.82)	(1.87)	(0.47)
Lagged monthly return – top ($L1.RM*DM^1$)	2.93379	0.402372	7.464548*	8.520054***	24.36811	0.386362	1.009248	-0.040175	0.006763	-0.122961
	(1.07)	(0.10)	(1.95)	(4.37)	(0.79)	(0.31)	(0.32)	(-0.06)	(0.01)	(-0.57)
Lagged monthly return – bottom ($L1.RM*DM^2$)	0.097998	0.240609	0.909262	0.31528	11.0421	1.256016	2.435639	0.716052	0.979149	-0.040258
	(0.04)	(0.05)	(0.30)	(0.21)	(0.34)	(1.06)	(0.92)	(1.04)	(1.13)	(-0.19)
Annual return – top ($RA*DA^1$)	0.496944	2.212491**	-0.804217	0.081641	-11.50718	0.100073	0.138795	-0.028361	-0.026909	-0.051998
	(0.70)	(2.07)	(-0.80)	(0.16)	(-1.41)	(0.29)	(0.16)	(-0.15)	(-0.11)	(-0.81)
Annual return – bottom ($RA*DA^2$)	-0.181608	2.141373	-0.360383	0.015970	-11.43116	0.163826	0.665347	0.173688	0.262249	-0.015058
	(-0.15)	(0.96)	(-0.25)	(0.02)	(-0.86)	(0.28)	(0.41)	(0.55)	(0.60)	(-0.18)

Table 3.22. Flow-performance relationship for conventional and SRI funds – top and bottom performance quartiles – expansion periods – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI and non-SRI funds for the top and bottom performance quartiles. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: monthly return (RM), 1 month lagged return (L1.RM), 2 month lagged return (L2. RM), 3 month lagged return (L3. RM), annual return (RA) and lagged annual return (L1. RA), top and bottom dummies for the current and first lag of monthly returns (DM^1 and DM^2, respectively), and top and bottom dummies for the current and first lag of annual returns (DA^1 and DA^2, respectively). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 SRI funds and 759 conventional funds for expansion periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10;* ** *p-value < 0.05;* *** *p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Lagged annual return – top ($L1.RA*DA^1$)	-0.958377* (-1.95)	-0.788635 (-1.07)	-1.332892* (-1.89)	-0.353844 (-1.00)	-8.567032 (-1.19)	0.185234 (0.65)	0.125426 (0.18)	0.021917 (0.14)	0.036492 (0.19)	-0.056319 (-0.99)
Lagged annual return – bottom ($L1.RA*DA^2$)	-0.307589 (-0.44)	0.222474 (0.19)	-0.274938 (-0.31)	-0.454720 (-1.03)	4.935042 (0.55)	0.198028 (0.68)	-0.075340 (-0.10)	0.317772* (1.93)	0.478389** (2.21)	-0.062875 (-1.25)
Observations	50,198	23,612	26,586	23,259	3,327	18,555	7,241	11,314	8,872	2,442
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.23. Flow-performance relationship for conventional and SRI funds – top and bottom performance quartiles – recession periods – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI and non-SRI funds for the top and bottom performance quartiles. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: monthly return (RM), 1 month lagged return (L1.RM), 2 month lagged return (L2. RM), 3 month lagged return (L3. RM), annual return (RA) and lagged annual return (L1. RA), top and bottom dummies for the current and first lag of monthly returns (DM^1 and DM^2, respectively), and top and bottom dummies for the current and first lag of annual returns (DA^1 and DA^2, respectively). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 SRI funds and 759 conventional funds for recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Monthly return (RM)	-20.05648 (-1.11)	-0.413558 (-0.48)	-28.4848 (-1.00)	-30.8626 (-1.01)	-0.248010*** (-2.98)	-0.246018*** (-2.81)	-0.010904 (-0.07)	-0.381585*** (-3.53)	-0.377580*** (-3.06)	-0.40119*** (-5.66)
1 Month lagged return (L1.RM)	27.22229 (1.56)	2.685025*** (3.08)	21.97664 (0.80)	21.16844 (0.72)	0.452895*** (5.22)	0.230923*** (3.15)	0.420105*** (2.74)	0.201678** (2.36)	0.239444** (2.42)	0.136037** (2.26)
2 Month lagged return (L2.RM)	37.54843*** (2.85)	2.786052*** (4.04)	45.48846** (2.18)	45.94647** (2.02)	0.197641*** (3.15)	0.052798 (1.04)	0.188495** (2.08)	0.017965 (0.29)	0.062977 (0.88)	-0.26499*** (-5.77)
3 Month lagged return (L3.RM)	20.79496 (1.54)	0.412868 (0.63)	32.61995 (1.52)	30.94641 (1.31)	0.039578 (0.71)	0.056397 (1.16)	0.102161 (1.15)	0.041196 (0.70)	0.040105 (0.59)	0.222773*** (5.12)
Annual return (RA)	-39.20797*** (-3.16)	-1.724747* (-1.85)	-45.05379*** (-2.67)	-47.48532** (-2.53)	-0.183015*** (-2.92)	-0.124894 (-1.57)	-0.122037 (-0.74)	-0.141981 (-1.42)	-0.210432* (-1.83)	0.000874 (0.01)
Lagged annual return (L1.RA)	-4.713371 (-0.40)	-0.890014 (-0.95)	3.241041 (0.20)	3.715925 (0.22)	0.039833 (0.48)	0.065792 (1.08)	0.048835 (0.30)	0.063836 (0.94)	0.058588 (0.77)	-0.133933* (-1.74)
Size (L_SIZE)	-38.94596*** (-22.22)	-2.594768*** (-16.79)	-44.13121*** (-19.84)	-44.53925*** (-19.37)	-0.130425*** (-6.43)	-0.113935*** (-13.77)	-0.235347*** (-7.11)	-0.109132*** (-12.53)	-0.111101*** (-12.03)	-0.007878 (-0.35)
Age (L_AGE)	-8.916583* (-1.72)	-1.272293*** (-2.69)	-9.345603 (-1.42)	-9.60118 (-1.41)	0.115703 (1.53)	-0.032345 (-1.46)	0.082461 (0.98)	-0.043325* (-1.82)	-0.047971* (-1.84)	0.022238 (0.68)
Total expense ratio (TER)	2.647847 (0.97)	-148.1263* (-1.88)	2.813955 (0.86)	2.829727 (0.84)	-0.194613** (-1.99)	-0.000167 (-0.01)	-0.171786 (-0.96)	0.001204 (0.08)	0.001793 (0.11)	-0.009020 (-0.46)
Lagged flow (L1.FLOW)	0.047133 (1.14)	-0.046004*** (-2.97)	0.058828 (1.19)	0.059884 (1.18)	-0.02264 (-0.42)	-0.052107*** (-3.62)	0.008990 (0.28)	-0.061397*** (-3.80)	-0.063137*** (-3.70)	0.137949** (2.52)
Monthly return – top ($RM*DM^1$)	8.961909 (0.30)	0.941591 (0.60)	18.32143 (0.41)	17.76866 (0.37)	-0.145680 (-1.24)	-0.081817 (-0.63)	-0.095033 (-0.40)	-0.069951 (-0.45)	0.008833 (0.05)	0.026053 (0.22)
Monthly return – bottom ($RM*DM^2$)	1.241856 (0.04)	0.645473 (0.47)	4.126521 (0.09)	5.270782 (0.11)	-0.070445 (-0.49)	-0.047594 (-0.40)	-0.090327 (-0.37)	0.049959 (0.36)	0.037658 (0.24)	-0.012925 (-0.14)
Lagged monthly return – top ($L1.RM*DM^1$)	17.59338 (0.62)	-2.613752* (-1.80)	33.52105 (0.76)	33.1867 (0.69)	0.051868 (0.43)	0.074544 (0.66)	0.116797 (0.57)	0.066514 (0.49)	0.091870 (0.58)	-0.068081 (-0.67)
Lagged monthly return – bottom ($L1.RM*DM^2$)	17.80773 (0.64)	0.061379 (0.05)	35.04756 (0.81)	37.27785 (0.81)	0.015731 (0.12)	-0.116009 (-1.05)	-0.193500 (-0.86)	-0.116348 (-0.91)	-0.148132 (-1.04)	0.147573 (1.31)
Annual return – top ($RA*DA^1$)	15.10988 (1.35)	1.578724** (2.23)	16.53976 (1.07)	18.26411 (1.09)	-0.040352 (-0.63)	0.058668 (1.01)	0.247132** (2.31)	0.022013 (0.28)	0.052656 (0.59)	-0.056293 (-0.48)
Annual return – bottom ($RA*DA^2$)	-4.394954 (-0.43)	-2.124301*** (-2.79)	-3.6983 (-0.27)	-2.668536 (-0.18)	-0.305937*** (-3.37)	0.028555 (0.64)	-0.118074 (-0.79)	0.028497 (0.56)	0.055247 (0.95)	0.031752 (0.82)

Table 3.23. Flow-performance relationship for conventional and SRI funds – top and bottom performance quartiles – recession periods – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI and non-SRI funds for the top and bottom performance quartiles. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: monthly return (RM), 1 month lagged return (L1.RM), 2 month lagged return (L2. RM), 3 month lagged return (L3. RM), annual return (RA) and lagged annual return (L1. RA), top and bottom dummies for the current and first lag of monthly returns (DM^1 and DM^2, respectively), and top and bottom dummies for the current and first lag of annual returns (DA^1 and DA^2, respectively). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 SRI funds and 759 conventional funds for recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Lagged annual return – top ($L1.RA*DA^1$)	-3.69658 (-0.26)	1.419791* (1.68)	-11.91906 (-0.57)	-11.88583 (-0.53)	-0.065548 (-1.12)	-0.009171 (-0.13)	0.159326 (0.86)	-0.034251 (-0.45)	-0.034091 (-0.38)	-0.052601 (-0.51)
Lagged annual return – bottom ($L1.RA*DA^2$)	1.493079 (0.12)	-1.424581* (-1.64)	2.237527 (0.13)	2.70416 (0.15)	-0.173419** (-2.43)	0.110720* (1.64)	-0.000609 (-0.00)	0.122192 (1.62)	0.155588* (1.82)	-0.209289*** (-3.02)
Observations	14,023	4,144	9,879	9,320	559	5,130	1,062	4,068	3,640	428
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.24. Flow-performance relationship for conventional and SRI funds (risk-adjusted returns) – expansion periods

This table reports the results of panel data regressions of the flow-performance relationship for SRI and non-SRI funds. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variable is the risk-adjusted return (RAR). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 socially responsible funds and 759 conventional funds for the expansion periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Risk-adjusted return (RAR)	-0.000000 (-0.04)	0.000000 (0.06)	-0.000000 (-0.07)	-0.000000 (-0.02)	-0.000000 (-0.41)	-0.151575** (-2.36)	-0.484129*** (-19.27)	-0.074386 (-0.82)	-0.116584 (-0.89)	-0.022756 (-1.14)
Size (L_SIZE)	-0.924624*** (-15.83)	-0.197991*** (-8.25)	-1.643821*** (-14.65)	-0.245191*** (-12.34)	-16.176*** (-16.45)	-0.094053*** (-8.06)	-0.020315*** (-5.67)	-0.156372*** (-7.85)	-0.192679*** (-7.36)	-0.055063*** (-9.68)
Age (L_AGE)	0.676566** (2.26)	0.090194 (0.76)	1.024709* (1.67)	-0.010113 (-0.08)	11.23464*** (2.59)	0.013177 (0.35)	0.003564 (0.36)	-0.068816 (-1.03)	-0.013908 (-0.16)	-0.073527*** (-3.53)
Total expense ratio (TER)	-0.049644 (-0.36)	-35.3415** (-2.42)	0.009421 (0.05)	0.010872 (0.31)	-1.97068 (-1.35)	-0.022489 (-0.88)	-0.003621 (-0.24)	-0.010022 (-0.29)	-0.009427 (-0.14)	-0.004204 (-0.67)
Lagged flow (L1.FLOW)	-0.009962** (-2.05)	-0.012938* (-1.84)	-0.011065 (-1.63)	-0.026192*** (-3.58)	-0.018911 (-1.07)	0.000956 (0.13)	-0.022035* (-1.86)	0.002745 (0.28)	0.003244 (0.29)	0.072106*** (3.60)
Observations	42,601	20,702	21,899	18,890	3,009	17,693	6,845	10,848	8,459	2,389
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.25. Flow-performance relationship for conventional and SRI funds (risk-adjusted returns) – recession periods

This table reports the results of panel data regressions of the flow-performance relationship for SRI and non-SRI funds. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variable is the risk-adjusted return (RAR). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 socially responsible funds and 759 conventional funds for the recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Risk-adjusted return (RAR)	-0.000000 (-0.02)	-0.000000 (-0.04)	12.60979** (2.13)	13.50857** (2.11)	0.732876*** (10.14)	-0.112089*** (-4.05)	-0.154948** (-1.97)	-0.113809*** (-3.80)	-0.116100*** (-3.54)	-0.122474*** (-3.79)
Size (L_SIZE)	-7.277861*** (-15.40)	-0.070164*** (-5.09)	-8.347215*** (-14.12)	-8.553246*** (-13.89)	-0.044054** (-2.34)	-0.094580*** (-11.62)	-0.139751*** (-5.00)	-0.092440*** (-10.71)	-0.095405*** (-10.32)	0.002712 (0.14)
Age (L_AGE)	-11.98305*** (-4.11)	-0.098532 (-1.16)	-12.52831*** (-3.43)	-12.95612*** (-3.42)	-0.071843 (-0.60)	-0.044754 (-1.57)	0.179999* (1.66)	-0.060856** (-2.02)	-0.072568** (-2.25)	0.168400*** (3.16)
Total expense ratio (TER)	0.519061 (0.79)	3.559641 (0.41)	0.569147 (0.74)	0.586633 (0.74)	-0.174326 (-1.60)	-0.004148 (-0.27)	-0.024376 (-0.14)	-0.003676 (-0.24)	-0.004231 (-0.25)	-0.001101 (-0.05)
Lagged flow (L1.FLOW)	-0.036669*** (-3.92)	-0.193959*** (-7.76)	-0.034496*** (-3.15)	-0.034123*** (-3.03)	-0.073225 (-1.43)	-0.059379*** (-4.22)	-0.014262 (-0.44)	-0.067130*** (-4.28)	-0.068188*** (-4.12)	0.049594 (0.97)
Observations	11,841	3,250	8,591	8,077	514	5,185	1,063	4,122	3,685	437
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.26. Flow-performance relationship for conventional and SRI funds (risk-adjusted returns) – top and bottom performance quartiles – expansion periods

This table reports the results of panel data regressions of the flow-performance relationship for SRI and non-SRI funds for the top and bottom performance quartiles. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables included: risk-adjusted return (RAR), and top and bottom dummies for risk-adjusted returns (DR^1 and DR^2, respectively). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 socially responsible funds and 759 conventional funds for the expansion periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Risk-adjusted return (RAR)	-0.000000 (-0.04)	0.000000 (0.06)	-0.000000 (-0.07)	-0.000000 (-0.03)	-0.000000 (-0.41)	-0.103064 (-0.58)	0.003927 (0.06)	-0.170195 (-0.63)	-0.446580 (-1.09)	0.024850 (0.40)
Size (L_SIZE)	-0.924568*** (-15.82)	-0.197701**** (-8.23)	-1.643755*** (-14.65)	-0.245445*** (-12.35)	-16.17582*** (-16.44)	-0.093744*** (-8.03)	-0.020570*** (-5.81)	-0.156656*** (-7.86)	-0.194725*** (-7.41)	-0.054986*** (-9.66)
Age (L_AGE)	0.676397** (2.26)	0.089666 (0.76)	1.024447* (1.67)	-0.009804 (-0.08)	11.23376*** (2.58)	0.013967 (0.37)	0.002732 (0.28)	-0.069274 (-1.03)	-0.013111 (-0.15)	-0.073551*** (-3.52)
Total expense ratio (TER)	-0.049698 (-0.36)	-35.39061** (-2.42)	0.009395 (0.05)	0.010849 (0.31)	-1.97097 (-1.35)	-0.024084 (-0.94)	-0.005150 (-0.35)	-0.009493 (-0.28)	-0.009910 (-0.15)	-0.004230 (-0.68)
Lagged flow (L1.FLOW)	-0.009963** (-2.05)	-0.012911* (-1.84)	-0.011065 (-1.63)	-0.026241*** (-3.59)	-0.018912 (-1.07)	0.000937 (0.12)	-0.029399** (-2.51)	0.002755 (0.28)	0.003344 (0.30)	0.073049*** (3.64)
Risk-adjusted return – top ($RAR*DR^1$)	-0.072656 (-0.03)	-0.515109 (-0.38)	-0.096712 (-0.02)	0.421154 (0.59)	-0.239436 (-0.01)	-0.143855 (-0.67)	-0.821893*** (-10.78)	0.131370 (0.41)	0.452299 (0.95)	-0.045915 (-0.58)
Risk-adjusted return – bottom ($RAR*DR^2$)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	0.038552 (0.27)	0.024074 (0.58)	0.065624 (0.29)	0.136834 (0.44)	-0.047973 (-0.84)
Observations	42,601	20,702	21,899	18,890	3,009	17,693	6,845	10,848	8,459	2,389
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.27. Flow-performance relationship for conventional and SRI funds (risk-adjusted returns) – top and bottom performance quartiles – recession periods

This table reports the results of panel data regressions of the flow-performance relationship for SRI and non-SRI funds for the top and bottom performance quartiles. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables included: risk-adjusted return (RAR), and top and bottom dummies for risk-adjusted returns (DR^1 and DR^2, respectively). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); Total Expense Ratio, in percentage (TER); and lagged flow (L1. FLOW). The model is estimated using LSDV. The sample includes 253 socially responsible funds and 759 conventional funds for the recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
Risk-adjusted return (RAR)	-0.000000 (-0.02)	-0.000000 (-0.04)	2.465283 (0.22)	-0.642490 (-0.05)	0.841444*** (6.56)	0.078592 (0.59)	0.197338 (1.00)	0.028756 (0.14)	0.085248 (0.36)	-0.326374** (-2.41)
Size (L_SIZE)	-7.306256*** (-15.46)	-0.069704*** (-5.03)	-8.351501*** (-14.11)	-8.573085*** (-13.90)	-0.049700*** (-2.62)	-0.094384*** (-11.47)	-0.147828*** (-5.23)	-0.092977*** (-10.61)	-0.096082*** (-10.22)	0.011858 (0.60)
Age (L_AGE)	-11.76125*** (-4.03)	-0.096078 (-1.13)	-12.45196*** (-3.41)	-12.86009*** (-3.39)	-0.044082 (-0.36)	-0.046709 (-1.64)	0.178221 (1.64)	-0.061381** (-2.04)	-0.073273** (-2.27)	0.156191*** (2.94)
Total expense ratio (TER)	0.513099 (0.78)	3.573713 (0.41)	0.562038 (0.73)	0.576956 (0.73)	-0.181719* (-1.67)	-0.004123 (-0.27)	0.003242 (0.02)	-0.003767 (-0.24)	-0.004402 (-0.26)	-0.001197 (-0.06)
Lagged flow (L1.FLOW)	-0.036549*** (-3.91)	-0.194257*** (-7.76)	-0.034423*** (-3.15)	-0.033997*** (-3.02)	-0.078754 (-1.54)	-0.060131*** (-4.27)	-0.010241 (-0.31)	-0.067420*** (-4.30)	-0.068681*** (-4.15)	0.025721 (0.50)
Risk-adjusted return – top ($RAR*DR^1$)	18.521** (2.45)	-0.059412 (-0.34)	18.47328 (1.14)	26.18947 (1.47)	-0.276277 (-1.51)	-0.192347 (-1.21)	-0.874682** (-2.48)	-0.112305 (-0.51)	-0.157881 (-0.62)	0.0512 (0.29)
Risk-adjusted return – bottom ($RAR*DR^2$)	(omitted)	(omitted)	8.540676 (0.50)	11.09514 (0.60)	0.166418 (0.84)	-0.190363 (-1.48)	-0.183601 (-1.14)	-0.153589 (-0.78)	-0.216686 (-0.95)	0.268566** (2.05)
Observations	11,841	3,250	8,591	8,077	514	5,185	1,063	4,122	3,685	437
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.28. Flow-performance relationship and screening characteristics (expansion and recession periods) – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 253 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	7.549827 (0.55)	-0.299031 (-0.53)	0.951836 (0.09)	0.036960 (0.05)	-0.114418 (-0.23)	2.242507 (1.22)	0.192113 (0.74)	0.893799 (0.95)	0.163354 (1.08)	0.329023 (0.89)
Return * SI	3.251945 (0.95)	-0.018636 (-0.12)	1.133694 (0.38)	-0.141225 (-0.65)	-0.033460 (-0.23)	-0.072928 (-0.24)	0.004587 (0.12)	-0.081959 (-0.36)	-0.004917 (-0.19)	-0.011505 (-0.19)
Return * ENV	-10.93551 (-0.64)	0.231582 (0.27)	-1.231718 (-0.10)	-0.140171 (-0.16)	0.213533 (0.28)	0.292405 (0.19)	0.088598 (0.42)	-0.487252 (-0.52)	0.126498 (0.99)	0.065949 (0.20)
Return * SOC	-7.65086 (-0.55)	0.248612 (0.36)	-10.38126 (-0.92)	-0.077530 (-0.10)	0.291078 (0.47)	3.052242** (2.41)	0.488907*** (2.93)	1.403406** (2.04)	0.305417*** (3.00)	0.760281*** (3.05)
Return * GOV	-8.031869 (-0.38)	-0.863268 (-0.61)	-2.811841 (-0.15)	0.628148 (0.40)	-0.816813 (-0.64)	1.89299 (0.56)	-0.738434 (-0.63)	-1.415876 (-0.55)	-0.961802* (-1.69)	-2.701405 (-1.26)
Return * PROD	-8.003032 (-0.53)	-0.250376 (-0.30)	1.070588 (0.09)	0.789623 (0.92)	-0.104384 (-0.14)	-0.464207 (-0.26)	0.055711 (0.27)	-0.283545 (-0.24)	0.033087 (0.23)	0.088040 (0.28)
Return * SHENG	-3.665006 (-0.19)	0.246325 (0.20)	1.090621 (0.06)	0.540835 (0.35)	0.298979 (0.26)	-4.661502* (-1.89)	0.666405 (0.64)	1.31146 (0.68)	0.774967 (1.48)	2.121679 (1.10)
Return * PSCR	-0.676804 (-0.16)	-0.092122 (-0.42)	0.312691 (0.08)	0.160174 (0.54)	-0.064069 (-0.34)	-0.336014 (-0.75)	-0.104400 (-1.51)	-0.048534 (-0.17)	-0.079101** (-2.04)	-0.146308 (-1.28)
Return * LAB	-10.19998 (-1.38)	0.059441 (0.12)	-0.459812 (-0.07)	0.068323 (0.13)	0.045682 (0.10)	-1.453411 (-1.48)	-0.263689* (-1.94)	-0.729142 (-1.23)	-0.107865 (-1.33)	-0.347717* (-1.72)
SI	-0.040902 (-0.92)	-0.000400 (-0.03)	-0.011657 (-0.34)	0.017013 (0.63)	-0.001172 (-0.09)	-0.001623 (-0.31)	0.003449 (0.52)	-0.001161 (-0.28)	0.000831 (0.25)	0.000684 (0.11)
ENV	0.151064 (0.66)	0.028704 (0.40)	0.027869 (0.18)	0.036895 (0.33)	0.026212 (0.40)	-0.016532 (-0.62)	0.001254 (0.04)	-0.033409 (-1.63)	-0.008259 (-0.48)	-0.006964 (-0.21)
SOC	0.077861 (0.42)	-0.001721 (-0.03)	0.092212 (0.70)	-0.010154 (-0.10)	-0.001754 (-0.03)	0.035780 (1.65)	0.059905** (2.23)	0.012236 (0.74)	0.010820 (0.76)	0.056733** (2.22)
GOV	0.146708 (0.50)	-0.045506 (-0.46)	0.051263 (0.22)	-0.077891 (-0.35)	-0.050219 (-0.51)	0.072772 (0.95)	-0.148253 (-0.58)	0.013701 (0.31)	-0.078963 (-1.31)	-0.311612 (-1.21)
PROD	0.083840 (0.41)	-0.031823 (-0.52)	-0.036137 (-0.26)	-0.095580 (-0.97)	-0.024454 (-0.41)	0.001345 (0.05)	0.007971 (0.31)	-0.003777 (-0.18)	0.001715 (0.10)	0.010262 (0.39)
SHENG	-0.011361 (-0.05)	-0.041203 (-0.44)	-0.061561 (-0.33)	-0.087309 (-0.50)	-0.036436 (-0.38)	-0.095695 (-1.60)	0.137602 (0.63)	0.008374 (0.24)	0.068047 (1.23)	0.247211 (1.09)
PSCR	0.006743 (0.12)	-0.007157 (-0.37)	-0.004744 (-0.10)	-0.021828 (-0.53)	-0.004783 (-0.27)	0.003517 (0.51)	-0.014552 (-1.01)	0.008169* (1.84)	0.001326 (0.30)	-0.009168 (-0.69)

Table 3.28. Flow-performance relationship and screening characteristics (expansion and recession periods) – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 253 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
LAB	0.150979 (1.59)	0.030452 (0.80)	0.029286 (0.39)	0.017105 (0.27)	0.029664 (0.81)	-0.030178* (-1.66)	-0.043630** (-2.12)	-0.021909 (-1.52)	-0.015349 (-1.34)	-0.038727* (-1.89)
L_SIZE	-0.032408*** (-4.22)	-0.036244*** (-4.56)	-0.033905*** (-4.40)	-0.034183*** (-4.36)	-0.036417*** (-4.59)	-0.012987*** (-4.63)	-0.012434*** (-4.44)	-0.014093*** (-5.14)	-0.013564*** (-4.96)	-0.012909*** (-4.73)
L_AGE	0.018444 (0.69)	0.021932 (0.81)	0.019394 (0.72)	0.020517 (0.75)	0.022161 (0.82)	0.005576 (0.70)	0.004744 (0.61)	0.006384 (0.80)	0.006394 (0.81)	0.004244 (0.54)
TER	-0.064473** (-2.46)	-0.062488** (-2.44)	-0.060897** (-2.32)	-0.060498** (-2.31)	-0.062702** (-2.43)	-0.007970 (-1.18)	-0.012112* (-1.73)	-0.005968 (-0.87)	-0.006621 (-0.99)	-0.009532 (-1.41)
Observations	17,701	17,701	17,701	17,602	17,701	5,186	5,186	5,186	5,186	5,186
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.29. Flow-performance relationship and screening characteristics – sectoral and transversal screens (expansion and recession periods) – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 253 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	7.805998 (0.56)	-0.293182 (-0.45)	1.164657 (0.11)	0.038195 (0.05)	-0.170278 (-0.30)	1.52158 (0.79)	0.196713 (0.76)	0.551000 (0.55)	0.155804 (1.01)	0.328790 (0.89)
Return * SECT	3.722959 (1.02)	-0.006720 (-0.04)	1.143933 (0.37)	-0.159899 (-0.70)	-0.010264 (-0.06)	-0.212024 (-0.61)	-0.023076 (-0.52)	-0.161565 (-0.66)	-0.012943 (-0.45)	-0.038149 (-0.58)
Return * TRANSV	1.027651 (0.11)	0.020583 (0.04)	1.208562 (0.14)	-0.234367 (-0.38)	-0.076922 (-0.18)	-0.716460 (-0.62)	-0.178404 (-1.09)	-0.283577 (-0.43)	-0.041140 (-0.45)	-0.254135 (-1.08)
Return * ENV	-12.14416 (-0.71)	0.258337 (0.30)	-1.258624 (-0.10)	-0.179193 (-0.20)	0.226112 (0.30)	0.453251 (0.29)	-0.146083 (-0.61)	-0.253622 (-0.27)	0.119686 (0.95)	-0.236454 (-0.66)
Return * SOC	-2.887507 (-0.14)	0.206403 (0.23)	-9.726885 (-0.62)	0.049723 (0.05)	0.360204 (0.44)	4.129615** (2.41)	0.527278** (2.28)	1.75488** (2.08)	0.339555** (2.41)	0.835971*** (2.70)
Return * GOV	5.422645 (0.25)	-1.007003 (-0.70)	0.663730 (0.03)	0.480278 (0.29)	-0.903048 (-0.71)	1.964182 (0.64)	-0.233894 (-0.20)	-0.992064 (-0.41)	-0.909950* (-1.66)	-2.190514 (-1.04)
Return * PROD	-9.15601 (-0.59)	-0.263073 (-0.31)	1.05898 (0.08)	0.890051 (1.02)	-0.121963 (-0.16)	0.504103 (0.28)	0.122868 (0.60)	0.183322 (0.15)	0.071402 (0.51)	0.188226 (0.59)
Return * SHENG	-2.513074 (-0.13)	0.195307 (0.16)	1.333432 (0.08)	0.318004 (0.22)	0.245241 (0.22)	-4.617659* (-1.94)	0.763587 (0.74)	0.705047 (0.37)	0.728751 (1.41)	2.029887 (1.07)
Return * PSCR	-0.414324 (-0.09)	-0.126010 (-0.50)	0.226528 (0.05)	0.203467 (0.58)	-0.077082 (-0.36)	-0.083567 (-0.17)	0.063724 (0.60)	0.043325 (0.14)	-0.053404 (-1.19)	0.086838 (0.54)
Return * LAB	-10.63545 (-1.43)	0.037731 (0.08)	-0.690711 (-0.11)	0.060860 (0.12)	0.033312 (0.07)	-1.161125 (-1.16)	-0.282341** (-2.08)	-0.441720 (-0.72)	-0.103136 (-1.28)	-0.370751* (-1.84)
SECT	-0.048042 (-1.02)	-0.001645 (-0.11)	-0.013159 (-0.37)	0.015712 (0.57)	-0.001546 (-0.11)	0.00209 (0.37)	0.001416 (0.21)	0.002814 (0.62)	0.005017 (1.36)	0.001472 (0.24)
TRANSV	-0.001694 (-0.01)	0.016070 (0.36)	-0.002777 (-0.03)	0.048660 (0.60)	0.00875 (0.20)	-0.037656* (-1.83)	-0.049937* (-1.70)	-0.027386* (-1.84)	-0.024403** (-1.97)	-0.048544* (-1.82)
ENV	0.165699 (0.72)	0.030338 (0.42)	0.026532 (0.17)	0.042216 (0.36)	0.026358 (0.40)	-0.014033 (-0.54)	-0.048053 (-1.19)	-0.028601 (-1.40)	-0.009801 (-0.58)	-0.045030 (-1.21)
SOC	-0.000839 (-0.00)	-0.022984 (-0.29)	0.071114 (0.37)	-0.053418 (-0.39)	-0.014551 (-0.20)	0.087760*** (2.65)	0.087800*** (2.61)	0.050321** (2.01)	0.043329** (2.07)	0.092735*** (2.85)
GOV	-0.033650 (-0.11)	-0.058818 (-0.55)	0.010197 (0.04)	-0.071647 (-0.31)	-0.057643 (-0.56)	0.080968 (1.16)	-0.030262 (-0.12)	0.024536 (0.60)	-0.067494 (-1.15)	-0.240009 (-0.95)

Table 3.29. Flow-performance relationship and screening characteristics – sectoral and transversal screens (expansion and recession periods) – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 253 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10;* ** *p-value < 0.05;* *** *p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
PROD	0.098030 (0.47)	-0.033644 (-0.54)	-0.036821 (-0.26)	-0.106156 (-1.07)	-0.027007 (-0.45)	0.015202 (0.57)	0.019821 (0.75)	0.002373 (0.11)	0.003847 (0.23)	0.020489 (0.78)
SHENG	-0.022290 (-0.09)	-0.047587 (-0.54)	-0.063615 (-0.35)	-0.061547 (-0.37)	-0.041920 (-0.47)	-0.100073* (-1.70)	0.159049 (0.74)	0.000698 (0.02)	0.067274 (1.24)	0.241946 (1.08)
PSCR	0.001977 (0.03)	-0.011563 (-0.51)	-0.004854 (-0.09)	-0.030182 (-0.61)	-0.007385 (-0.36)	0.010419 (1.30)	0.022727 (1.00)	0.011707** (2.31)	0.006092 (1.17)	0.020704 (1.07)
LAB	0.156853 (1.64)	0.029302 (0.76)	0.032095 (0.43)	0.018889 (0.29)	0.029439 (0.79)	-0.028207 (-1.56)	-0.047715** (-2.32)	-0.019827 (-1.38)	-0.017860 (-1.57)	-0.043883** (-2.15)
L_SIZE	-0.032859*** (-4.23)	-0.036507*** (-4.57)	-0.034131*** (-4.40)	-0.034727*** (-4.40)	-0.036719*** (-4.60)	-0.012551*** (-4.51)	-0.012271*** (-4.42)	-0.013727*** (-5.02)	-0.013165*** (-4.85)	-0.012654*** (-4.69)
L_AGE	0.019407 (0.72)	0.022731 (0.83)	0.020075 (0.74)	0.021662 (0.79)	0.023263 (0.85)	0.006255 (0.80)	0.005353 (0.69)	0.007312 (0.92)	0.006796 (0.87)	0.005179 (0.67)
TER	-0.062407** (-2.35)	-0.061256** (-2.36)	-0.060267** (-2.28)	-0.059550** (-2.25)	-0.061997** (-2.38)	-0.008892 (-1.33)	-0.011047 (-1.59)	-0.006439 (-0.94)	-0.007482 (-1.13)	-0.009751 (-1.46)
Observations	17,701	17,701	17,701	17,602	17,701	5,186	5,186	5,186	5,186	5,186
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.30. Flow-performance relationship and screening characteristics for US funds (expansion and recession periods) – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 80 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10;* ** *p-value < 0.05;* *** *p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	-4.982194 (-1.11)	-0.252561 (-0.67)	2.576211 (0.58)	0.509982 (1.51)	-0.700304 (-1.49)	-11.37934 (-1.67)	-0.781060 (-0.17)	5.304125 (0.53)	0.476823 (0.81)	2.694246 (0.90)
Return * SI	-0.601279 (-0.50)	-0.006909 (-0.14)	0.288888 (0.24)	0.144297 (1.61)	0.007408 (0.16)	0.035886 (0.03)	-0.250878 (-0.33)	2.39971 (1.61)	0.100538 (0.74)	1.168863 (1.59)
Return * ENV	9.837622 (1.64)	0.126338 (0.44)	-1.643472 (-0.29)	-0.611144 (-1.32)	0.021021 (0.08)	15.61033** (2.31)	1.216048 (0.30)	-4.540399 (-0.43)	-0.431768 (-0.66)	-4.616422 (-1.21)
Return * SOC	-4.012302 (-0.68)	-0.059092 (-0.21)	1.293862 (0.24)	-0.063469 (-0.16)	-0.025648 (-0.11)	-2.703822 (-0.67)	2.250995 (1.45)	-1.89381 (-0.59)	0.277217 (1.08)	0.120509 (0.11)
Return * GOV	-0.808180 (-0.14)	-0.379408 (-1.19)	-3.989713 (-0.68)	-0.946653** (-2.11)	-0.284024 (-0.97)	-10.62684 (-1.61)	0.783270 (0.33)	-11.40868 (-1.17)	-0.803163 (-1.14)	-3.48302 (-1.20)
Return * PROD	12.16814* (1.98)	0.495189* (1.86)	1.007638 (0.16)	-0.313321 (-0.69)	0.256135 (0.94)	13.25971 (1.57)	0.869289 (0.14)	-12.78194 (-0.95)	-0.862443 (-0.83)	-8.384646 (-1.49)
Return * SHENG	2.269811 (0.43)	0.283194 (0.96)	-1.793231 (-0.33)	-0.719233 (-1.60)	0.195874 (0.73)	-1.933522 (-0.39)	-0.223384 (-0.07)	-3.783848 (-0.55)	0.271637 (0.36)	-3.179052 (-0.95)
Return * PSCR	-1.14566 (-1.20)	-0.005304 (-0.10)	0.487997 (0.60)	0.015190 (0.24)	0.008383 (0.20)	-1.365611** (-2.46)	-0.379558 (-0.83)	-1.03769* (-1.72)	-0.077834 (-1.31)	-0.585568** (-2.03)
Return * LAB	4.288334 (0.85)	0.013725 (0.07)	-0.681885 (-0.15)	0.228300 (0.63)	0.092448 (0.52)	-0.180475 (-0.06)	-0.126429 (-0.12)	-3.935806 (-1.06)	-0.455542 (-1.44)	-0.183682 (-0.18)
SI	0.010749 (0.68)	-0.000289 (-0.06)	-0.002034 (-0.15)	-0.016679 (-1.49)	0.000667 (0.15)	0.009344 (0.46)	-0.050947 (-0.30)	0.042545* (1.88)	0.015305 (0.93)	0.150557 (1.65)
ENV	-0.141066* (-1.79)	0.000159 (0.01)	0.012589 (0.20)	0.067996 (1.17)	-0.004926 (-0.21)	0.206381 (1.64)	0.210853 (0.24)	-0.134217 (-0.77)	-0.108940 (-1.29)	-0.643728 (-1.36)
SOC	0.042162 (0.54)	-0.007107 (-0.34)	-0.024538 (-0.40)	-0.006454 (-0.13)	-0.008563 (-0.46)	-0.078722 (-1.03)	0.458596 (1.34)	-0.061513 (1.21)	0.004904 (0.14)	-0.015187 (-0.12)
GOV	-0.010036 (-0.12)	-0.021312 (-1.01)	0.037192 (0.52)	0.114502* (1.83)	-0.014269 (-0.65)	-0.191522 (-1.26)	0.195501 (0.36)	-0.187369 (-1.11)	-0.062777 (-0.80)	-0.409515 (-1.16)
PROD	-0.161057* (-1.94)	0.037047* (1.76)	-0.007911 (-0.11)	0.044408 (0.78)	0.025015 (1.04)	0.194238 (1.28)	0.169431 (0.13)	-0.237785 (-1.10)	-0.133434 (-1.00)	-1.074432 (-1.53)
SHENG	-0.025319 (-0.41)	0.018408 (0.75)	0.028625 (0.53)	0.092467* (1.94)	0.013865 (0.54)	-0.071513 (-0.76)	-0.067220 (-0.10)	-0.062717 (-0.61)	0.009304 (0.10)	-0.416649 (-1.01)
PSCR	0.014457 (1.16)	0.000824 (0.18)	-0.006266 (-0.63)	-0.002600 (-0.30)	0.002038 (0.52)	-0.007421 (-0.92)	-0.072843 (-0.74)	-0.003440 (-0.40)	0.003295 (0.47)	-0.061163* (-1.75)

Table 3.30. Flow-performance relationship and screening characteristics for US funds (expansion and recession periods) – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 80 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10;* ** *p-value < 0.05;* *** *p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
LAB	-0.050356 (-0.78)	-0.001468 (-0.09)	0.013153 (0.26)	-0.019282 (-0.43)	0.007938 (0.47)	-0.003751 (-0.07)	-0.01615 (-0.07)	-0.041048 (-0.74)	-0.039946 (-0.97)	-0.005501 (-0.04)
L_SIZE	-0.005446** (-2.31)	-0.006851** (-2.51)	-0.005220** (-2.22)	-0.004452* (-1.99)	-0.006858** (-2.43)	-0.007521 (-1.39)	-0.013885** (-2.50)	-0.007221 (-1.38)	-0.009010 (-1.63)	-0.013203** (-2.45)
L_AGE	0.011674 (1.15)	0.007927 (0.67)	0.011923 (1.19)	0.010271 (1.10)	0.006772 (0.57)	-0.000404 (-0.03)	0.014715 (1.02)	-0.005677 (-0.39)	0.003941 (0.28)	0.006415 (0.47)
TER	0.006896 (0.67)	0.000208 (0.02)	0.000945 (0.10)	0.000990 (0.11)	-0.003086 (-0.25)	-0.016741 (-0.75)	-0.010969 (-0.50)	0.000091 (0.00)	-0.004291 (-0.21)	-0.009816 (-0.46)
Observations	6,847	6,847	6,847	6,847	6,847	1,063	1,063	1,063	1,063	1.063
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.31. Flow-performance relationship and screening characteristics for US funds – sectoral and transversal screens (expansion and recession periods) – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 80 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	-3.923509 (-0.83)	-0.397642 (-1.05)	2.692154 (0.61)	0.582397* (1.79)	-0.764495 (-1.64)	-4.114184 (-0.51)	0.847851 (0.12)	14.66764 (1.36)	1.251402 (1.52)	1.230809 (0.35)
Return * SECT	0.036308 (0.02)	0.130049 (1.56)	-0.732499 (-0.48)	0.081129 (0.81)	0.108876 (1.48)	-0.827432 (-0.57)	-0.402805 (-0.49)	0.306494 (0.17)	-0.060166 (-0.38)	0.277854 (0.27)
Return * TRANSV	-3.556953 (-0.98)	-0.371844* (-1.96)	2.520285 (0.93)	0.414381* (1.82)	-0.282749 (-1.62)	2.663764 (0.65)	-0.074251 (-0.02)	9.250063** (2.19)	0.755435 (1.68)	1.123328 (0.60)
Return * ENV	8.04236 (1.25)	0.076307 (0.26)	-0.170919 (-0.03)	-0.522198 (-1.18)	0.021733 (0.08)	8.198372 (1.04)	0.873498 (0.12)	-12.81008 (-1.17)	-1.055392 (-1.28)	-1.930972 (-0.43)
Return * SOC	-0.961437 (-0.14)	0.62113 (1.49)	1.20559 (0.21)	-0.147327 (-0.31)	0.513163 (1.38)	-3.784577 (-0.60)	1.669171 (0.39)	-8.679546* (-1.73)	-0.549266 (-1.05)	-0.036235 (-0.02)
Return * GOV	3.115622 (0.44)	-0.358619 (-1.17)	-6.735564 (-1.20)	-1.024009** (-2.12)	-0.288026 (-1.00)	-8.478423 (-1.46)	1.330966 (0.57)	-8.563675 (-0.87)	-0.505878 (-0.74)	-0.700389 (-0.23)
Return * PROD	10.29824 (1.46)	0.246103 (0.82)	2.938204 (0.44)	-0.261298 (-0.57)	0.122759 (0.42)	8.153644 (0.92)	0.672362 (0.09)	-14.87184 (-1.10)	-1.013416 (-0.96)	-3.213776 (-0.51)
Return * SHENG	-1.356753 (-0.25)	0.270562 (1.01)	-0.092035 (-0.02)	-0.581225 (-1.48)	0.229493 (0.94)	0.168186 (0.03)	-0.907903 (-0.38)	4.205674 (0.69)	0.382943 (0.59)	-0.992882 (-0.32)
Return * PSCR	-0.999882 (-1.03)	-0.004894 (-0.09)	0.406189 (0.51)	-0.002146 (-0.03)	0.007773 (0.18)	-1.225582** (-2.03)	-0.263762 (-0.59)	-0.911650 (-1.43)	-0.087934 (-1.45)	-0.426507 (-1.29)
Return * LAB	6.135214 (1.04)	0.030046 (0.14)	-3.590365 (-0.75)	0.059537 (0.17)	0.075216 (0.39)	-0.115565 (-0.04)	-0.174269 (-0.17)	-6.03083 (-1.59)	-0.433901 (-1.44)	-0.274650 (-0.26)
SECT	0.002229 (0.11)	0.004491 (0.64)	0.006597 (0.39)	-0.011268 (-0.95)	0.003762 (0.54)	0.004015 (0.15)	-0.069291 (-0.38)	0.022144 (0.90)	0.009692 (0.52)	0.049787 (0.40)
TRANSV	0.056511 (1.12)	-0.009510 (-0.69)	-0.017198 (-0.50)	-0.041733 (-1.28)	-0.006140 (-0.45)	0.025098 (0.31)	-0.057186 (-0.07)	0.114353 (1.67)	0.054125 (1.01)	0.118475 (0.49)
ENV	-0.123344 (-1.47)	-0.001899 (-0.08)	-0.003199 (-0.05)	0.057546 (1.03)	-0.003732 (-0.16)	0.078113 (0.55)	0.137423 (0.08)	-0.248882 (-1.42)	-0.173752* (-1.77)	-0.305664 (-0.55)
SOC	-0.011284 (-0.11)	0.004389 (0.17)	-0.040128 (-0.54)	-0.009607 (-0.14)	-0.000596 (-0.03)	-0.042121 (-0.30)	0.426585 (0.45)	-0.104945 (-1.18)	-0.011810 (-0.19)	0.014215 (0.05)
GOV	-0.059292 (-0.61)	-0.012550 (-0.52)	0.069252 (1.03)	0.123016* (1.91)	-0.009534 (-0.38)	-0.138666 (-1.11)	0.313705 (0.60)	-0.136608 (-0.83)	-0.033668 (-0.44)	-0.064892 (-0.17)

Table 3.31. Flow-performance relationship and screening characteristics for US funds – sectoral and transversal screens (expansion and recession periods) – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 80 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
PROD	-0.141006 (-1.52)	0.022487 (0.93)	-0.024619 (-0.33)	0.041886 (0.74)	0.018103 (0.69)	0.091434 (0.57)	0.109837 (0.06)	-0.281435 (-1.31)	-0.163099 (-1.24)	-0.441241 (-0.57)
SHENG	0.026855 (0.40)	0.016394 (0.74)	0.010874 (0.21)	0.076777* (1.78)	0.015720 (0.68)	-0.017732 (-0.18)	-0.220965 (-0.42)	0.065051 (0.71)	0.022398 (0.30)	-0.138641 (-0.36)
PSCR	0.012199 (0.96)	-0.000137 (-0.03)	-0.005574 (-0.56)	-0.000502 (-0.06)	0.001191 (0.29)	-0.005515 (-0.56)	-0.045568 (-0.46)	-0.002722 (-0.28)	0.001780 (0.23)	-0.040109 (-0.98)
LAB	-0.073178 (-0.98)	0.003341 (0.18)	0.044447 (0.83)	0.001526 (0.03)	0.009530 (0.51)	-0.001607 (-0.03)	-0.026025 (-0.12)	-0.080036 (-1.38)	-0.043858 (-1.12)	-0.019932 (-0.15)
L_SIZE	-0.005823** (-2.38)	-0.009725*** (-3.29)	-0.005410** (-2.28)	-0.004091* (-1.80)	-0.009660*** (-3.06)	-0.006139 (-1.05)	-0.008115 (-1.29)	-0.005009 (-0.95)	-0.005323 (-0.95)	-0.10271 (-1.68)
L_AGE	0.012852 (1.25)	0.011644 (1.01)	0.013352 (1.34)	0.011082 (1.21)	0.010743 (0.90)	-0.001653 (-0.11)	0.006765 (0.46)	-0.002587 (-0.18)	0.003403 (0.24)	0.005928 (0.40)
TER	0.007149 (0.67)	-0.004933 (-0.43)	0.000956 (0.10)	0.003490 (0.37)	-0.007013 (-0.56)	-0.011957 (-0.52)	0.000329 (0.01)	-0.002660 (-0.12)	0.001221 (0.06)	-0.005081 (-0.23)
Observations	6,847	6,847	6,847	6,847	6,847	1,063	1,063	1,063	1,063	1,063
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.32. Flow-performance relationship and screening characteristics for European funds (expansion and recession periods) – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 173 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	32.11632 (1.54)	-0.134017 (-0.17)	6.610536 (0.47)	0.343621 (0.35)	0.085994 (0.12)	2.901303 (1.05)	0.416483 (0.88)	-0.837084 (-0.42)	0.032409 (0.15)	0.828222 (1.14)
Return * SI	9.076918 (1.64)	-0.090650 (-0.32)	3.158708 (0.72)	-0.161181 (-0.50)	-0.083766 (-0.33)	-0.404580 (-0.67)	0.023348 (0.24)	-0.343565 (-0.88)	-0.007578 (-0.16)	0.024696 (0.19)
Return * ENV	-46.90036 (-1.62)	0.019249 (0.01)	-8.970051 (-0.46)	-0.241280 (-0.19)	0.129478 (0.11)	-0.280029 (-0.09)	-0.134199 (-0.29)	3.512443 (1.51)	0.343284 (1.31)	0.303864 (0.41)
Return * SOC	-42.72424* (-1.71)	0.398556 (0.38)	-22.63607 (-1.29)	-0.140565 (-0.12)	0.514512 (0.53)	6.267069*** (2.67)	0.792157** (2.32)	4.686325** (2.45)	0.426675* (1.89)	1.458648*** (2.64)
Return * GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PROD	-29.57558 (-1.33)	-0.127195 (-0.10)	-8.647984 (-0.52)	0.715238 (0.60)	-0.047275 (-0.04)	-0.443614 (-0.17)	-0.137246 (-0.33)	1.778397 (1.00)	0.167873 (0.85)	0.032372 (0.06)
Return * SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PSCR	3.518661 (0.38)	-0.040739 (-0.08)	1.498505 (0.21)	0.191643 (0.36)	-0.083135 (-0.18)	-0.22226 (-0.17)	-0.107366 (-0.52)	-0.891407 (-0.83)	-0.103954 (-0.87)	-0.280874 (-0.89)
Return * LAB	-15.98149 (-1.57)	-0.071277 (-0.10)	0.696211 (0.08)	0.157666 (0.23)	-0.114516 (-0.17)	-1.154086 (-0.69)	-0.323027 (-1.31)	-0.200150 (-0.19)	0.005399 (0.04)	-0.421400 (-1.28)
SI	-0.115281 (-1.57)	-0.005014 (-0.21)	-0.032636 (-0.64)	0.017010 (0.43)	-0.004313 (-0.19)	-0.001186 (-0.16)	0.004578 (0.52)	0.002515 (0.42)	0.006427 (1.24)	0.005912 (0.69)
ENV	0.637589 (1.62)	0.012585 (0.11)	0.123781 (0.52)	0.048717 (0.30)	0.021198 (0.20)	-0.001440 (-0.03)	-0.011573 (-0.25)	0.032359 (0.94)	0.000809 (0.04)	0.021571 (0.44)
SOC	0.555101 (1.63)	0.004849 (0.05)	0.231435 (1.11)	0.000030 (0.00)	0.012378 (014)	0.068330** (2.13)	0.067944* (1.96)	0.050399* (1.86)	0.003313 (0.17)	0.084107** (2.33)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	0.341562 (1.16)	-0.039846 (-0.44)	0.053625 (0.29)	-0.089450 (-0.70)	-0.037558 (-0.45)	0.001857 (0.06)	-0.004401 (-0.14)	0.010621 (0.45)	-0.006993 (-0.33)	0.004201 (0.14)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	-0.058274 (-0.46)	-0.003275 (-0.07)	-0.021440 (-0.23)	-0.020747 (-0.29)	-0.006576 (-0.15)	-0.005752 (-0.32)	-0.011511 (-0.55)	-0.015583 (-0.97)	-0.006859 (-0.68)	-0.021213 (-0.94)

Table 3.32. Flow-performance relationship and screening characteristics for European funds (expansion and recession periods) – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 173 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
LAB	0.237243*	0.031230	0.023860	0.014031	0.029720	-0.027662	-0.042531*	-0.015316	-0.017889	-0.039434
	(1.77)	(0.52)	(0.23)	(0.16)	(0.52)	(-1.14)	(-1.70)	(-0.81)	(-1.16)	(-1.62)
L_SIZE	-0.041985***	-0.046702***	-0.044009***	-0.043440***	-0.046613***	-0.013532***	-0.013619***	-0.015117***	-0.015548***	-0.014353***
	(-3.66)	(-3.92)	(-3.78)	(-3.67)	(-3.95)	(-3.53)	(-3.63)	(-4.00)	(-4.14)	(-3.89)
L_AGE	0.019826	0.024248	0.024637	0.025234	0.023842	0.002001	0.001654	0.005534	0.009521	0.001248
	(0.49)	(0.60)	(0.59)	(0.59)	(0.59)	(0.20)	(0.15)	(0.48)	(0.87)	(0.11)
TER	-0.081175**	-0.86163**	-0.078279**	-0.075204**	-0.086743**	-0.005548	-0.008681	-0.007097	-0.007060	-0.009428
	(-2.16)	(-2.32)	(-2.07)	(-2.02)	(-2.33)	(-0.72)	(-1.08)	(-0.89)	(-0.88)	(-1.18)
Observations	10,854	10,854	10,854	10,755	10,854	4,123	4,123	4,123	4,123	4,123
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.33. Flow-performance relationship and screening characteristics for European funds – sectoral and transversal screens (expansion and recession periods) – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 173 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	31.51099 (1.44)	0.411407 (0.43)	6.105559 (0.38)	0.288369 (0.28)	0.457736 (0.55)	-0.093509 (-0.03)	0.393985 (0.85)	-0.799661 (-0.40)	0.036412 (0.17)	0.573195 (0.80)
Return * SECT	8.764044 (1.57)	-0.047908 (-0.17)	3.006024 (0.67)	-0.174631 (-0.54)	-0.036902 (-0.14)	-0.444503 (-0.76)	0.006491 (0.07)	-0.321938 (-0.83)	-0.007570 (-0.16)	-0.005494 (-0.04)
Return * TRANSV	5.403902 (0.26)	1.134606 (1.00)	1.814136 (0.08)	-0.232286 (-0.16)	0.867777 (0.87)	-9.65029*** (-3.35)	-0.881315** (-2.31)	-3.151804 (-1.47)	-0.293306 (-1.23)	-1.929919*** (-2.94)
Return * ENV	-48.02077 (-1.61)	1.007216 (0.66)	-9.289939 (-0.39)	-0.224864 (-0.14)	0.903088 (0.66)	-4.911691 (-1.58)	-0.882022* (-1.69)	0.757144 (0.25)	0.103070 (0.33)	-1.449584 (-1.61)
Return * SOC	-35.58173 (-1.05)	-0.354595 (-0.28)	-19.52781 (-0.77)	0.035288 (0.02)	-0.062317 (-0.05)	12.16244*** (4.27)	1.252058*** (3.18)	6.00098*** (2.75)	0.588880** (2.19)	2.526762*** (3.87)
Return * GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PROD	-28.59379 (-1.23)	-0.415808 (-0.33)	-7.790601 (-0.42)	0.818991 (0.66)	-0.291072 (-0.26)	3.254424 (1.20)	0.030697 (0.07)	1.718948 (0.96)	0.173625 (0.87)	0.366931 (0.64)
Return * SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PSCR	4.773902 (0.37)	-0.856263 (-1.00)	1.930313 (0.13)	0.204848 (0.21)	-0.719248 (-0.95)	5.088535** (2.53)	0.496537 (1.63)	1.064175 (0.60)	0.083644 (0.44)	1.0544** (2.02)
Return * LAB	-15.97006 (-1.56)	-0.062897 (-0.08)	0.440059 (0.05)	0.163107 (0.24)	-0.095293 (-0.14)	-2.311516 (-1.41)	-0.399205 (-1.64)	-0.250542 (-0.24)	-0.10520 (-0.08)	-0.560088* (-1.74)
SECT	-0.111379 (-1.50)	-0.000257 (-0.01)	-0.031327 (-0.60)	0.017767 (0.45)	0.000713 (0.03)	-0.002467 (-0.35)	0.001245 (0.14)	0.002814 (0.47)	0.006589 (1.27)	0.002390 (0.28)
TRANSV	-0.038444 (-0.15)	0.149786 (1.25)	0.012930 (0.05)	0.073720 (0.48)	0.128410 (1.14)	-0.153655*** (-3.68)	-0.113048*** (-2.62)	-0.051887* (-1.68)	-0.019319 (-1.06)	-0.144604*** (-3.08)
ENV	0.670471* (1.66)	0.132306 (0.90)	0.144794 (0.51)	0.078162 (0.43)	0.122233 (0.90)	-0.093675** (-1.99)	-0.111990* (-1.94)	-0.014530 (-0.33)	-0.017879 (-0.69)	-0.116039* (-1.82)
SOC	0.437655 (0.94)	-0.089991 (-0.77)	0.174970 (0.58)	-0.052508 (-0.27)	-0.068981 (-0.62)	0.172497*** (4.15)	0.132865*** (3.21)	0.080961** (2.55)	0.019542 (0.85)	0.169510*** (3.88)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)

Table 3.33. Flow-performance relationship and screening characteristics for European funds – sectoral and transversal screens (expansion and recession periods) – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 173 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
PROD	0.326022 (1.06)	-0.073203 (-0.78)	0.039007 (0.19)	-0.108759 (-0.81)	-0.067680 (-0.78)	0.053944* (1.68)	0.018437 (0.58)	0.014747 (0.62)	-0.003078 (-0.15)	0.029914 (0.99)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	-0.090091 (-0.54)	-0.104342 (-1.16)	-0.043126 (-0.26)	-0.050137 (-0.47)	-0.092549 (-1.11)	0.084365*** (2.84)	0.067693* (1.93)	0.019976 (0.78)	0.008830 (0.61)	0.082457** (2.14)
LAB	0.236346* (1.75)	0.033369 (0.56)	0.026294 (0.25)	0.013738 (0.15)	0.032825 (0.58)	-0.043095* (-1.82)	-0.053784** (-2.17)	-0.018251 (-0.97)	-0.020452 (-1.33)	-0.051810** (-2.17)
L_SIZE	-0.042303*** (-3.66)	-0.047714*** (-3.99)	-0.043994*** (-3.74)	-0.04358*** (-3.65)	-0.047545*** (-4.01)	-0.012447*** (-3.39)	-0.012861*** (-3.49)	-0.014297*** (-3.77)	-0.014644*** (-3.86)	-0.013686*** (-3.82)
L_AGE	0.019678 (0.49)	0.024453 (0.61)	0.024241 (0.58)	0.024329 (0.57)	0.024898 (0.62)	0.004251 (0.40)	-0.000256 (-0.02)	0.004100 (0.36)	0.007569 (0.68)	-0.001464 (-0.13)
TER	-0.079300** (-2.05)	-0.077956** (-2.05)	-0.078052** (-2.03)	-0.075099* (-1.95)	-0.079245** (-2.08)	-0.005592 (-0.76)	-0.007753 (-0.98)	-0.006581 (-0.83)	-0.006609 (-0.83)	-0.007945 (-1.02)
Observations	10,854	10,854	10,854	10,755	10,854	4,123	4,123	4,123	4,123	4,123
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.34. Flow-performance relationship and screening characteristics for European funds (without UK) (expansion and recession periods) – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 143 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	43.06403*	0.121613	-23.30941	-1.751012	1.393918	0.734953	0.013062	-1.056119	0.034276	0.701100
	(1.71)	(0.03)	(-1.22)	(-1.37)	(0.41)	(0.21)	(0.02)	(-0.45)	(0.11)	(0.85)
Return * SI	12.71146**	-0.106734	2.54161	-0.203413	-0.098280	-0.189666	0.060370	-0.156132	0.039237	0.081588
	(2.06)	(-0.34)	(0.49)	(-0.59)	(-0.34)	(-0.25)	(0.52)	(-0.32)	(0.64)	(0.53)
Return * ENV	-62.68471*	-0.799477	30.54802	2.681906*	-0.401447	3.141997	0.300129	2.157462	0.233431	0.466892
	(-1.87)	(-0.50)	(1.27)	(1.77)	(-0.27)	(0.75)	(0.44)	(0.79)	(0.73)	(0.52)
Return * SOC	-48.07396	-0.329881	6.888347	2.417857*	0.009407	10.87755***	1.299329***	4.726125**	0.449409*	1.704617***
	(-1.60)	(-0.25)	(0.31)	(1.69)	(0.01)	(3.10)	(2.63)	(2.21)	(1.76)	(2.63)
Return * GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PROD	-40.66463*	-0.538662	4.277199	1.584866	-0.384053	0.578818	0.117259	1.570091	0.083487	0.125280
	(-1.69)	(-0.39)	(0.23)	(1.25)	(-0.30)	(0.19)	(0.23)	(0.77)	(0.37)	(0.19)
Return * SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PSCR	2.241444	0.194424	-8.137887	-0.629263	0.093217	-1.957328	-0.304850	-0.703620	-0.132995	-0.406797
	(0.20)	(0.33)	(-0.83)	(-0.97)	(0.17)	(-1.07)	(-1.06)	(-0.58)	(-0.96)	(-1.08)
Return * LAB	-24.80834**	-0.460197	7.310186	0.445953	-0.442448	-0.607879	-0.257346	-0.076163	0.009681	-0.354371
	(-2.02)	(-0.53)	(0.66)	(0.58)	(-0.54)	(-0.32)	(-0.90)	(-0.06)	(0.06)	(-0.96)
SI	-0.167740**	-0.018683	-0.044509	0.005842	-0.016828	0.000659	0.008717	0.004036	0.006858	0.009222
	(-2.05)	(-0.69)	(-0.71)	(0.13)	(-0.67)	(0.08)	(0.89)	(0.54)	(1.13)	(0.95)
ENV	0.846953*	-0.053180	-0.384830	-0.283287	-0.021225	0.018537	0.010788	0.016755	0.001489	0.019714
	(1.84)	(-0.37)	(-1.21)	(-1.46)	(-0.16)	(0.39)	(0.19)	(0.39)	(0.05)	(0.36)
SOC	0.605960	-0.078742	-0.175146	-0.301913*	-0.052161	0.092261**	0.086153**	0.050166	0.010677	0.085993**
	(1.47)	(-0.68)	(-0.63)	(-1.77)	(-0.48)	(2.49)	(2.18)	(1.53)	(0.43)	(2.18)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	0.476020	-0.056479	-0.088913	-0.179053	-0.047292	0.008780	0.001517	0.00819	-0.006356	0.005564
	(1.50)	(-0.58)	(-0.42)	(-1.29)	(-0.53)	(0.27)	(0.04)	(0.31)	(-0.28)	(0.17)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)

Table 3.34. Flow-performance relationship and screening characteristics for European funds (without UK) (expansion and recession periods) – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 143 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
PSCR	-0.032902	0.036656	0.135546	0.096633	0.026683	-0.016491	-0.022370	-0.012750	-0.008240	-0.024357
	(-0.21)	(0.62)	(1.00)	(1.09)	(0.49)	(-0.80)	(-0.89)	(-0.66)	(-0.65)	(-0.97)
LAB	0.348955**	0.009703	-0.046305	-0.022231	0.010936	-0.018149	-0.039669	-0.018123	-0.024059	-0.042602
	(2.16)	(0.14)	(-0.36)	(-0.22)	(0.17)	(-0.69)	(-1.46)	(-0.80)	(-1.32)	(-1.55)
L_SIZE	-0.060551***	-0.062733***	-0.064301***	-0.063842***	-0.062767***	-0.016455***	-0.016573***	-0.017391***	-0.017542***	-0.016585***
	(-4.52)	(-4.62)	(-4.74)	(-4.65)	(-4.64)	(-3.82)	(-3.86)	(-3.99)	(-4.05)	(-3.91)
L_AGE	0.017628	0.038220	0.027742	0.038209	0.038172	0.004263	0.009188	0.006041	0.005235	0.005598
	(0.34)	(0.70)	(0.53)	(0.72)	(0.70)	(0.32)	(0.65)	(0.42)	(0.37)	(0.41)
TER	-0.116609***	-0.118262***	-0.116398***	-0.101117**	-0.119094***	-0.005567	-0.010946	-0.008066	-0.008755	-0.011785
	(-2.67)	(-2.64)	(-2.61)	(-2.29)	(-2.65)	(-0.68)	(-1.26)	(-0.93)	(-0.98)	(-1.36)
Observations	8,458	8,458	8,458	8,392	8,458	3,685	3,685	3,685	3,685	3,685
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.35. Flow-performance relationship and screening characteristics for European funds (without UK) – sectoral and transversal screens (expansion and recession periods) – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 143 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	43.15829*	-0.287476	-24.55171	-1.882323	1.206167	-2.478613	-0.011030	-0.944584	0.053495	0.356325
	(1.69)	(-0.08)	(-1.26)	(-1.46)	(0.35)	(-0.74)	(-0.02)	(-0.41)	(0.18)	(0.44)
Return * SECT	12.73658**	-0.066485	1.899028	-0.198414	-0.069802	-0.779587	0.007765	-0.183456	0.034988	0.007612
	(2.02)	(-0.21)	(0.34)	(-0.57)	(-0.24)	(-1.09)	(0.07)	(-0.38)	(0.59)	(0.05)
Return * TRANSV	13.29631	0.620697	-6.549155	1.050098	0.355666	-18.41226***	-1.532514***	-4.797558*	-0.620634*	-2.501913***
	(0.42)	(0.46)	(-0.21)	(0.53)	(0.31)	(-4.01)	(-2.65)	(-1.87)	(-1.96)	(-2.97)
Return * ENV	-61.64029	-0.156481	25.57514	3.696226*	0.022797	-9.007965*	-1.235808	-3.062665	-0.470936	-1.969105*
	(-1.64)	(-0.08)	(0.82)	(1.80)	(0.01)	(-1.82)	(-1.47)	(-0.83)	(-1.09)	(-1.74)
Return * SOC	-45.06753	-0.685116	15.41397	1.739437	-0.191931	20.4698***	2.082886***	6.592979***	0.777742**	3.115303***
	(-1.12)	(-0.45)	(0.51)	(0.91)	(-0.14)	(5.12)	(3.57)	(2.75)	(2.52)	(3.91)
Return * GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PROD	-40.9347	-0.648407	6.956463	1.55737	-0.451788	6.434166**	0.415007	1.764073	0.166057	0.665532
	(-1.63)	(-0.46)	(0.34)	(1.20)	(-0.35)	(2.06)	(0.82)	(0.87)	(0.72)	(1.01)
Return * SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PSCR	1.047445	-0.320506	-2.81569	-1.434045	-0.236443	9.794975***	0.830963*	2.781518	0.342852	1.41353**
	(0.05)	(-0.31)	(-0.13)	(-1.07)	(-0.26)	(2.88)	(1.75)	(1.29)	(1.36)	(2.12)
Return * LAB	-24.52186*	-0.403651	6.53144	0.650149	-0.398095	-2.301856	-0.391203	-0.499180	-0.107877	-0.592958
	(-1.90)	(-0.46)	(0.58)	(0.79)	(-0.48)	(-1.29)	(-1.39)	(-0.43)	(-0.65)	(-1.64)
SECT	-0.167773**	-0.013460	-0.036684	0.004629	-0.012931	-0.003986	0.002708	0.003091	0.006250	0.003705
	(-2.01)	(-0.48)	(-0.55)	(0.10)	(-0.49)	(-0.53)	(0.28)	(0.42)	(1.05)	(0.40)
TRANSV	-0.145624	0.082708	0.088592	-0.041372	0.060307	-0.230331***	-0.152680***	-0.092630**	-0.055656**	-0.173625***
	(-0.40)	(0.58)	(0.26)	(-0.22)	(0.47)	(-4.38)	(-2.86)	(-2.32)	(-2.11)	(-3.22)
ENV	0.854817*	0.031472	-0.307126	-0.320969	0.043025	-0.137573**	-0.139719*	-0.077875	-0.054845	-0.151404**
	(1.73)	(0.17)	(-0.80)	(-1.41)	(0.25)	(-2.44)	(-1.92)	(-1.36)	(-1.51)	(-2.09)
SOC	0.544760	-0.131883	-0.296947	-0.280368	-0.093188	0.229749***	0.168295***	0.100209***	0.046384	0.185659***
	(1.00)	(-0.96)	(-0.80)	(-1.28)	(-0.72)	(4.97)	(3.60)	(2.65)	(1.59)	(3.90)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)

Table 3.35. Flow-performance relationship and screening characteristics for European funds (without UK) – sectoral and transversal screens (expansion and recession periods) – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 143 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
PROD	0.476606 (1.45)	-0.076159 (-0.75)	-0.124231 (-0.54)	-0.185352 (-1.30)	-0.062973 (-0.67)	0.082944** (2.43)	0.033074 (0.95)	0.018967 (0.72)	0.003030 (0.13)	0.040596 (1.23)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	-0.03509 (-0.14)	-0.03283 (-0.29)	0.057869 (0.23)	0.127427 (0.91)	-0.025832 (-0.25)	0.128641*** (3.39)	0.091422** (2.07)	0.054782 (1.63)	0.033628 (1.60)	0.104346** (2.35)
LAB	0.345173** (2.06)	0.016941 (0.25)	-0.036661 (-0.28)	-0.040262 (-0.39)	0.015895 (0.24)	-0.044690* (-1.78)	-0.057391** (-2.14)	-0.030324 (-1.32)	-0.035815* (-1.94)	-0.062582** (-2.32)
L_SIZE	-0.060576*** (-4.49)	-0.062834*** (-4.59)	-0.063823*** (-4.66)	-0.063677*** (-4.62)	-0.062840*** (-4.61)	-0.014839*** (-3.71)	-0.015410*** (-3.69)	-0.016410*** (-3.81)	-0.015947*** (-3.71)	-0.015822*** (-3.89)
L_AGE	0.018200 (0.35)	0.040689 (0.74)	0.028195 (0.53)	0.039303 (0.74)	0.039518 (0.72)	0.009075 (0.73)	0.006325 (0.46)	0.005141 (0.36)	0.003505 (0.25)	0.004565 (0.35)
TER	-0.116697** (-2.60)	-0.113224** (-2.45)	-0.115884** (-2.58)	-0.106334** (-2.37)	-0.115232** (-2.47)	-0.007569 (-0.99)	-0.010683 (-1.27)	-0.007744 (-0.90)	-0.009205 (-1.05)	-0.010812 (-1.30)
Observations	8,458	8,458	8,458	8,392	8,458	3,685	3,685	3,685	3,685	3,685
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.36. Flow-performance relationship and screening characteristics for UK funds (expansion and recession periods) – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 30 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10;* ** *p-value < 0.05;* *** *p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	-0.190484 (-0.04)	-0.649888 (-0.45)	-0.987800 (-0.16)	-0.045163 (-0.10)	1.118536 (0.35)	-45.71841 (-0.76)	4.204538 (0.31)	12.44109 (0.20)	0.158591 (0.11)	6.05073 (1.39)
Return * SI	-0.948006 (-0.92)	0.284129 (0.36)	-0.888233 (-0.72)	-0.064793 (-0.46)	1.303563 (0.71)	-4.643625 (-0.42)	6.488877 (2.25)	4.835272 (0.92)	-0.247898 (-0.65)	1.831413 (0.99)
Return * ENV	5.909926 (1.30)	0.285102 (0.43)	7.095488 (1.30)	0.077153 (0.20)	-0.469156 (-0.33)	28.30142 (0.76)	16.13187 (1.09)	4.016852 (0.15)	-0.264966 (-0.17)	16.01504 (1.27)
Return * SOC	-1.375266 (-0.43)	-0.971476 (-0.88)	-1.899445 (-0.38)	-0.324589 (-0.93)	-2.517381 (-0.94)	1.104343 (0.13)	-12.06868 (-0.60)	0.041093 (0.00)	-0.090098 (-0.13)	14.9854 (1.21)
Return * GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PROD	10.74641 (1.56)	0.193614 (0.07)	9.35107 (1.08)	0.670179 (0.78)	-3.242195 (-0.52)	45.14456 (0.69)	-11.0898 (-0.89)	-14.0438 (-0.26)	0.688124 (0.32)	-7.179983 (-1.04)
Return * SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PSCR	-1.229374 (-0.58)	-0.250118 (-0.16)	-1.501663 (-0.67)	0.118123 (0.50)	-2.30406 (-0.62)	0.446919 (0.05)	-10.48899* (-2.57)	-5.459103 (-0.31)	0.365773 (0.51)	-16.7634 (-1.35)
Return * LAB	-5.913245** (3.41)	-0.068127 (-0.13)	-6.117583** (-2.91)	-0.427784* (-2.13)	-0.658198 (-0.60)	25.8337 (0.59)	-16.94894** (-3.58)	-13.80234 (-0.45)	0.421479 (0.63)	-6.648477 (-1.72)
SI	0.015728 (1.22)	0.038322 (0.44)	0.010072 (0.89)	0.006981 (0.46)	0.166868 (0.74)	-0.129309 (-0.50)	0.984935 (2.29)	0.045884 (0.66)	-0.001497 (-0.14)	0.152517 (1.06)
ENV	-0.089332 (-1.40)	0.043098 (0.55)	-0.073452 (-1.38)	0.000845 (0.02)	-0.055807 (-0.30)	0.555201 (0.74)	2.476405 (1.10)	0.032368 (0.11)	0.018878 (0.56)	1.119089 (1.30)
SOC	0.020425 (0.46)	-0.105662 (-0.85)	0.018124 (0.36)	0.039084 (0.99)	-0.297463 (-0.92)	0.016099 (0.08)	-1.808049 (-0.60)	0.011833 (0.05)	0.005238 (0.26)	1.02379 (1.21)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	-0.141503 (-1.59)	0.003131 (0.01)	-0.075630 (-0.94)	-0.054774 (-0.62)	-0.419727 (-0.55)	1.109603 (0.72)	-1.670044 (-0.88)	-0.140308 (-0.20)	0.018526 (0.32)	-0.577914 (-1.12)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	0.024291 (0.83)	-0.035021 (-0.20)	0.025150 (1.09)	-0.009368 (-0.33)	-0.289159 (-0.64)	0.060217 (0.29)	-1.600723* (-2.60)	-0.041036 (-0.17)	-0.000129 (-0.01)	-1.174811 (-1.37)

Table 3.36. Flow-performance relationship and screening characteristics for UK funds (expansion and recession periods) – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} – TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 30 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. * *p-value < 0.10;* ** *p-value < 0.05;* *** *p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
LAB	-0.017495 (-0.88)	-0.073799 (-1.17)	-0.038073* (-2.55)	-0.040197** (-2.85)	-0.155009 (-1.07)	0.499322 (0.58)	-2.592469** (-3.54)	-0.120804 (-0.59)	0.020671 (0.64)	-0.537458 (-1.66)
L_SIZE	-0.000801 (-0.45)	0.001235 (0.43)	0.001681 (1.13)	0.002182 (1.36)	0.002467 (0.86)	0.016798 (0.74)	0.005866 (0.69)	0.002938 (0.22)	-0.002552 (-0.86)	-0.001527 (-0.14)
L_AGE	-0.014572* (-2.35)	-0.027798** (-3.60)	-0.027033*** (-4.20)	-0.025144** (-3.88)	-0.031137** (-3.84)	-0.042317 (-1.19)	-0.018808* (-2.45)	-0.014141 (-0.57)	0.004013 (0.45)	-0.016364 (-1.47)
TER	0.026197*** (4.92)	0.015898 (2.00)	0.024084*** (4.31)	0.022586** (3.37)	0.019917* (2.34)	0.136672 (1.18)	0.018220 (1.11)	0.047876 (0.51)	0.028194 (1.91)	0.024956 (0.93)
Observations	2,396	2,396	2,396	2,363	2,396	438	438	438	438	438
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.37. Flow-performance relationship and screening characteristics for UK funds – sectoral and transversal screens (expansion and recession periods) – Part 1

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 30 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
Return	0.765575 (0.13)	0.468726 (0.23)	-1.534498 (-0.21)	-0.722363 (-0.77)	5.540674 (1.55)	-24.74069 (-0.34)	-7.036887 (-0.35)	103.9452 (1.05)	-0.996687 (-0.32)	17.30478* (12.06)
Return * SECT	0.882523 (0.51)	0.014992 (0.02)	-0.203208 (-0.10)	0.092251 (0.41)	1.281188 (0.91)	-5.837995 (-0.44)	3.350966 (0.80)	13.04864 (1.59)	-0.839108 (-0.68)	0.201697 (0.71)
Return * TRANSV	3.778819 (0.57)	-1.210463 (-0.63)	5.536513 (0.88)	-0.841740 (-0.68)	-2.262337 (-1.23)	-3098.024 (-1.03)	57.60862 (0.81)	221.0627 (1.34)	1.119307 (0.43)	19.38347* (10.02)
Return * ENV	10.40948 (1.79)	-0.999896 (-0.55)	12.87675 (1.65)	-0.623658 (-0.52)	-4.755433 (-1.90)	842.4019 (1.06)	-71.65945 (1.41)	-223.744 (-1.24)	1.778714 (0.39)	83.01768* (12.22)
Return * SOC	-4.27325 (-0.89)	1.57102 (0.49)	-8.871101 (-1.07)	-0.232062 (-0.33)	4.109066 (1.31)	3908.873 (1.03)	-46.60266 (-1.47)	-395.0208 (-1.29)	-0.348985 (-0.26)	61.52028* (12.50)
Return * GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PROD	2.718297 (0.27)	-0.104691 (-0.04)	7.232039 (0.75)	0.592607 (0.50)	-6.836834 (-1.24)	10.89312 (0.13)	11.51945 (0.69)	-102.168 (-1.14)	2.953108 (0.57)	-11.15426* (-9.71)
Return * SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Return * PSCR	-5.556834 (-1.24)	0.246067 (0.18)	-4.779723 (-1.27)	0.649464 (0.69)	-2.336696 (-0.82)	-814.8145 (-1.03)	-44.67784 (-0.99)	179.7918 (1.22)	-0.599941 (-0.29)	-81.45071* (-12.14)
Return * LAB	-4.506711 (-2.18)	0.442525 (0.75)	-5.615983 (-1.76)	-0.193696 (-0.63)	0.160288 (0.19)	44.92584 (0.80)	-15.04225 (-3.58)	-59.61828 (-1.19)	1.562697 (0.67)	-7.444164** (-13.68)
SECT	-0.003150 (-0.16)	0.011554 (0.15)	0.006251 (0.42)	-0.010055 (-0.43)	0.164546 (0.95)	-0.166417 (-0.54)	0.510107 (0.81)	0.149560 (1.37)	0.014473 (0.43)	0.013428 (0.59)
TRANSV	-0.060112 (-0.62)	-0.136960 (-0.64)	-0.062064 (-0.92)	0.093769 (0.62)	-0.283197 (-1.24)	-60.09163 (-1.03)	8.819676 (0.82)	2.239861 (1.35)	-0.003031 (-0.13)	1.712047* (10.16)
ENV	-0.146837 (-1.84)	-0.104792 (-0.48)	-0.127065 (-1.71)	0.101187 (0.66)	-0.575614 (-1.85)	23.72721 (1.05)	10.90765 (1.40)	-3.150321 (-1.26)	-0.012649 (-0.16)	5.852129* (12.20)
SOC	0.067097 (0.92)	0.184422 (0.51)	0.095150 (1.09)	0.017673 (0.19)	0.503958 (1.32)	83.12875 (1.03)	-7.085748 (-1.46)	-4.842996 (-1.29)	-0.004529 (-0.12)	3.967865** (12.62)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)

Table 3.37. Flow-performance relationship and screening characteristics for UK funds – sectoral and transversal screens (expansion and recession periods) – Part 2

This table reports the results of panel data regressions of the flow-performance relationship for SRI funds considering the effect of the screening characteristics. The dependent variable is the monthly flow (FLOW) calculated as $[TNA_{i,t} - TNA_{i,t-1}(1+RM_{i,t})]/ TNA_{i,t-1}$, where TNA = monthly total net assets (in million US dollars) and RM = monthly return. The independent variables include: fund's return (as defined in column), the number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB), and the interactions between the fund's return and the social variables. Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The sample includes 30 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Average Monthly Returns	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*	*Average Monthly Returns*	*Average Risk-Adjusted Returns*	*Monthly Returns*	*Annual Returns*	*Risk-Adjusted Returns*
PROD	-0.047470 (-0.37)	-0.035735 (-0.12)	-0.062358 (-0.71)	-0.045556 (-0.39)	-0.839966 (-1.25)	0.520329 (0.28)	1.680021 (0.66)	-1.183928 (-1.07)	-0.058002 (-0.35)	-1.007645* (-10.74)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	0.081249 (1.34)	0.022823 (0.15)	0.055115 (1.52)	-0.076267 (-0.67)	-0.283268 (-0.82)	-23.10985 (-1.03)	-6.816117 (-0.99)	2.676533 (1.25)	0.003669 (0.12)	-5.718704* (-12.12)
LAB	-0.031893 (-1.39)	-0.022740 (-0.31)	-0.044708 (-1.72)	-0.047370 (-2.44)	-0.062565 (-0.58)	0.778223 (0.73)	-2.282136 (-3.50)	-0.436985 (-1.29)	-0.035348 (-0.30)	-0.561247* (-12.51)
L_SIZE	0.000155 (0.08)	0.000575 (0.24)	0.002420 (1.39)	0.001229 (0.43)	0.003809 (1.68)	0.015411 (0.55)	0.004494 (0.62)	-0.016747 (-0.85)	-0.001103 (-0.19)	-0.005353 (-3.60)
L_AGE	-0.024840 (-2.34)	-0.028441** (-4.37)	-0.032969** (-3.80)	-0.015070 (-0.86)	-0.035002** (-5.56)	-0.030753 (-0.73)	-0.007052 (-0.35)	0.012617 (0.36)	0.003457 (0.24)	0.002521 (0.89)
TER	0.023209** (3.86)	0.016121 (2.22)	0.022916** (3.70)	0.016931 (1.77)	0.019879** (3.42)	0.156302 (1.09)	0.004129 (0.19)	-0.084009 (-0.58)	0.020162 (0.75)	0.012622 (3.39)
Observations	2,396	2,396	2,396	2,363	2,396	438	438	438	438	438
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.38. SRI funds' flows and future abnormal performance (expansion and recession periods)

This table reports the results of panel data regressions of the determinants of the abnormal returns for SRI funds by geographic region/country (global, US, Europe, Europe except UK, and UK). The dependent variable is the four-factor-adjusted return of fund *i* in month *t*. The independent variable is the average money flow of fund *i* from months *t*-1 to *t*-12 ($Flow_{[t-1,t-12]}$), and control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The global sample includes 253 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
$Flow_{[t-1,t-12]}$	-0.003196 (-0.11)	0.046342** (2.49)	-0.006835 (-0.18)	0.000062 (0.01)	0.152386 (0.16)	0.079791** (2.21)	0.295090*** (3.55)	0.048379 (1.21)	0.07674* (1.88)	-0.569749* (-1.82)
L_SIZE	-0.009166 (-0.78)	-0.007694*** (-4.37)	-0.000850 (-0.04)	-0.002395 (-0.89)	0.005493 (0.06)	-0.035151*** (-7.60)	-0.070222*** (-5.47)	-0.031810*** (-6.34)	-0.035616*** (-6.88)	-0.111177*** (-3.56)
L_AGE	0.047207 (1.00)	-0.001093 (-0.19)	0.089545 (1.08)	0.007976 (0.71)	0.383785 (0.95)	0.135697*** (5.04)	0.667095*** (11.80)	0.085726*** (2.86)	0.062203** (2.01)	0.640132*** (4.67)
TER	-0.146343*** (-4.89)	-0.005770 (-0.83)	-0.167341*** (-4.04)	-0.001135 (-0.17)	-0.328708** (-2.35)	-0.000152 (-0.02)	0.022093 (0.31)	0.002088 (0.24)	0.001700 (0.19)	0.026623 (0.27)
Observations	15,539	6,032	9,507	7,402	2,105	4,747	939	3,808	3,415	393
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.39. SRI funds' flows and future abnormal performance – the impact of social screening (expansion and recession periods)

This table reports the results of panel data regressions of the determinants of the abnormal returns for SRI funds by geographic region/country (global, US, Europe, Europe except UK, and UK). The dependent variable is the four-factor-adjusted return of fund *i* in month *t*. The independent variables include: average money flow of fund *i* from months *t*-1 to *t*-12 ($Flow_{[t-1,t-12]}$), total number of screens applied by each fund (SI), types of screens employed by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), number of positive screens applied by each fund (PSCR), and a dummy variable – LAB – that assumes the value of 1 if the fund has been certified with at least one SRI label. The control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The global sample includes 253 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
$Flow_{[t-1,t-12]}$	-0.092492 (-1.10)	-0.011669 (-0.29)	-0.147659 (-1.42)	0.001046 (0.29)	-2.226832 (-0.19)	0.019189 (1.08)	-0.067869 (-1.65)	0.038902* (1.92)	0.038107* (1.87)	0.495746 (1.20)
SI	0.004546 (0.59)	-0.000172 (-0.26)	0.008690 (0.58)	0.000144 (0.28)	0.281979 (1.45)	-0.000627 (-0.89)	-0.001125 (-1.06)	0.000442 (0.37)	0.000518 (0.42)	-0.002703 (-0.44)
ENV	0.003710 (0.09)	-0.000626 (-0.15)	-0.015701 (-0.22)	0.001848 (0.68)	-0.031457 (-0.06)	-0.001227 (-0.34)	0.001833 (0.26)	-0.002885 (-0.54)	-0.000250 (-0.04)	-0.022032 (-1.37)
SOC	-0.034591 (-0.99)	-0.001044 (-0.30)	-0.033274 (-0.56)	-0.000884 (-0.39)	-0.591957 (-1.22)	0.001485 (0.47)	-0.010365* (-1.69)	-0.00021 (-0.05)	0.001580 (0.31)	-0.010380 (-0.81)
GOV	-0.011201 (-0.16)	0.009729** (2.17)	(omitted)	(omitted)	(omitted)	0.005222 (0.71)	0.007285 (0.85)	(omitted)	(omitted)	(omitted)
PROD	-0.046016 (-1.08)	-0.002945 (-0.67)	-0.066428 (-1.01)	0.000182 (0.08)	-0.972881 (-0.94)	-0.001734 (-0.44)	-0.000154 (-0.02)	-0.005984 (-1.23)	-0.004079 (-0.81)	0.014275 (0.44)
SHENG	-0.037140 (-0.59)	-0.001992 (-0.49)	(omitted)	(omitted)	(omitted)	-0.002521 (-0.34)	0.000476 (0.07)	(omitted)	(omitted)	(omitted)
PSCR	0.002111 (0.27)	-0.000102 (-0.23)	0.000625 (0.02)	-0.000497 (-0.48)	-0.203863 (-0.67)	0.001311* (1.87)	0.001668** (2.52)	0.000267 (0.12)	-0.001001 (-0.40)	0.011014 (1.17)
LAB	-0.007510 (-0.28)	0.004490 (1.64)	-0.026550 (-0.64)	0.000498 (0.33)	0.168170 (0.24)	0.001312 (0.49)	0.006331 (1.42)	0.003080 (0.90)	0.000336 (0.09)	0.007282 (0.35)
L_SIZE	-0.02912*** (-3.96)	-0.000874 (-1.10)	-0.037958*** (-3.51)	-0.000154 (-0.38)	-0.180609** (-2.29)	0.000458 (0.64)	-0.001612 (-1.29)	0.000506 (0.56)	0.001039 (1.06)	0.001712 (0.46)
L_AGE	0.004107 (0.15)	-0.002384 (-0.59)	-0.014674 (-0.36)	0.002077 (1.37)	-0.108804 (-0.30)	-0.000042 (-0.02)	-0.003467 (-1.00)	0.000373 (0.12)	0.003267 (0.92)	-0.006778 (-0.80)
TER	-0.025835 (-1.09)	-0.006996** (-2.30)	-0.025645 (-0.74)	-0.000600 (-0.47)	-0.584266* (-2.12)	0.001216 (0.77)	-0.005152 (-1.07)	0.002479 (1.39)	0.001219 (0.67)	0.018241 (1.32)
Observations	15,539	6,032	9,507	7,402	2,105	4,747	939	3,808	3,415	393
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 3.40. SRI funds' flows and future abnormal performance – the impact of sectoral and transversal screens (expansion and recession periods)

This table reports the results of panel data regressions of the determinants of the abnormal returns for SRI funds by geographic region/country (global, US, Europe, Europe except UK, and UK). The dependent variable is the four-factor-adjusted return of fund *i* in month *t*. The independent variables include: average money flow of fund *i* from months *t*-1 to *t*-12 ($Flow_{[t-1,t-12]}$), number of sectoral (SECT) and transversal (TRANSV) screens employed by each fund, types of screens employed by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), number of positive screens applied by each fund (PSCR), and a dummy variable – LAB – that assumes the value of 1 if the fund has been certified with at least one SRI label. The control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The global sample includes 253 SRI funds for the expansion and recession periods defined in section 3.5.4. t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Expansion Periods					**Recession Periods**				
	Global	*US*	*Europe*	*Europe (except UK)*	*UK*	*Global*	*US*	*Europe*	*Europe (except UK)*	*UK*
$Flow_{[t-1,t-12]}$	-0.090502 (-1.08)	-0.011815 (-0.29)	-0.142679 (-1.36)	0.001078 (0.30)	-4.069575 (-0.34)	0.020453 (1.15)	-0.032091 (-0.78)	0.039010* (1.92)	0.039159* (1.91)	0.646363 (1.42)
SECT	0.008322 (0.90)	-0.000726 (-0.70)	0.008751 (0.58)	0.000139 (0.27)	0.372655 (1.64)	-0.000898 (-1.07)	-0.004799** (-2.63)	0.000434 (0.37)	0.000542 (0.44)	0.000395 (0.05)
TRANSV	-0.014043 (-0.56)	0.001014 (0.38)	-0.026215 (-0.48)	-0.000174 (-0.08)	0.078712 (0.25)	0.000551 (0.24)	0.009293** (2.05)	0.001043 (0.26)	0.00369 (0.77)	-0.011132 (-0.95)
ENV	0.003786 (0.09)	-0.000124 (-0.03)	-0.037646 (-0.48)	0.001622 (0.52)	0.034893 (0.07)	-0.001080 (-0.29)	0.003994 (0.60)	-0.002531 (-0.44)	0.001917 (0.28)	-0.020921 (-1.27)
SOC	-0.008396 (-0.17)	-0.002925 (-0.56)	-0.009239 (-0.13)	-0.000661 (-0.25)	-0.541346 (-1.09)	-0.000123 (-0.03)	-0.030068*** (-2.97)	-0.000629 (-0.12)	-0.000669 (-0.11)	-0.009545 (-0.73)
GOV	0.007383 (0.11)	0.009249** (2.33)	(omitted)	(omitted)	(omitted)	0.003387 (0.49)	0.007371 (1.06)	(omitted)	(omitted)	(omitted)
PROD	-0.047620 (-1.10)	-0.001956 (-0.42)	-0.059024 (-0.88)	0.000250 (0.11)	-1.009282 (-0.96)	-0.001676 (-0.42)	0.005293 (0.69)	-0.006104 (-1.23)	-0.004765 (-0.93)	0.014799 (0.45)
SHENG	-0.028739 (-0.48)	-0.001842 (-0.49)	(omitted)	(omitted)	(omitted)	-0.003543 (-0.50)	-0.001241 (-0.20)	(omitted)	(omitted)	(omitted)
PSCR	0.004169 (0.50)	-0.000143 (-0.31)	0.020782 (0.50)	-0.000304 (-0.19)	-0.181514 (-0.58)	0.001175 (1.57)	0.000825 (1.15)	-0.000070 (-0.02)	-0.0029 (-0.78)	0.011805 (1.23)
LAB	-0.008438 (-0.31)	0.004166 (1.50)	-0.026601 (-0.64)	0.000487 (0.32)	0.006332 (0.01)	0.001520 (0.57)	0.005835 (1.39)	0.003100 (0.90)	0.000455 (0.12)	-0.001462 (-0.06)
L_SIZE	-0.028682*** (-3.88)	-0.000898 (-1.12)	-0.037632*** (-3.47)	-0.000155 (-0.39)	-0.171204* (-2.11)	0.000438 (0.61)	-0.002563** (-2.06)	0.000507 (0.56)	0.001074 (1.09)	0.002168 (0.56)
L_AGE	0.002109 (0.08)	-0.002483 (-0.61)	-0.014722 (-0.36)	0.002074 (1.36)	-0.232380 (-0.58)	-0.000012 (-0.01)	-0.001921 (-0.58)	0.000352 (0.11)	0.003140 (0.88)	-0.003357 (-0.35)
TER	-0.027319 (-1.15)	-0.007001** (-2.26)	-0.025421 (-0.74)	-0.000592 (-0.46)	-0.609206* (-2.16)	0.001299 (0.81)	-0.007485 (-1.61)	0.002470 (1.38)	0.001161 (0.64)	0.020405 (1.43)
Observations	15,539	6,032	9,507	7,402	2,105	4,747	939	3,808	3,415	393
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

For the equations of flow-performance relationship with social variables (tables 3.28 and 3.29), there are also some coefficients that emerge as significant in recession periods. Table 3.28 shows that social screens and positive screens have a positive impact on flows (when considering regular and average risk-adjusted returns for social screens, and monthly returns for positive screens), whilst the dummy labels has a negative effect on flows for average monthly returns and (regular and average) risk-adjusted returns. Some interaction terms are also statistically significant. Particularly, there is evidence that the interaction between returns (for all measures) and social screens promotes the increase of fund flows. Differently, the interaction between returns and some social factors – governance and shareholder engagement screens, positive screening strategy, and labels – is negative and statistically significant. When we replace the total screening intensity by the number of sectoral and transversal screens (table 3.29), the coefficient associated with the number of transversal screens emerges as negative and statistically significant for all performance levels. Also, for a 10% significance level, and considering average monthly returns, shareholder engagement screens seem to have a negative effect on flows.

Considering the effect of flows on future performance (tables 3.38 to 3.40), there is an important result for recession periods: we find evidence, for a significance level of 5%, that past average flows have a positive effect on abnormal returns, i.e., a "smart" money effect. More remarkably, there is weak evidence that positive screening strategy has a positive impact on abnormal returns.

For the US subsample, the sample division between "good" and "bad" times uncovers different effects in the flow-performance relationship. Table 3.21 shows that, for conventional funds, there are significant differences in recession periods. The significance of the monthly returns' coefficient disappears, but new variables appear as relevant. Particularly, the first and second lags of monthly returns exhibit positive and significant coefficients, while annual returns and the lagged flow show negative ones. Concerning control variables, age and total expense ratio also seem to have a negative effect on conventional money flows. For SRI funds, in periods of recession, the coefficient on current returns loses significance, but lagged annual returns, and the first and second lags of monthly returns, are now positive and significant.

Focusing on the flow-performance relationship for the best and worst conventional funds (tables 3.22 and 3.23), for both conventional and SRI funds, the major dissemblance occurs in recessions. Nevertheless, it worth mentioning that the previously identified significance of the

annual returns' coefficient for conventional funds no longer exists for expansions. In recession times, conventional funds exhibit several new relationships with regard to the variables of interest of the base model, dummies for best and worst performing funds, and control variables. The monthly returns lose significance, but the first and second lag of monthly returns present positive and statistically significant coefficients. In addition, top performing funds in terms of (regular and lagged) annual returns have a significant impact on flows, while flows react negatively to top performers in terms of lagged monthly returns, and bottom performing funds on the basis of annual measures (current and lagged). The lagged flow, age, and total expense ratio exhibit negative and significant coefficients. SRI fund flows also react positively to the two first lags of monthly returns (although the coefficient on current monthly returns is now non-significant), and to the annual returns' top performers.

Turning to risk-adjusted performance (tables 3.24 to 3.27), there is evidence of a negative response of conventional money flows to past flows in both expansion and recession market states, consistent with SRI funds in expansions. Moreover, we find that SRI fund flows are (negatively) sensitive to risk-adjusted returns in general, and to best performing funds. The funds' size has a negative impact on flows for both conventional and SRI funds, and in expansion and recession periods.

With the introduction of the social factors (tables 3.30 and 3.31), we observe that some relations and coefficients are preserved for expansion and recession periods. From table 3.30, we observe that the results for environmental, products, and shareholder engagement screens, and the interaction between returns (average monthly returns, and risk-adjusted returns) and products screens, hold for expansion periods. However, it should be also mentioned that, for annual returns, there is weak evidence of a positive effect of governance screens, while the coefficient associated with the interaction term between returns and governance screens is negative and statistically significant at the 5% level. In recessions, the screening intensity has a positive impact on flows (when we consider monthly returns), whereas the number of positive screens has the opposite effect (for the risk-adjusted performance). The positive (negative) impact on flows of the interaction between environmental (positive) screens and returns, previously found for the whole period, holds for recession periods. For sectoral and transversal screens (table 3.31), concerning the interaction between transversal screens and returns, we find mixed results in expansions: the coefficient is negative (positive) and significant at the 10% level for average risk-adjusted returns

(annual returns). The interaction term is also positive and statistically significant (at the 5% level) when we consider monthly returns in recession periods. In expansion market states, governance and shareholder engagement screens impact flows positively when we consider annual returns. Additionally, in recession times, environmental screens, and the interaction between returns and positive screens, remain with a negative effect on flows, whilst it emerges the same effect for the interaction between returns and social screens.

Besides that, the "smart" money effect previously detected in the whole period for US SRI funds holds for expansion and recession periods (table 3.38). The social labels maintain the positive sign in both expansion and recession market states but are now not significant. Furthermore, in recessions, transversal and positive screens impact positively US SRI funds' abnormal returns, whereas sectoral and social screens have the opposite effect.

The results for the European subsample also illustrate some differences in the flow-performance relationship across distinct market states compared with the whole period. For the conventional sample, in expansion periods, lagged flow (age) is now negative (positive) and significant. In recession market states, the first and second lags of monthly returns exhibit a positive and significant coefficient at the 5% level, whereas annual returns impact flows negatively. For SRI funds, the significance of monthly returns ceases to exist in expansion times while, in recession periods, the first lag of current (monthly) and past (annual) returns have also a positive effect on flows. Additionally, past flows have a negative impact on SRI money flows.

After introducing the dummies for top and bottom performers (tables 3.22 and 3.23), the results also show some variations. For conventional funds, in expansion periods, lagged annual returns and funds' age contribute positively to money flows, whilst past flows have a negative and significant impact. The dummy for best performing funds in terms of lagged monthly returns is now positive and statistically significant at the 10% level, while the opposite occurs with the dummy for best performing funds concerning lagged past returns. In periods of recession, annual returns impact flows negatively (monthly returns lose significance), whilst the second lag of monthly returns has the reverse effect. In expansion states, the worst performing funds in terms of lagged annual returns still contribute positively to SRI funds' flows, but flows are also sensitive to bottom monthly performing funds. In recessions, the first lag of monthly returns has a positive effect on fund flows, but flows react negatively to the lagged flow and funds' age. The positive impact of bottom performing funds in terms of lagged annual returns previously found for the

whole period disappears for recession periods.

With regard to risk-adjusted performance (tables 3.24 to 3.27), in recessions, conventional and SRI fund flows exhibit a negative reaction to past flows, while they both also react to risk-adjusted returns, but in opposite directions (conventional fund flows show a positive sensitivity, whereas SRI fund flows present a negative one). Conventional and SRI funds' size also seem to affect negatively money flows in both market states.

When we consider the effects of social screening (tables 3.32 and 3.33), some interesting results arise. Specifically, the interaction term between social screens and returns, and the dummy labels, exhibit opposite signs in expansion and recession periods: labels seem to have a positive (negative) impact on flows in expansion (recession) periods, while the interaction term between social screens and returns is negative (positive) in expansion (recession) periods. The social screens considered individually also impact flows positively in recession times. Table 3.33 (substitution of the total number of screens by the number of sectoral and transversal screens) illustrates several differences mainly for recession periods. In expansion times, environmental screens and the dummy labels arise as positive and significant at the 10% level for average monthly returns. With regard to recession periods, some new relations emerge, and some variables shown to be relevant in the whole period now alter their sign. In particular, transversal screens, environmental screens, and labels (and their interaction terms with returns) show negative and significant coefficients. A different effect is observed for social, products and positive screens (and their interaction terms with returns, except for products) which exhibit positive and significant ones.

With regard to the "smart" *versus* "dumb" money effect, when we consider social characteristics (for the total number of screens, or number of sectoral and transversal screens) in recession periods, European abnormal returns benefit from average past flows, i.e., there is evidence of a "smart" money effect in recession times (for a significance level of 10%).

The results for European funds (with and without the UK) with regard to the flow-performance relationship are quite similar. Notwithstanding, European (except UK) conventional flows benefit from funds' lagged annual returns in expansion periods. It should also be mentioned that, when we exclude the UK in recession times, SRI money flows are negatively affected by funds' annual returns, and still benefit from worst performers in terms of lagged annual returns. When we use risk-adjusted returns instead of raw returns, the results are also very alike.

Focusing on the flow-performance relationship after considering screening characteristics (tables 3.34 and 3.35), we should mention that there is some divergence from the whole period results, mostly in expansion times. Individually considered (i.e., without interaction with returns), screening intensity and social screens contribute to lower fund flows, whereas environmental screens and labels potentiate larger flows. Concerning the interaction terms, the coefficients associated with screening intensity and social screens are positive, and the coefficients related with products and labels are negative. The results are mixed for environmental screens. Moreover, in recessions, the coefficients associated with social screens (individually considered and their interaction with all performance measures) are positive and significant. After introducing the number of sectoral and transversal screens (table 3.35), the coefficients' signs and significance in expansion periods are similar to those obtained in table 3.34. Notwithstanding, we find that sectoral screens impact flows negatively, while their interaction term with returns shows a positive sign. This allows us to conclude that the relations previously obtained in expansions for screening intensity are primarily due to the enforcement of sectoral screens. In recession market states, the opposite occurs: for all performance measures, transversal screens (individually considered and interacting with returns) have a negative impact on money flows. Furthermore, social, products and positive screens (individually considered and their interaction with returns) have a beneficial effect on fund flows, with the reverse occurring for environmental screens. Labels also emerge as having a negative effect on flows.

Concerning the effects of flows on future abnormal returns (tables 3.38 to 3.40), we show that the conclusions differ across market states. In particular, the "smart" money effect previously obtained for the whole period merely holds in recession periods.

Finally, as shown in tables 3.20 and 3.21, we also find that the behavior of UK conventional and SRI funds differs in expansion and recession market states. For conventional funds, the coefficient associated with annual returns loses significance in expansions, while it emerges a positive and significant one associated with the third lag of monthly returns. In recession periods, the one month lag monthly returns affects flows positively, while current monthly returns have a negative impact on fund flows. The results for SRI funds in expansion periods are similar when compared to the whole period, with the exception of annual returns, that turn up non-significant. In recession times, the coefficient associated with past returns also loses significance, but there are new relationships: the first and third lags of monthly returns impact positively UK SRI money

flows, whilst lagged annual returns and the second lag of monthly returns have the reverse impact.

After taking into account the dummies for best and worst performers (tables 3.22 and 3.23), we find that in expansion periods conventional fund flows are positively affected by the third lag of monthly returns, but cease to be sensitive to annual top performers. In recessions, there are other variables that emerge as significant, namely the one lag monthly returns – with a positive sign –, and current monthly returns, annual returns and total expense ratio – with a negative sign. Additionally, there is evidence that flows react negatively to bottom performers in terms of (current and lagged) annual returns. The persistence in SRI fund flows holds for both market states, and annual returns lose significance. Moreover, in recessions, the first and third lags of monthly returns have a positive effect on flows, whereas lagged annual returns and the second lag of monthly returns have the reverse effect. Bottom performers (in terms of lagged annual returns) also contribute negatively to UK socially responsible fund flows.

Taking into consideration risk-adjusted returns, our results support the persistence in UK SRI fund flows in expansion times. Additionally, in recession periods, we show that conventional and SRI money flows react (although in different directions) to risk-adjusted returns, and that the worst SRI performers benefit from larger money flows.

With the inclusion of the screening features (tables 3.36 and 3.37), some differences arise, mainly in recession periods and for (regular and average) risk-adjusted returns. Specifically, positive screening and labels (alone and interacting with returns) have a negative effect on flows. Also, when we consider sectoral and transversal screens, additional significant relations emerge. An important one is that transversal screens (individually considered and their interaction with returns) tend to increase socially responsible money flows. The results are alike for environmental and social screens, while products screens tend to reduce socially responsible money flows.

Finally, in relation to the "smart" money effect analysis (tables 3.38 to 3.40), we find that there is weak evidence of a "dumb" money effect for UK funds in recession periods for the simple model (without social factors).

3.5.5. Robustness tests

We analyze the robustness of our results in three dimensions[69]. First, following Bollen

[69] The results on the robustness tests are unreported for the sake of space, but are available upon request.

(2007) and Renneboog *et al.* (2011), we remove the observations of fund flows beyond the 99.5 percentile, or below the 0.5 percentile, to reduce the effect of outliers.

For the conventional global sample, when we estimate the flow-performance relationship, all variables (except total expense ratio) are statistically significant, with special emphasis for the lagged flow whose coefficient, although close to zero, is positive. When we introduce dummies, the results are similar, and only the returns from the best performers concerning annual returns, and worst performers in terms of (lagged and current) annual returns, are not significant. Considering the global SRI fund sample, with the exception of the lagged flows, all variables are significant. We find identical results after including performance dummies. Additionally, the coefficients associated with some dummy variables are non-significant. Substituting raw returns by risk-adjusted returns, our results indicate that returns only seem to affect (negatively) SRI money flows, while conventional fund flows exhibit a positive reaction to past flows. Besides that, the best performing conventional funds are "awarded" with larger money flows, whereas the best (worst) performing SRI funds receive less (more) money flows. After including the social variables, there are some differences in comparison to the whole sample. When considering total screening intensity, the types of screens (namely governance, products and shareholder engagement screens) seem to affect the flow-performance relationship for SRI funds. Taking into account the number of sectoral and transversal screens (instead of the total number of screens), additional variables have an impact on flows: specifically, sectoral and transversal screens, as well as social and positive screens, influence SRI money flows. In terms of abnormal returns, the results are similar.

For US conventional and SRI funds, all variables (with the exception of lagged flow) are statistically significant. Overall, these relationships persist after introducing the dummies for best and worst performing funds, except for the monthly returns, whose coefficient loses significance for SRI funds. For risk-adjusted returns, we should mention that only SRI money flows are affected by returns, although the bottom performers have a negative impact on conventional money flows. With the incorporation of social variables, the results are quite similar, but sectoral and transversal screens, just as social screens, are now significant when we use the number of sectoral and transversal screens as measure of screening intensity. The "smart" money effect previously detected in the model without social variables does not hold after removing the outliers. Nevertheless, taking into account the social variables, there is evidence, for a significance level of 5%, of a positive effect of past flows on abnormal returns. Furthermore, governance, products, and

shareholder engagement screens, as well as the positive screening strategy, impact US SRI funds' abnormal performance.

Focusing on European conventional funds, all return variables (excepting monthly returns) are significant and lagged flow has a positive effect on current flow. Considering the performance dummies, monthly returns gain significance, and the coefficient of lagged flow remains positive. For SRI funds, there are also some differences, although we should highlight that the lagged flow continues non-significant. With respect to risk-adjusted performance, there is weak evidence of a positive effect of lagged flow on current flow but merely for conventional funds. Furthermore, although the risk-adjusted returns only influence SRI money flows, the best performing conventional funds benefit from larger flows. Compared with the whole sample, the screening intensity (or the number of sectoral screens) and the certification by social labels seem now to affect flows. With respect to abnormal performance, the conclusions are similar to the original sample.

Without considering the UK, we find similar evidence to the one achieved for the whole European sample for both SRI and non-SRI funds. After eliminating the outliers, screening intensity (or the number of sectoral screens) is relevant in explaining fund flows, whilst environmental screening loses significance. For both total screening intensity, or the number of sectoral and transversal screens, the "smart" money effect disappears.

Finally, for both UK conventional and SRI funds, we find additional significant variables. Notwithstanding, after removing the extreme points, the persistence in fund flows previously found for SRI funds disappears for raw returns, although it holds for risk-adjusted returns. The impact of the social variables is distinct from the complete sample, namely concerning the number of sectoral and transversal screens, environmental, social and products screens, and positive screening strategy, which are significant to determine UK SRI money flows. With regard to the "smart" *versus* "dumb" money effect, the results are alike to the ones previously obtained.

The second set of robustness tests concerns the dependent variable. Since some studies employ the absolute form of fund flows, we will replicate the previous empirical tests considering the following specification for computing flows:

$$Flow_{i,t} = TNA_{i,t} - TNA_{i,t-1}\,(1 + RM_{i,t}) \tag{3.10}$$

Considering the absolute form of flows, there are additional significant variables for the conventional global sample but, differently from the previous results, the lagged flow exhibits a positive and statistically significant coefficient. Furthermore, there is evidence that conventional investors react to the best and worst performers. For SRI funds, there are also differences in relation to the base model, mainly with regard to the lagged flow (which becomes negative and significant) and to performance dummies (SRI flows seem to react negatively to worst performers). The conclusions are very similar for risk-adjusted returns. Similar to the results obtained for the initial sample, social variables do not seem to have an impact on the flow-performance relationship, and there is not supporting evidence of a "smart" or "dumb" money effect.

For US conventional and SRI funds, using absolute flows generates differences regarding the significance of some variables, mainly with regard to the lagged flow, that has a positive (negative) impact on current flows for conventional (SRI) funds for both raw and risk-adjusted performance. Differently from our first robustness test, funds' social characteristics do not seem to affect flows, and "smart" money disappears.

European (with and without UK) and UK conventional and SRI funds also exhibit some variations in relation to the conclusions with flows in the relative version. Both kinds of funds now show a negative relation between current and past flows (when considering raw and risk-adjusted returns). For the regressions with social factors and determinants of future abnormal performance, the results are quite similar to the first set of robustness tests.

Third, in line with Spiegel and Zhang (2013), we run separate regressions for hot funds and cold funds. The authors argue that if we run regressions with hot funds (young and small funds, i.e., those with age equal or less than five years and fund size below the median in a ranking of funds according to their size within each month) and cold funds (old or large funds) in a combined sample, then the flow-performance relationship appears convex.

Our tests corroborate that there are some differences between the two types of funds, especially with regard to flows' persistence, screening characteristics and abnormal returns. Considering the whole sample, for raw returns, our results show that there is a negative relationship between current and lagged flows for conventional cold funds. We obtain similar results for SRI and conventional cold funds when taking into consideration the risk-adjusted performance. For both hot and cold SRI funds, and differently from the original results, the screening features impact flows. For the subsample of hot funds, products screens influence flows whilst, for cold funds,

there is evidence that screening intensity (or the number of sectoral screens), types of screens (particularly environmental, social, governance and products screens), positive screening, and labels have an effect on flows. With respect to future abnormal performance, there are no significant results for cold funds but hot funds exhibit a "dumb" money effect when we take into account the social variables.

For the US subsample, when considering raw returns, we find that the lagged flow has a negative impact on current flows to socially responsible hot funds. Replacing raw returns with risk-adjusted ones, this effect is also observed for conventional cold funds. Also, cold funds' flows depend on all social variables considered (hot funds show no significant results) and, when we split the US subsample into hot and cold funds, the "smart" money effect disappears.

The European sample (with and without UK) also presents some interesting results. For conventional and SRI cold funds, there is a negative relationship between past and current flows when taking into account raw returns (for risk-adjusted returns, this relationship only holds for conventional funds). The social variables affect mainly the flow-performance relationship of cold funds (although European hot funds' flows are influenced by social screens): European cold funds (whole and except UK) are affected by screening intensity, number of transversal screens, social and products screens, positive screening strategy, and labels. Additionally, European (without UK) cold funds depend on the number of sectoral screens. There is also mixed evidence that abnormal performance is affected by past flows. When we consider the whole European sample, SRI hot funds exhibit a "dumb" money effect when we consider the total screening intensity, or the number of sectoral and transversal screens, whilst SRI cold funds show a "smart" money effect for the base equation (without social variables). After excluding the UK, only hot funds benefit from a "smart" money effect (in the base model).

Ultimately, when we split the sample between hot and cold funds and consider raw returns, persistence in UK SRI fund flows disappears for hot funds, and the relationship between current and past flows becomes negative for cold funds[70]. For UK conventional funds, we find a negative (positive) and significant relationship between flow and its lag for hot (cold) funds. Nevertheless, when considering risk-adjusted performance, there is still persistence in money flows for UK SRI cold funds.

[70] Due to insufficient data, we were not able to estimate the flow-performance relationship with social variables, or the determinants of future abnormal performance, for UK SRI funds.

In short, when we exclude outliers or consider flows in the absolute version, some differences emerge in our results, namely concerning the significance of some variables of interest. Nevertheless, in general, the conclusions for the abnormal returns ("smart" *versus* "dumb" money) are broadly similar. The same occurs for the persistence found in UK SRI money flows. As expected, our evidence (at least partially) is consistent with Spiegel and Zhang (2013), in the sense that we find some differences between hot and cold funds.

3.6. Conclusions

A large body of empirical literature on the investment allocation decisions of mutual fund investors shows that conventional investors chase past top performing funds, but do not sell poor performers to the same extent. Notwithstanding, the traditional finance literature assumes conventional investors as risk-reward optimizers, while socially responsible investors seek both financial and non-financials goals, which raises the relevance of investigating the flow-performance relationship for both types of investors (Osthoff, 2016). Besides that, the performance sensitivity of SRI funds to flows may depend on the social screening mechanisms and may be geographic-specific, i.e., cultural differences may play a role in determining socially responsible money flows. The investors' fund selection ability (the decisions of investing or withdrawing money) is also a matter of debate in the financial literature. In the SRI fund segment, authors investigate if ethical money is financially "smart" (Renneboog *et al*., 2011). Thus, the purpose of this essay is to investigate the flow-performance relationship and the "smart" money effect for a sample of 253 US and European SRI funds and 759 characteristics-matched conventional funds over the period January 2003 to December 2014.

With regard to the relationship between money flows and returns for conventional and socially responsible investors, our findings for the whole sample indicate that, while socially responsible investors are sensitive to current (monthly) and past (annual) returns, conventional investors tend to consider only short-term performance in their decisions. However, when we focus on US and UK sub-samples, conventional investors also consider past returns when taking investment decisions (in particular, they react negatively to past annual returns). These results are consistent with Benson and Humphrey (2008) who state that investors apply short- and long-term performance horizons in their investment decisions.

Consistent with Cashman *et al.* (2014), our study reports significant persistence in UK SRI money flows, suggesting that socially responsible investors are more likely to allocate resources to funds they already own. Moreover, it is worth to mention that the positive effect of past flows and current flows in UK SRI funds holds for both raw and risk-adjusted returns. This type of results is in line with Landier and Nair (2009), who argue that investors who seek to engage in a dialogue with managers to address their environmental and social concerns believe that they are more likely to have an impact as shareholders, and so they continue to hold on to those shares as long as possible. Another perspective is that there is limited choice available to socially responsible investors, making it difficult to find an alternative that corresponds to their social requirements (Benson and Humphrey, 2008). Notwithstanding, we also find that, in recession market states, past flows have a negative effect on money flows to SRI funds (for raw and risk-adjusted returns) when considering the global sample, and European (whole and without UK) subsamples. The persistence in UK money flows is observed in expansion and recession periods when we use raw returns, and only for expansion periods when we consider risk-adjusted returns.

Similar to Bollen (2007), Benson and Humphrey (2008) and Renneboog *et al.* (2011), we examine if there are differences in the response of conventional and socially responsible investors to good and poor performance, i.e., we test if there is asymmetry in the flow-performance relationship as detected in previous studies. Although we detect that, for some conventional and SRI funds, flows react to best or worst performing funds, we do not find a pattern for the flows' sensitivity, and so we cannot conclude that inflows into (outflows from) socially responsible funds are more (less) sensitive to lagged positive (negative) returns when compared to conventional funds.

Like Renneboog *et al.* (2011), our empirical evidence also indicates that the flow-performance relationship depends on the social screening activities (namely intensity and types of screens) for US and European (whole and without UK) funds. Concerning US SRI funds, money flows react to returns as a result of funds' screening intensity, types of screens (environment, products, governance, and shareholder engagement), positive screening strategy, and social labels. Both European (with and without UK) subsamples exhibit a reaction to products and positive screens. In addition, European SRI money flows depend on funds' transversal screens and, when we exclude the UK, environmental screens also seem to impact flows. The subgroup of UK social investors is sensitive to funds that have been awarded with social labels. In particular, the labels

attribute has a negative impact on money flows. Thus, we partially corroborate the conclusions of Renneboog *et al.* (2011), who show that the sensitivity of SRI flows to past returns depends on the types of screens employed (namely negative screens or screens based on specific sin/ethical issues, social screens, and environmental screens). These results also support those obtained in our first essay in the sense that investors tend to incorporate social issues in their investment decisions.

Another relevant question discussed in the finance literature relates to the skills of socially responsible investors in predicting future returns. Regarding this issue of "smart" *versus* "dumb" money, our results show that US socially responsible investors seem to be able to allocate their money to funds that perform well in the future, but this "smart" money effect only exists when we do not consider social variables. For European (except UK) funds, our findings support a "smart" money effect when considering total screening intensity, or sectoral and transversal screens. Most authors argue that the "smart" money effect is a result of superior management skills whilst Wermers (2003), for example, suggests that mutual funds that receive larger flows use the money to scale up existing positions and thus push up the fund returns through their own trades. Also, for the US subsample, we find evidence that governance screens and the certification by social labels have a positive effect on future abnormal returns. Therefore, we document that future returns of European (except for UK) socially screened investment vehicles depend on the screening features, i.e., socially responsible investors value not only abnormal performance but also the possibility of investing under non-financial considerations (Lückoff, 2011). Moreover, we find evidence that the US "smart" money effect holds for expansion and recession periods, while European (without UK) subsample only shows a "smart" money effect in recession market states. Thus, similar to Shrider (2009) on conventional funds, we provide evidence that the determinants of SRI money flows depend on market conditions.

Finally, the money flows of conventional and SRI funds are also influenced by other fund characteristics that have impact across the countries/regions. We find that, in general, funds' size impacts flows negatively, i.e., smaller funds receive more flows. So, unlike Renneboog *et al*. (2008b), but consistent with a several theoretical models in the mutual fund literature (e.g., Berk and Green, 2004) we find that SRI funds are subject to decreasing returns to scale. Also, funds' expense ratio has the reverse effect for the SRI global sample, and UK SRI older funds benefit from larger flows.

Some of our conclusions differ from the mutual fund flows literature. The partially

conflicting results in comparison to well-known studies on money flows might be a consequence of analyzing distinct samples and time periods. Taking as example some well-known papers, Bollen (2007) focuses on the US over the 1961-2002 period, Benson and Humphrey (2008) study US funds from 1991 to 2005, and Renneboog *et al.* (2011) examine 17 countries from 1992 to 2003. Our sample period (2003 to 2014) is more recent, and we employ a sample of 12 countries, a smaller geographic sample in comparison to Renneboog *et al.* (2011), but wider than the US market. Given the dimension of our sample, and differently from studies that evaluate the incremental relations, we measure separately the differences between conventional and SRI funds. Thus, although we document significant results regarding flows and returns for conventional and SRI funds, all these factors may contribute to a non-similarity concerning others important findings in literature. Under these circumstances, i.e., the fact that these results need to be consolidated, future research may include a longer period of analysis, more countries (namely emergent markets from Asia and America), alternative econometric methodologies, and also incorporate behavioral factors which may be decisive for understanding the investors' reaction to past performance.

APPENDICES

Appendix 3.1. Sample of US SRI funds

Fund	NAME	ISIN/TICKER	DOMICILE
1	Alger Green Fund; A	US0155664099	USA
2	Allianzgi Global Water Fund; A	US01900A1060	USA
3	Amana Developing World Fund	US0228653079	USA
4	Amana Mutual Funds Trust Growth Fund	US0228652089	USA
5	Amana Mutual Funds Trust Income Fund	US0228651099	USA
6	American Mutual Fund; A	US0276811058	USA
7	American Trust Allegiance Fund	US0079891067	USA
8	Appleseed Fund	US90470K3703	USA
9	Ariel Appreciation Fund; Investor	US0403372065	USA
10	Ariel Focus Fund; Investor	US04035F1075	USA
11	Ariel Fund; Investor	US0403371075	USA
12	Ave Maria Catholic Values Fund	US8085302086	USA
13	Ave Maria Growth Fund	US8085303076	USA
14	Ave Maria Opportunity Fund	US8085307036	USA
15	Ave Maria Rising Dividend Fund	US8085306046	USA
16	Ave Maria World Equity Fund	US8085308026	USA
17	Azzad Ethical Mid Cap Fund	US0550602066	USA
18	Boston Common International Fund	US74316J1108	USA
19	Calvert Aggressive Allocation Fund; A	US1316186477	USA
20	Calvert Capital Accumulation Fund; A	US1316493030	USA
21	Calvert Conservative Allocation Fund; A	US1316186964	USA
22	Calvert Global Energy Solutions Fund; C	US13161P8216	USA
23	Calvert Global Equity Income; A	US1316198845	USA
24	Calvert Global Water Fund; Y	US13161P7713	USA
25	Calvert International Opportunities Fund; A	US1316498815	USA
26	Calvert Moderate Allocation Fund; A	US1316187384	USA
27	Calvert Small Cap Value Fund; A	US13161P5089	USA
28	Calvert Social Index; B	US1315827774	USA
29	Calvert Social Investment Fund Equity Portfolio; A	US1316183086	USA
30	Calvert VP SRI Large Cap Value Portfolio	US8661673074	USA
31	Calvert World Values International Equity Fund; A	US1316491059	USA
32	DFA Emerging Markets Social Core Equity Portfolio	US2332033636	USA
33	DFA International Sustainability Core 1 Portfolio	US2332031994	USA
34	DFA International Value ex Tobacco Portfolio	US23320G5475	USA
35	DFA US Social Core Equity 2 Portfolio	US2332032984	USA
36	DFA US Sustainability Core 1 Portfolio	US2332032158	USA
37	Domini Social Equity Fund	US2571321007	USA
38	Dreyfus Third Century Fund, Inc; Z	US26201E6068	USA
39	Epiphany FFV Fund; A	US29427N1037	USA
40	Eventide Gilead Fund	US62827L6829	USA

Appendix 3.1. Sample of US SRI funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
41	Fidelity Select Environmental and Alternative Energy Portfolio	US3163905744	USA
42	Firsthand Alternative Energy Fund	US3379418276	USA
43	Gabelli SRI Fund, Inc; I	US3624014086	USA
44	Green Century Equity Fund	US3927683058	USA
45	Guinness Atkinson Alternative Energy Fund	US4020315044	USA
46	LKCM Aquinas Growth Fund	US5018858754	USA
47	LKCM Aquinas Small-Cap Fund	US5018858002	USA
48	LKCM Aquinas Value Fund	US5018858838	USA
49	MFS Blended Research Core Equity Fund; R1	US55273W5417	USA
50	Neuberger Berman Socially Responsive Fund	US6412246059	USA
51	New Alternatives Fund; A	US6418681044	USA
52	New Covenant Growth Fund	US6436421019	USA
53	Northern Global Sustainability Index Fund	US6651303082	USA
54	Parnassus Core Equity Fund; Investor	US7017691012	USA
55	Parnassus Endeavor Fund	US7017658698	USA
56	Parnassus Fund	US7017651099	USA
57	Parnassus Mid Cap Fund	US7017658854	USA
58	Parnassus Small Cap Fund	US7017658771	USA
59	Pax MSCI International ESG Index Fund; Institutional	US7042237427	USA
60	Pax World Growth Fund	US7042234036	USA
61	Pax World Small Cap Fund; Institutional	US7042238177	USA
62	Portfolio 21 Global Equity Fund; Retail	US7429355883	USA
63	Praxis Growth Index Fund; A	US74006E8434	USA
64	Praxis International Index Fund; I	US74006E7022	USA
65	Praxis Small Cap Fund; A	US74006E7931	USA
66	Praxis Value Index Fund; A	US74006E6032	USA
67	Sentinel Sustainable Core Opportunities Fund; A	US81728B7266	USA
68	Sentinel Sustainable Mid Cap Opportunities Fund; I	US81728B6680	USA
69	SSgA IAM Shares Fund; N	US7849246498	USA
70	Steward Global Equity Income Fund; Institutional	US8603248548	USA
71	TIAA-CREF Social Choice Equity Fund	US87244V5003	USA
72	Timothy Plan Aggressive Growth Fund; A	US8874328136	USA
73	Timothy Plan International Fund; A	US8874326312	USA
74	Timothy Plan Large/Mid Cap Value Fund; A	US8874326072	USA
75	Timothy Plan Small Cap Value Fund; C	US8874328391	USA
76	UBS International Sustainable Equity Fund; P	US90262H3619	USA
77	Vanguard FTSE Social Index Fund; Investor	US9219103036	USA
78	Walden Mid Cap Fund	US1011568003	USA
79	Walden Small Cap Innovations Fund	US1011562063	USA
80	Washington Mutual Investors Fund; A	US9393301067	USA

Appendix 3.2. Sample of US conventional funds

FUND	NAME	ISIN/TICKER	DOMICILE
1	AB Growth & Income Fund; A	CABDX	USA
2	AB Large Cap Growth Fund; A	APGAX	USA
3	AB Portfolios: AB Growth Fund; A	AGRFX	USA
4	Aberdeen Global Equity Fund; A	GLLAX	USA
5	Aberdeen Global Natural Resources Fund; Institutional	GGNIX	USA
6	Aberdeen Select International Equity Fund; A	BJBIX	USA
7	Aberdeen US Small Cap Equity Fund; C	GSXCX	USA
8	Adirondack Small Cap Fund	ADKSX	USA
9	Advisors Series Trust: Capital Advisors Growth Fund	CIAOX	USA
10	Alger Growth & Income Fund; A	ALBAX	USA
11	Alger International Growth Fund; A	ALGAX	USA
12	Alger Mid Cap Growth Fund	AMCGX	USA
13	AllianzGI Focused Growth Fund; A	PGWAX	USA
14	AllianzGI Global Natural Resources Fund; A	ARMAX	USA
15	AllianzGI NFJ International Value Fund; A	AFJAX	USA
16	AllianzGI NFJ Large Cap Value Fund; A	PNBAX	USA
17	Alpine Equity Income Fund; Institutional	ADBYX	USA
18	American Beacon Bridgeway Large Cap Growth Fund; Institutional	BRLGX	USA
19	American Beacon Stephens Mid-Cap Growth Fund	SFMIX	USA
20	American Century Disciplined Growth Fund; A	ADCVX	USA
21	American Century Focused Growth Fund; Investor	AFSIX	USA
22	American Century Global Growth Fund; A	AGGRX	USA
23	American Century International Core Equity Fund; A	ACIQX	USA
24	American Century Large Company Value Fund; A	ALPAX	USA
25	American Independence Multi-Manager International Fund; A	IIESX	USA
26	AMG Managers Brandywine Advisors Mid Cap Growth Fund	BWAFX	USA
27	AMG Managers Cadence Mid Cap Fund	MCMYX	USA
28	AMG River Road Small Cap Value Fund; N	ARSVX	USA
29	AMG Systematic Mid Cap Value Fund	SYIMX	USA
30	Ancora Special Opportunity Fund; C	ANSCX	USA
31	API Growth Fund; L	APITX	USA
32	AT Disciplined Equity Fund; Institutional	AWEIX	USA
33	Baird LargeCap Fund; Institutional	BHGIX	USA
34	Baird MidCap Fund	BMDIX	USA
35	Baron Fifth Avenue Growth Fund; Retail	BFTHX	USA
36	Barrett Growth Fund	BGRWX	USA
37	Berwyn Cornerstone Fund	BERCX	USA
38	Biondo Growth Fund; Investor	BIONX	USA
39	Bishop Street Dividend Value Fund; I	BSLIX	USA
40	Bishop Street Strategic Growth Fund; I	BSRIX	USA
41	BlackRock All-Cap Energy & Resources Portfolio; A	BACAX	USA
42	BlackRock Energy & Resources Portfolio; A	SSGRX	USA
43	BlackRock Focus Growth Fund; A	MDFOX	USA
44	BlackRock Large Cap Growth Fund; A	MDLHX	USA
45	BlackRock Natural Resources Trust; A	MDGRX	USA
46	BMO Large-Cap Growth Fund; Y	MASTX	USA
47	BNY Mellon International Appreciation Fund; Investor	MARIX	USA
48	Brown Advisory Growth Equity Fund; Investor	BIAGX	USA
49	Buffalo Growth Fund	BUFGX	USA
50	Calamos Growth Fund; A	CVGRX	USA

Appendix 3.2. Sample of US conventional funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
51	Calamos International Growth Fund; A	CIGRX	USA
52	CAN SLIM Select Growth Fund	CANGX	USA
53	Clear Bridge Dividend Strategy Fund; A	SOPAX	USA
54	Cohen & Steers Dividend Value Fund; A	DVFAX	USA
55	Columbia Global Energy and Natural Resources Fund; Z	UMESX	USA
56	Columbia Global Equity Value Fund; W	CEVWX	USA
57	Columbia Large Cap Enhanced Core Fund; Z	NMIMX	USA
58	Columbia Select International Equity Fund; A	NIIAX	USA
59	Columbia Select Small Cap Fund; R	URLCX	USA
60	Columbia Value & Restructuring Fund; R	URBIX	USA
61	Commerce Value Fund	CFVLX	USA
62	Cullen International High Dividend Fund; Retail	CIHDX	USA
63	Cutler Equity Fund	CALEX	USA
64	Delaware International Value Equity Fund; A	DEGIX	USA
65	Delaware Small Cap Value Fund; A	DEVLX	USA
66	Delaware US Growth Fund; A	DUGAX	USA
67	Deutsche Capital Growth Fund; A	SDGAX	USA
68	Deutsche Large Cap Focus Growth Fund; A	SGGAX	USA
69	Deutsche Large Cap Value Fund; A	KDCAX	USA
70	Deutsche Small Cap Growth Fund; Institutional	SSDIX	USA
71	DFA US Large Cap Value Portfolio II; Institutional	DFCVX	USA
72	Dodge & Cox Stock Fund	DODGX	USA
73	Dreyfus Equity Income Fund; A	DQIAX	USA
74	Dreyfus Fund Incorporated	DREVX	USA
75	Dreyfus Tax Managed Growth Fund; A	DTMGX	USA
76	Dreyfus/Newton International Equity Fund; I	SNIEX	USA
77	Dunham Emerging Markets Stock Fund; A	DAEMX	USA
78	Dunham International Stock Fund; A	DAINX	USA
79	Dunham Large Cap Growth Fund; A	DALGX	USA
80	Dunham Small Cap Growth Fund; A	DADGX	USA
81	DWS Capital Growth Fund; AARP	ACGFX	USA
82	Eaton Vance Global Income Builder Fund; R	EDIRX	USA
83	Emerald Growth Fund; A	HSPGX	USA
84	Federated Equity Income Fund; A	LEIFX	USA
85	Federated MDT Large Cap Growth Fund; A	QALGX	USA
86	Fidelity Advisor Equity Income Fund; T	FEIRX	USA
87	Fidelity Advisor Global Capital Appreciation Fund; A	FGEAX	USA
88	Fidelity Advisor Growth & Income Fund; A	FGIRX	USA
89	Fidelity Advisor Growth Opportunities Fund; A	FAGAX	USA
90	Fidelity Advisor Stock Selector Small Cap Fund; A	FCDAX	USA
91	Fidelity International Value Fund	FIVLX	USA
92	Fidelity Select Air Transportation Portfolio	FSAIX	USA
93	Fidelity Select Natural Resources Portfolio	FNARX	USA
94	First Investors Select Growth Fund; A	FICGX	USA
95	FMC Select Fund	FMSLX	USA
96	FPA Paramount Fund	FPRAX	USA
97	Franklin Strategic Series - Franklin Growth Opportunities Fund; A	FGRAX	USA
98	Franklin Strategic Series - Franklin Natural Resources Fund; A	FRNRX	USA
99	Gabelli Small Cap Growth Fund; A	GCASX	USA
100	GAMCO Global Growth Fund; A	GGGAX	USA

Appendix 3.2. Sample of US conventional funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
101	GAMCO Growth Fund; A	GGCAX	USA
102	Glenmede Large Cap Growth Portfolio	GTLLX	USA
103	GMO Developed World Stock Fund; III	GDWTX	USA
104	GMO Global Equity Allocation Fund; III	GMGEX	USA
105	Goldman Sachs Capital Growth Fund; A	GSCGX	USA
106	Goldman Sachs Concentrated Growth Fund; A	GCGAX	USA
107	Goldman Sachs Growth & Income Strategy Portfolio; A	GOIAX	USA
108	Great-West MFS International Value Fund	MXIVX	USA
109	Guggenheim World Equity Income Fund; A	SEQAX	USA
110	GuideStone Growth Equity Fund; Institutional	GGEYX	USA
111	Hancock Horizon Growth Fund; Institutional	HHRTX	USA
112	Harding Loevner Institutional Emerging Markets Portfolio; I	HLMEX	USA
113	Hartford Global Capital Appreciation Fund; A	HCTAX	USA
114	Hartford Growth Allocation Fund; A	HRAAX	USA
115	Haverford Quality Growth Stock Fund	HAVGX	USA
116	Hotchkis & Wiley Large Cap Value Fund; I	HWLIX	USA
117	HSBC Growth Fund; A	HOTAX	USA
118	ICON Equity Income Fund; S	IOEZX	USA
119	ICON Industrials Fund; S	ICTRX	USA
120	ICON International Equity Fund; A	IIQAX	USA
121	Invesco Charter Fund; A	CHTRX	USA
122	Invesco Dividend Income Fund; Investor	FSTUX	USA
123	Invesco Global Low Volatility Equity Yield Fund; R	GTNRX	USA
124	Invesco Growth Allocation Fund; A	AADAX	USA
125	Invesco International Allocation Fund; A	AINAX	USA
126	Investment House Growth Fund	TIHGX	USA
127	Ivy Energy Fund	IEYAX	USA
128	Ivy Global Natural Resources Fund; A	IGNAX	USA
129	Ivy Large Cap Growth Fund; A	WLGAX	USA
130	Jackson Square Large-Cap Growth Fund	DPLGX	USA
131	Jacob Small Cap Growth Fund; Investor	JSCGX	USA
132	Janus International Equity Fund; A	JAIEX	USA
133	John Hancock Funds II - Natural Resources Fund	JINRX	USA
134	John Hancock Global Opportunities Fund; A	JGPAX	USA
135	John Hancock Select Growth Fund; A	RGROX	USA
136	John Hancock Small Cap Intrinsic Value Fund; A	JHIAX	USA
137	John Hancock US Global Leaders Growth Fund; A	USGLX	USA
138	Johnson Growth Fund	JGRWX	USA
139	JPMorgan Growth & Income Fund; A	VGRIX	USA
140	JPMorgan Intrepid Growth Fund; A	JIGAX	USA
141	JPMorgan Mid Cap Equity Fund	VSNGX	USA
142	JPMorgan Small Cap Growth Fund	JISGX	USA
143	Kinetics Global Fund	WWWEX	USA
144	Kinetics Small Cap Opportunities Fund; Institutional	KSCYX	USA
145	Lord Abbett Growth Opportunities Fund	LMGAX	USA
146	LSV Value Equity Fund; Institutional	LSVEX	USA
147	Madison Large Cap Growth Fund; B	MCPBX	USA
148	MainStay CornerStone Growth Fund; A	KLGAX	USA
149	MainStay Epoch US Small Cap Fund; A	MOPAX	USA
150	MainStay ICAP International Fund; A	ICEVX	USA

Appendix 3.2. Sample of US conventional funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
151	Manor Investment Funds - Growth Fund	MNRGX	USA
152	Marsico Growth FDP Fund	MDDDX	USA
153	MassMutual Select Blue Chip Growth Fund; A	MBCGX	USA
154	MassMutual Select Diversified International Fund; A	MMZAX	USA
155	MassMutual Select Fundamental Growth Fund; A	MOTAX	USA
156	MassMutual Select Small Cap Value Equity Fund; A	MMQAX	USA
157	MFS Research International FDP Fund	MAIQX	USA
158	Monteagle Quality Growth Fund; Institutional	MFGIX	USA
159	Nationwide Geneva Mid Cap Growth Fund	NWHVX	USA
160	Nationwide HighMark Large Cap Growth Fund; A	NWGLX	USA
161	Needham Aggressive Growth Fund	NEAGX	USA
162	Neuberger Berman International Select Fund; Institutional	NILIX	USA
163	Neuberger Berman Large Cap Disciplined Growth Fund; Investor	NBCIX	USA
164	Neuberger Berman Mid Cap Growth Fund; Institutional	NBMLX	USA
165	Nicholas Equity Income Fund; N	NNEIX	USA
166	North Country Equity Growth Fund	NCEGX	USA
167	Northeast Investors Growth Fund	NTHFX	USA
168	Nuveen Growth Fund; A	NSAGX	USA
169	Nuveen Large Cap Growth Opportunities Fund; A	FRGWX	USA
170	Nuveen Santa Barbara Dividend Growth Fund; A	NSBAX	USA
171	Nuveen Tradewinds Global All-Cap Fund; A	NWGAX	USA
172	Oak Associates Funds - White Oak Select Growth Fund	WOGSX	USA
173	Oak Ridge Large Cap Growth Fund; A	ORILX	USA
174	Oak Ridge Small Cap Growth Fund; A	ORIGX	USA
175	Oakmark Global Fund; I	OAKGX	USA
176	Oberweis International Opportunities Fund	OBIOX	USA
177	Oppenheimer Dividend Opportunity Fund; B	OSVBX	USA
178	Oppenheimer Mid Cap Value Fund	QVSCX	USA
179	Oppenheimer Portfolio Series: Equity Investor Fund; A	OAAIX	USA
180	Optimum Large Cap Growth Fund; A	OALGX	USA
181	Parametric Emerging Markets Fund; Investor	EAEMX	USA
182	Pioneer Global Equity Fund; C	GCSLX	USA
183	Pioneer Mid-Cap Value Fund	PCGRX	USA
184	Pioneer Select Mid Cap Growth Fund	PGOFX	USA
185	PNC Large Cap Growth Fund; A	PEWAX	USA
186	PNC Large Cap Value Fund; A	PLVAX	USA
187	PNC Multi-Factor Small Cap Growth Fund; A	PLWAX	USA
188	Principal International Emerging Markets Fund; C	PMKCX	USA
189	Principal LargeCap Growth Fund	PRGWX	USA
190	Profunds Industrials Ultrasector Profund; Investor	IDPIX	USA
191	ProFunds Large Cap Growth ProFund; Investor	LGPIX	USA
192	ProFunds Oil & Gas UltraSector ProFund; Investor	ENPIX	USA
193	ProFunds Oil Equipment, Services & Distribution UltraSector ProFund; Investor	OEPIX	USA
194	Prudential Growth Allocation Fund; A	JDAAX	USA
195	Prudential Jennison Growth Fund; A	PJFAX	USA
196	Prudential Jennison Natural Resources Fund; A	PGNAX	USA
197	Prudential Jennison Small Company Fund; A	PGOAX	USA
198	Putnam Fund for Growth & Income; A	PGRWX	USA
199	Putnam Global Equity Fund; R	PGLRX	USA
200	Putnam Multi-Cap Growth Fund; A	PNOPX	USA

Appendix 3.2. Sample of US conventional funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
201	RidgeWorth Ceredex Small Cap Value Equity Fund; A	SASVX	USA
202	Royce Dividend Value Fund	RYDVX	USA
203	Russell Emerging Markets Fund; A	REMAX	USA
204	Russell Global Equity Fund; A	RGEAX	USA
205	Rydex Series - Transportation Fund; Investor	RYPIX	USA
206	Salient International Dividend Signal Fund	FFIEX	USA
207	Saratoga Energy and Basic Materials Portfolio; I	SEPIX	USA
208	Saratoga Large Capitalization Growth Portfolio; A	SLGYX	USA
209	Saratoga Small Capitalization Portfolio; A	SSCYX	USA
210	Schwab Large-Cap Growth Fund	SWLSX	USA
211	Schwab Small-Cap Equity Fund	SWSIX	USA
212	SEI Institutional Managed Trust - Global Managed Volatility Fund; A	SVTAX	USA
213	SEI Institutional Managed Trust - Large Cap Growth Fund; A	SELCX	USA
214	Stadion Tactical Growth Fund; I	ETFOX	USA
215	Sterling Capital Behavioral Large Cap Value Equity Fund; A	BBTGX	USA
216	Sterling Capital Equity Income Fund; A	BAEIX	USA
217	Sterling Capital Strategic Allocation Growth Fund; A	BCMAX	USA
218	T Rowe Price Dividend Growth Fund	PRDGX	USA
219	T Rowe Price Global Stock Fund	PRGSX	USA
220	T Rowe Price Growth & Income Fund	PRGIX	USA
221	T Rowe Price Institutional Large-Cap Core Growth Fund	TPLGX	USA
222	T Rowe Price New America Growth Fund; Advisor	PAWAX	USA
223	Touchstone Capital Growth Fund; A	TSCGX	USA
224	Touchstone Growth Allocation Fund; A	TGQAX	USA
225	Touchstone Sands Capital Institutional Growth Fund	CISGX	USA
226	Transamerica Partners Institutional Large Growth	DIEGX	USA
227	Transamerica Partners Large Growth	DVEGX	USA
228	Tributary Growth Opportunities Fund; Institutional	FOGRX	USA
229	Vanguard Energy Fund	VGENX	USA
230	Victory Global Natural Resources Fund; A	RSNRX	USA
231	Virtus Enhanced Core Equity Fund; A	PDIAX	USA
232	Voya Diversified International Fund; A	IFFAX	USA
233	Voya Global Equity Fund; I	NAWIX	USA
234	Voya MidCap Opportunities Fund	NMCAX	USA
235	Wasatch Large Cap Value Fund; Investor Class Shares	FMIEX	USA
236	Wells Fargo Intrinsic World Equity Fund	EWEIX	USA
237	Westcore Small-Cap Value Dividend Fund	WTSVX	USA
238	William Blair Emerging Markets Growth Fund; Institutional	BIEMX	USA
239	William Blair Mid Cap Growth Fund	WCGNX	USA
240	Wilmington Multi-Manager International Fund; A	GVIEX	USA

Appendix 3.3. Sample of European SRI funds

FUND	NAME	ISIN/TICKER	DOMICILE
1	3 Banken Nachhaltigkeitsfonds	AT0000701156	Austria
2	Allianz Invest Nachhaltigkeitsfonds; A	AT0000A0AZV3	Austria
3	Bawag PSK Oeko Sozial Stock; A	AT0000A06Q23	Austria
4	ERSTE Responsible Stock Austria; T	AT0000706528	Austria
5	ERSTE Responsible Stock Europe Emerging; T	AT0000A09YL3	Austria
6	ERSTE Responsible Stock Europe; T	AT0000645973	Austria
7	ERSTE Responsible Stock Global; T	AT0000646799	Austria
8	ERSTE WWF Stock Climate Change; T	AT0000A054H4	Austria
9	ERSTE WWF Stock Environment; A	AT0000705660	Austria
10	Kepler Ethik Aktienfonds; A	AT0000675657	Austria
11	Kepler Oeko Energien; A	AT0000A0AMH0	Austria
12	Klassik MegaTrends; A	AT0000820139	Austria
13	S EthikAktien; T	AT0000681168	Austria
14	S Generation	AT0000A0JGB6	Austria
15	S Generation Plus	AT0000A04UC1	Austria
16	Superior 4 - Ethik Aktien; A	AT0000993043	Austria
17	Superior 6 - Global Challenges; T	AT0000A0AA78	Austria
18	TVG Zukunftsfonds; A	AT0000A05H82	Austria
19	Volksbank Ethik - Invest	AT0000708367	Austria
20	Candriam Sustainable Europe; C	BE0173540072	Belgium
21	Candriam Sustainable North America; C	BE0173901779	Belgium
22	Candriam Sustainable Pacific; C	BE0174191768	Belgium
23	Candriam Sustainable World; C	BE0946893766	Belgium
24	KBC Eco Alternative Energy	BE0175280016	Belgium
25	KBC Eco Climate Change	BE0946844272	Belgium
26	KBC Eco Fund Impact Investing	BE0175718510	Belgium
27	KBC Eco Fund Water	BE0175479063	Belgium
28	KBC Eco World	BE0133741752	Belgium
29	KBC Institutional SRI Euro Equities	BE0175761940	Belgium
30	Petercam Equities Europe Sustainable; A	BE0940001713	Belgium
31	Petercam Equities World Sustainable; B	BE0058652646	Belgium
32	Carnegie Fund - Worldwide Ethical 1; A	LU0122292328	Denmark
33	Etik Invest Human Nordiske Aktier	DK0060087476	Denmark
34	Actions Nord Sud; P	FR0010400093	France
35	Actions Planete Durable; P	FR0010429076	France
36	Allianz Citizen Care SRI; I	FR0010727792	France
37	Allianz Europe Equity Climate Transition; R	FR0010116137	France
38	Allianz Valeurs Durables; RC	FR0000017329	France
39	ALM Actions Zone Euro ISR	FR0000984346	France
40	Amundi Actions Euro ISR; P	FR0010458745	France
41	Amundi Actions Europe ISR; P	FR0000991432	France
42	Amundi Actions France ISR; I C	FR0010263491	France
43	Amundi Actions USA ISR; P C	FR0010153320	France
44	Amundi Funds - Equity Global Aqua; AE C	LU0272932475	France
45	Amundi Valeurs Durables; P	FR0000991424	France

Appendix 3.3. Sample of European SRI funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
46	AXA - Label Europe Actions; S	FR0007073713	France
47	AXA Euro Valeurs Responsables; C	FR0000982761	France
48	AXA WF Framlington Eurozone RI; A	LU0545089723	France
49	AXA WF Framlington Human Capital; AC	LU0316218527	France
50	BNP Paribas Developpement Humain; P C	FR0010077412	France
51	BNP Paribas Euro Valeurs Durables; C	FR0010137166	France
52	BNP Paribas Immobilier Responsable Classic; C	FR0010156216	France
53	BNP Paribas Retraite Responsable Horizon; I	FR0000174617	France
54	Echiquier Major	FR0010321828	France
55	Ecofi Enjeux Futurs; I	FR0010596759	France
56	Epargne Etique Actions	FR0000004970	France
57	Ethique et Partage - CCFD	FR0000970899	France
58	Federal Actions Ethiques; P	FR0000442949	France
59	Federal Planete Bleue; P	FR0010583245	France
60	Federis ISR Euro; C/D	FR0007045950	France
61	Fructi Actions Européennes; C	FR0000976292	France
62	Fructi Euro ISR	FR0010032169	France
63	HSBC Sustainable Euroland Equity; A	FR0000437113	France
64	LBPAM Responsable Actions Environnement; D	FR0010750901	France
65	LBPAM Responsable Actions Europe	FR0010940882	France
66	LBPAM Responsable Actions Monde; A	FR0010622696	France
67	LBPAM Responsable Actions Solidaire; C	FR0010871905	France
68	LCL Actions Developpement Durable Euro	FR0000989006	France
69	LCL Actions Etats-Unis ISR; C	FR0000985152	France
70	LCL Actions USA ISR	FR0000994816	France
71	LFR Euro Developpement Durable; I	FR0010526079	France
72	MACIF Croissance Durable et Solidaire; C	FR0000983819	France
73	MACIF Sélection Développement Durable MG Environnement Monde; C	FR0010508333	France
74	MAIF Investissement Responsable Europe; I	FR0010696815	France
75	MAM Human Values; C	FR0000448987	France
76	MG Croissance Durable Europe; C	FR0000971186	France
77	MG Croissance Durable France; C	FR0000427452	France
78	Mirova Global Transition Energy Equity Fund; IAE	LU0448199371	France
79	Oddo Generation Europe ESG; A	FR0000991960	France
80	OFI Euro Actions ISR; C	FR0000971160	France
81	Parvest Environmental Opportunities; C	LU0406802339	France
82	Parvest Global Environment; C	LU0347711466	France
83	Parvest Green Tigers; C	LU0823437925	France
84	Parvest Sustainable Equity Europe; C	LU0212189012	France
85	SG Actions Europe ISR; PC	FR0000444275	France
86	Allianz Global EcoTrends; A	LU0250028817	Germany
87	Allianz Global Sustainability; A	LU0158827195	Germany
88	Deka - UmweltInvest; CF	DE000DK0ECS2	Germany
89	Deutsche Invest I Clean Tech; LC	LU0298649426	Germany
90	Deutsche Invest I New Resources; LC	LU0237014641	Germany

Appendix 3.3. Sample of European SRI funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
91	DKB Oekofonds TNL	LU0355139220	Germany
92	DWS Water Sustainability Fund; LD	DE000DWS0DT1	Germany
93	DWS Zukunftsressourcen	DE0005152466	Germany
94	Invesco Umwelt and Nachhaltigkeitsfonds	DE0008470477	Germany
95	KCD - Union Nachhaltig Aktien	DE0005326532	Germany
96	LBBW Global Warming	DE000A0KEYM4	Germany
97	LBBW Nachhaltigkeit Aktien; I	DE000A0JM0Q6	Germany
98	MEAG Nachhaltigkeit; A	DE0001619997	Germany
99	Murphy & Spitz - Umweltfonds Deutschland	LU0360172109	Germany
100	terrAssisi Aktien; I	DE0009847343	Germany
101	UniNachhaltig Aktien Global	DE000A0M80G4	Germany
102	UniSector: Klimawandel; A	LU0315365378	Germany
103	Eurizon Azionario Internazionale Etico	IT0001083424	Italy
104	Candriam Equities L Sustainable Emerging Markets; C	LU0344046742	Luxembourg
105	Candriam Equities L Sustainable EMU; C	LU0344047559	Luxembourg
106	Candriam Equities L Sustainable Green Planet; C	LU0304860991	Luxembourg
107	Candriam Equities L Sustainable World; C	LU0113400328	Luxembourg
108	Candriam Fund Sustainable Equities Europe; C	LU0102766671	Luxembourg
109	DNB Fund ECO Absolute Return; A	LU0547714369	Luxembourg
110	DNB Fund Global Emerging Markets SRI; A	LU0090738252	Luxembourg
111	DNB Fund Global SRI; A	LU0029375739	Luxembourg
112	DNB Fund Renewable Energy	LU0302296149	Luxembourg
113	DNB Fund Scandinavia; A	LU0083425479	Luxembourg
114	DNB Fund Technology; A	LU0302296495	Luxembourg
115	DNB Fund TMT Absolute Return; A	LU0547714526	Luxembourg
116	Oeko-Aktienfonds	LU0037079380	Luxembourg
117	OekoWorld Klima; C	LU0301152442	Luxembourg
118	OekoWorld OekoVision Classic; C	LU0061928585	Luxembourg
119	OekoWorld Water for Life; C	LU0332822492	Luxembourg
120	SEB OekoLux	LU0036592839	Luxembourg
121	ASN Duurzaam Aandelenfonds	NL0000441301	Netherlands
122	ASN Milieu & Waterfonds	NL0000280501	Netherlands
123	NN Duurzaam Aandelen Fonds	NL0006311789	Netherlands
124	NN(L) Global Sustainable Equity; P	LU0119216553	Netherlands
125	RZL Euro Aandelenfonds	NL0000291086	Netherlands
126	Triodos Renewables Europe Fund; I	LU0254372179	Netherlands
127	DNB Global Etisk (IV)	NO0010337520	Norway
128	DNB Gront Norden	NO0010102866	Norway
129	DNB Miljoinvest	NO0010102890	Norway
130	KLP AksjeNorden Indeks	NO0010272396	Norway
131	KLP AksjeNorge	NO0010272388	Norway
132	Aktie-Ansvar Europa	SE0000735797	Sweden
133	Aktie-Ansvar Sverige	SE0000735789	Sweden
134	CB - Save Earth; R	LU0354788688	Sweden
135	Cicero SRI Sverige	SE0000731135	Sweden

Appendix 3.3. Sample of European SRI funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
136	KPA Etisk Aktiefond	SE0000885105	Sweden
137	Nordea 1 - Climate and Environment Equity; BI	LU0348927095	Sweden
138	SEB Hallbarhetsfond Global	SE0000434151	Sweden
139	Swedbank Robur Ethica Global	SE0000537680	Sweden
140	Swedbank Robur Ethica Global Mega	SE0001003864	Sweden
141	Swedbank Robur Ethica Sverige	SE0000709016	Sweden
142	Swedbank Robur Ethica Sverige Mega	SE0000987216	Sweden
143	Swedbank Robur Talenten Aktiefond Mega	SE0000542987	Sweden
144	Aberdeen Global - Ethical World Equity; A2	LU0566482674	United Kingdom
145	Aberdeen Global - Responsible World Equity; A2	LU0278938138	United Kingdom
146	CF Canlife European	GB0005632913	United Kingdom
147	CF Canlife Japanese Growth	GB0005636112	United Kingdom
148	Eden Tree Amity European; A	GB0008446626	United Kingdom
149	Eden Tree Amity International; B	GB0008449075	United Kingdom
150	Eden Tree Amity UK; A	GB0009371310	United Kingdom
151	F&C Responsible Global Equity	GB0030833650	United Kingdom
152	F&C Responsible UK Equity Growth	GB0030833981	United Kingdom
153	F&C Responsible UK Income	GB0030835580	United Kingdom
154	FP WHEB Sustainability; A	GB00B4LDCG53	United Kingdom
155	Halifax Ethical; C	GB0031811622	United Kingdom
156	Henderson Global Care Growth; A	GB0005027221	United Kingdom
157	Henderson Global Care UK Income; A	GB0005027338	United Kingdom
158	HSBC GIF Global Equity Climate Change; AC	LU0323239441	United Kingdom
159	Jupiter Ecology	GB0005812150	United Kingdom
160	Jupiter JGF Global Ecology Growth; L	LU0231118026	United Kingdom
161	Jupiter Responsible Income	GB0008337569	United Kingdom
162	Kames Ethical Equity; A	GB0007452484	United Kingdom
163	Old Mutual Ethical; A	GB00B0JZPC21	United Kingdom
164	Premier Ethical Fund; A	GB00B4VBB957	United Kingdom
165	Premier Global Utilities Income; C	GB0031637738	United Kingdom
166	Royal London Sustainable Leaders Trust; A	GB0001615102	United Kingdom
167	Royal London UK Ethical Equity; B	GB00B5B49T77	United Kingdom
168	Sarasin EquiSar Socially Responsible; A	GB00B43H4F86	United Kingdom
169	Schroder Global Climate Change; A	GB00B23DH314	United Kingdom
170	Scottish Widows Environmental Investor; A	GB0031632010	United Kingdom
171	SUNARES Sustainable Natural Resources	LU0344810915	United Kingdom
172	SVM All Europe SRI Fund; A	GB00B1FL7S17	United Kingdom
173	WAY Green Portfolio; R	GB00B3KWWT95	United Kingdom

Appendix 3.4. Sample of European conventional funds

FUND	NAME	ISIN/TICKER	DOMICILE
1	3 Banken Value Aktienstrategie	AT0000VALUE6	Austria
2	3 Banken Vorsorge Mix Wachstum	AT0000784889	Austria
3	Acatis Aktien Global Value Fonds	AT0000A0KR36	Austria
4	AFP 100 Select VA	AT0000A0AHR9	Austria
5	All Trends	AT0000746581	Austria
6	Allgemeine Sparkasse Money and Company Equity	AT0000675483	Austria
7	Allianz Invest Kapitalanlagegesellschaft Siemens Portfolio Four; T	AT0000781596	Austria
8	Amundi Global Players Equity Fund; T	AT0000A016J9	Austria
9	Amundi Kapital & Wert - Clever	AT0000744958	Austria
10	Amundi Oesterreich Plus; A	AT0000A05TE6	Austria
11	Apollo 52; T	AT0000A03KC4	Austria
12	Apollo Balkan Equity; T	AT0000A07HY5	Austria
13	Apollo Dynamisch	AT0000708771	Austria
14	Apollo European Equity; T	AT0000778568	Austria
15	Apollo Selection Global; A	AT0000654660	Austria
16	Apollo Selection Trend; A	AT0000A0FYT9	Austria
17	Apollo Styrian Global Equity A2 A	AT0000A0H312	Austria
18	BAWAG P S K Invest Advantage Stock; T	AT0000703285	Austria
19	Carl Spaengler Hypo-Star Dynm	AT0000722772	Austria
20	Carl Spaengler Skandia Top Trends	AT0000722988	Austria
21	Constantia Privatbank Moneyfruits World Index Fund	AT0000689294	Austria
22	DWS PWM Global	AT0000660360	Austria
23	DWS Vermbildfds	AT0000704176	Austria
24	Ecofin Index Aktien Global	AT0000732987	Austria
25	ESPA Best of World; T	AT0000707682	Austria
26	ESPA Stock Global Eur; A	AT0000989645	Austria
27	ESPA Stock Vienna Eur	AT0000673397	Austria
28	ESPA Vinis Stock Global; A	AT0000A01GL7	Austria
29	Europlus 50; A	AT0000802418	Austria
30	FTC Gideon I RA	AT0000A0JQ22	Austria
31	Generali Euro Stock Selection; A	AT0000810528	Austria
32	Global Return Fund VA	AT0000A0ETP0	Austria
33	Golden Roof Welt; I	AT0000A0Q768	Austria
34	Gutmann Global Dividends	AT0000A0LXV5	Austria
35	Gutmann VKB-Anlage-Mix IM Trend	AT0000703681	Austria
36	Hypo PF Kapitalgewinn; A	AT0000A08AD2	Austria
37	Hypo South Eastern Eur Opportunities	AT0000495908	Austria
38	Hypobank Weltportfolio Aktien	AT0000708318	Austria
39	Interstock; A	AT0000859855	Austria
40	Kathrein Q I K 100; A	AT0000739784	Austria
41	Kepler Fonds Kapitalanlagegesellschaft Oesterreich Aktienfonds; T	AT0000647698	Austria
42	Kepler Fonds Kapitalanlagegesellschaft Small Capital Aktienfonds; T	AT0000653670	Austria
43	Kepler Global Aktienfonds; T	AT0000722657	Austria
44	Kepler Growth Aktienfonds	AT0000607387	Austria
45	Kepler Risk Select AF A	AT0000A0NUV7	Austria
46	Kepler Value Aktienfonds; T	AT0000A0AH06	Austria
47	Klassik Invest Aktien Ideen I T	AT0000A0FVX7	Austria
48	Konzept: Ertrag Aktien Welt; A	AT0000811336	Austria
49	Meinl Eastern Europe	AT0000A05JR9	Austria
50	Meinl Exclusive World Equities	AT0000679410	Austria
51	Omikron 7; T	AT0000A04LH9	Austria
52	Optiselect Global Equity	AT0000A010J2	Austria

Appendix 3.4. Sample of European conventional funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
53	PBMP Equity Research; A	AT0000A09VB0	Austria
54	PIA Austria Stock	AT0000674908	Austria
55	PIA Energy Stock	AT0000706577	Austria
56	PIA Komfort Invest Progressiv; A	AT0000822408	Austria
57	Portfolio Aktien; T	AT0000A00EY7	Austria
58	Accent Fund Equity World Capital	BE0167678623	Belgium
59	AG Life Equities Euro Capitalisation	BE0389169054	Belgium
60	AG Life Equities Global Capitalisation	BE0945602465	Belgium
61	AG Life Equities World Capitalisation	BE0946195576	Belgium
62	AG Life Obam Equity World Capitalisation	BE6212016396	Belgium
63	AG Life Opportunities World Capitalisation	BE6212017402	Belgium
64	Amonis Equity Europe Capitalisation	BE0058026205	Belgium
65	Amonis Equity Global Large Capital Growth; I	BE0947956729	Belgium
66	Amonis Equity World Capitalisation	BE0058027211	Belgium
67	Aphilion Q2 Equities Capital	BE0058285850	Belgium
68	AXA B Fund Equity World Talents Capitalisation	BE0162031414	Belgium
69	AXA B Fund FOF Optimal Allocation Capitalisation	BE0948473070	Belgium
70	Belfius Plan Equities Capital	BE0168174739	Belgium
71	Best of Equities	BE6217899051	Belgium
72	C+F Euro Equities C DIS	BE0168477850	Belgium
73	Candriam Business Equities Europe C DIS	BE0165341539	Belgium
74	Candriam Equities B Europe Conviction C Capital	BE0945524651	Belgium
75	Candriam Equities B Leading Brands C Capital	BE0170209713	Belgium
76	Candriam Institutional European & US Equities C C	BE0166998618	Belgium
77	Centea Fund New Economy	BE0174294828	Belgium
78	Centea Fund Sectors Capital	BE0170625025	Belgium
79	Cosmos Capitalisation	BE0389131641	Belgium
80	DMM European Equity Capitalisation	BE6220820169	Belgium
81	DPAM Horizon B Active Strategy; A	BE6227495957	Belgium
82	DPAM Invest B Equities Agrivalue; A	BE0947763737	Belgium
83	DPAM Invest B Equities Euroland; A	BE0058181786	Belgium
84	Horizon Access Fund Global Trends	BE6216545093	Belgium
85	In Flanders Employment Capital	BE0175210286	Belgium
86	KBC Equity Fund Buyback America Capital	BE0168099951	Belgium
87	KBC Equity Fund High Dividend Capital	BE0940704951	Belgium
88	KBC Equity Fund Millennium Capital	BE0167243154	Belgium
89	KBC Exposure Booster Asia USD 4 Capitalisation	BE0948895413	Belgium
90	KBC Exposure Timing US 1 Capitalisation	BE0948773164	Belgium
91	KBC Index Fund Euroland; C	BE0171536403	Belgium
92	KBC Index Fund United States of America Capital	BE0166769266	Belgium
93	KBC Institutional Fund United States of America Equity Capital	BE0058442485	Belgium
94	Bank Invest Globalt Forbrug KL	DK0010266741	Denmark
95	Danske Invest Global Indeks KL	DK0010263052	Denmark
96	MS Invest Value Aktier	DK0060120863	Denmark
97	Nordea Invest PTF INV INST Eksterne Afdelinger	DK0060273852	Denmark
98	Nykredit Invest Stock Pick Aktier	DK0060127876	Denmark
99	Stock RT Invest Global Aktier Udloddende	DK0060206316	Denmark
100	29 Haussmann Croissance SG	FR0007057435	France
101	29 Haussmann Euro Opportunites; D	FR0007057427	France
102	29 Haussmann Selection Europe SG	FR0007057443	France
103	AA MMF Emerging Convictions Neulize OBC Investissements	FR0010449231	France
104	Abaris; C	FR0010153221	France

Appendix 3.4. Sample of European conventional funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
105	ABN Amro Euro Smaller Companies Equities	FR0010363846	France
106	ABN Amro French Equities; C	FR0011726850	France
107	Actions 21 A Caceis Bank	FR0010541813	France
108	Actions Croissance D Covea Finance	FR0007024021	France
109	Actions Nouvelle Europe Groupama AM	FR0010636720	France
110	Actions Selection Monde Global Multi Style P Asset Management	FR0010660993	France
111	Actions Selection Monde I CPR Asset Management	FR0010665018	France
112	Actys 1 La Poste	FR0000426652	France
113	Aeden France Croissance KBL France Gestion	FR0010092197	France
114	Aesope Act Francaise (C) Aesope Gestion	FR0007028824	France
115	Afer Actions Euro; I	FR0010505164	France
116	Afer Actions Monde	FR0010094839	France
117	Afer Flore (D) Victoire AM	FR0007024880	France
118	Afim Europe Multi Caps; C	FR0010250142	France
119	AG2R Actions Personae Agicam	FR0010503656	France
120	Agipi Actions Emergents	FR0010996611	France
121	Agipi Actions Europe	FR0010606673	France
122	Agipi Monde Durable BNP Paribas Securities Services	FR0010500603	France
123	AIM Europe Multi Caps; B	FR0010998047	France
124	Alcis Selection Pea Alcis Gestion	FR0010257527	France
125	Alienor Actions Flexible Pea Capital	FR0010701540	France
126	Alisi Asian Equities R 2I2C Asset Management	FR0010515510	France
127	Allianz Actions Emergentes; C	FR0007492749	France
128	Allianz Actions Euro C Global Investors France	FR0010004663	France
129	Allianz Actions Euro Convictions; C	FR0000449431	France
130	Allianz Actions Euro Midcap; C	FR0000449464	France
131	Allianz Actions Euro PME ETI RC	FR0000994782	France
132	Allianz IMMO C Global Investors France	FR0000011959	France
133	Allianz Multi Actions Europe Global Investors France	FR0007017389	France
134	Allocation Pea Aforge Gestion	FR0010151043	France
135	ALM Selection Monde; C	FR0010563759	France
136	Alpha Drive Eur Equities A ADI Alternative Investments	FR0007453220	France
137	Amilton Premium; R	FR0010687749	France
138	Amilton Small Caps; I	FR0010899567	France
139	Amplegest Mid Caps AC	FR0010532101	France
140	Amplegest Pricing Power AC	FR0010375600	France
141	Amundi Actions Emergents I C	FR0010556860	France
142	Amundi Actions Euro - P (C)	FR0010599373	France
143	Antaris Rotatin Sectorle Etoile Gestion	FR0010467001	France
144	Anthracite B	FR0010291179	France
145	Antinea (C) Gerer Conseil	FR0007077896	France
146	ARC Global Europe	FR0011092436	France
147	Arca Florilege (C) ING Investment	FR0007024930	France
148	Astorg Actions Europe I Groupama Asset Management	FR0000171985	France
149	Atout Euroland (D) Credit Agricole	FR0010106880	France
150	Atout Europe FCP (C) Credit Agricole	FR0010101972	France
151	Atout Monde FCP (D) Credit Agricole	FR0010106872	France
152	Auxense Actions Alpha	FR0010500322	France
153	Aviva Actions Euro Aviva Gestion D Actifs	FR0007022108	France
154	Aviva Actions Europe Aviva Gestion D Actifs	FR0007473798	France
155	Aviva France Opportunities Aviva Gestion D Actifs	FR0007385000	France
156	Aviva Investors Actions Euro E France	FR0010748335	France

Appendix 3.4. Sample of European conventional funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
157	Aviva Investors Actions Euro Gestion D Actifs	FR0007045604	France
158	Aviva Investors Small & Mid Caps Euro I	FR0010838607	France
159	Aviva Investors Valeurs Europe Gestion D Actifs	FR0007082920	France
160	Aviva Investors Valeurs Gestion D Actifs	FR0007082136	France
161	Aviva Multigestion Actions Internationales Gestion D	FR0010412171	France
162	AXA Aedificandi; I	FR0010201897	France
163	Axa Amerique Actions AD	FR0000447815	France
164	Axa Asie Actions; C	FR0000447849	France
165	Axa Europe Actions AC	FR0000170243	France
166	Axa Europe Opportunities A D Eur	FR0000170326	France
167	Axa Europe Small Cap E Eur	FR0010792671	France
168	Axa France Small Cap; D	FR0000170425	France
169	Barclays Premier Offensif	FR0010351510	France
170	Bati Actions Investissement P SMA Gestion	FR0010912550	France
171	Bati Entreprendre Asie Investimo	FR0010593673	France
172	Bati Entreprendre Emergents Investimo	FR0010593681	France
173	Bati Entreprendre Euro SMA Gestion	FR0010365213	France
174	Bati Entreprendre USA Investimo	FR0010593699	France
175	Bati Valeurs Europe SMA Gestion	FR0007071642	France
176	BBR Emergents Rogier	FR0010978197	France
177	BBR Europe (C) BBR Rogier	FR0010446096	France
178	BDL Convictions Caceis Bank	FR0010651224	France
179	Beryllium	FR0010533042	France
180	BFT France Future ED	FR0010340620	France
181	BG Long Term Value I RBC Dexia Investor Services Bank France	FR0011001023	France
182	BG Long Term Value S Boussard & Gavaudan Gestion SAS	FR0011001056	France
183	BG Long Term Value; Z	FR0010137646	France
184	BNP Paribas Account Europe 1	FR0010157875	France
185	BNP Paribas Actions PME Part Camgestion PME I	FR0011011261	France
186	BNP Paribas Acts USA (C) BNP Paribas AM	FR0010028779	France
187	BNP Paribas Aqua I PAM Asset Management	FR0010678433	France
188	BNP Paribas Energie Eur Asset Management	FR0010077461	France
189	BNP Paribas Floreal 100 Classique	FR0000980120	France
190	BNP Paribas Indice Euro - Classic (D)	FR0010536144	France
191	BNP Paribas Insertion Salaries; I	FR0010950329	France
192	BNP Paribas Midcap Europe Classic	FR0010077172	France
193	BNP Paribas Midcap France; C	FR0010616177	France
194	BNP Paribas Small Capital Euroland D	FR0010129742	France
195	BNP Paribas Valeurs Française; I	FR0010133249	France
196	Brongniart Avenir CIC	FR0010259358	France
197	Brongniart Rendement (D) CIC Asset Management	FR0010135442	France
198	BSO 3000 (C) Segipa Gestion	FR0007040712	France
199	BSO AMER (C) Segipa Gestion	FR0007479316	France
200	BSO Europe (C) Segipa Gestion	FR0007472659	France
201	BSO France I Saint Olive Gestion	FR0010386805	France
202	BSO Multigestion Saint Olive Gestion	FR0010506071	France
203	BSO Prospectif Saint Olive Gestion	FR0012969608	France
204	CA Master Europe C Amundi	FR0000973810	France
205	Camgestion Actions Croissance I Cardif Asset Management	FR0010332767	France
206	Camgestion Actions Euro Cardif Asset Management	FR0007074232	France
207	Camgestion Actions France Cardif Asset Management	FR0010155226	France
208	Camgestion Actions Rendement Cardif Asset Management	FR0007074208	France

Appendix 3.4. Sample of European conventional funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
209	Camgestion Avenir Investissement O Cardif Asset Management	FR0010177527	France
210	Camgestion Deep Value; O	FR0010772020	France
211	Camgestion Emerging BRIC Camgestion	FR0007445119	France
212	Carmignac Investissement; E	FR0010312660	France
213	Cogefi Europe (C) Cogefi Gestion	FR0007079132	France
214	Cogefi Prospective FCP P Gestion	FR0010762518	France
215	Comgest Magellan	FR0000292278	France
216	Comgest Monde; I	FR0011007251	France
217	Commosphere; A	FR0010689349	France
218	Conservateur Unisic (C) Assurances Mutuelles	FR0010038257	France
219	Convictions Europactive B AM	FR0010745810	France
220	CPR Europe - P (D)	FR0010619916	France
221	CPR Gear Emergents; I	FR0010922641	France
222	CPR Global Equity All Regime; O	FR0010593871	France
223	Craigston Euro Equities Craigston Finance	FR0010117499	France
224	Credit Mutuel Actions Euro D CIC Asset Management	FR0010361022	France
225	Croissance PME M Aviva Investors France	FR0007037817	France
226	Darwin Diversifie 80-100 C	FR0010551457	France
227	Decouvertes (D) Eurofin Gestion	FR0007430806	France
228	Decouvertes C HMG Finance	FR0010601971	France
229	Delubac Pricing Power; P	FR0010223537	France
230	Denim B	FR0007077052	France
231	Diamant Bleu Actions Rendement; P	FR0010962647	France
232	Direct Integral AXA Investment Managers Paris	FR0010671511	France
233	DNCA Value Europe; I	FR0010884361	France
234	Edmond De Rothschild Europe Sinergy USD F Asset Management	FR0011076207	France
235	Edmond De Rothschild Europe Value and Yield F Asset Management	FR0011075209	France
236	Edmond De Rothschild Global Value; B	FR0010781385	France
237	Edmond De Rothschild Multigest Amerique; C	FR0010547810	France
238	Europe Rendement; B	FR0010781310	France
239	Fidelity Europe	FR0000008674	France
240	HSBC Special Situations Europe	FR0000982456	France
241	Mandarine Valeur M Gestion	FR0010606814	France
242	Mandarine Valeur; R	FR0010554303	France
243	Maxima C Amaika Asset Management	FR0010917229	France
244	Metropole Selection (C) Metropole Gestion	FR0007078811	France
245	Oddo Avenir Europe CR-EUR	FR0000974149	France
246	Oddo Immobilier CI-Eur	FR0010251124	France
247	Oddo US Mid Cap; E	FR0010680538	France
248	Saint Honore Euro Leaders; B	FR0010896209	France
249	Saint Honore Europe Midcaps; B	FR0010998112	France
250	Saint Honore Europe Synergie; B	FR0010891192	France
251	Selective Europe; B	FR0010998161	France
252	Ssga World Index Equity Fund; I	FR0010208538	France
253	Theam Quant Equity US Covered USD; A	FR0010611327	France
254	Theam Quant Equity US Guru A USD	FR0010971648	France
255	Tobam Anti Benchmark World Equity Fund; A	FR0010973180	France
256	Acatis Aktien Global Fonds UI C	DE000A0YBNM4	Germany
257	Ampega Gerling Investment	DE000A0NGJ10	Germany
258	Ampega Investment CT Welt Portfolio AMI	DE000A0DNVT1	Germany
259	Ampega Investment Global Equity Top Selection	DE0007248643	Germany
260	AXA Investment Managers Deutschland Welt	DE0008471376	Germany

Appendix 3.4. Sample of European conventional funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
261	Baden Wuerttembergische Kapitalanlagegesellschaft W W Dachfonds Globalplus	DE0005326334	Germany
262	Baden Wuerttembergische Kapitalanlagegesellschaft W W Quality Select Aktien Welt	DE0005326326	Germany
263	BWK Baden Wuerttembergische Fonds Portfolio Rohstoffe Resources	DE0005326482	Germany
264	CS Macs Global Equity; P	DE000A0M64E3	Germany
265	D&R TA Deutsche Aktien; P	DE000A0NEKH7	Germany
266	Deka Investment Globalchampions CF	DE000DK0ECU8	Germany
267	Deka Investment Spezial TF	DE000DK1A408	Germany
268	Delta Lloyd Investment Managers Comfortinvest Chance	DE0002605318	Germany
269	Deutsche AM Smart Industrial Technologies	DE0005152482	Germany
270	DWS Investment Globale Sterne	DE0005152441	Germany
271	First Private Aktien Global; A	DE000A0KFRT0	Germany
272	Flossbach Von Storch Fundament	DE000A0HGMH0	Germany
273	Fondak I Eur	DE000A0MJRM3	Germany
274	Frankfurt Trust Investment Al FT Chance	DE000A0H0PH0	Germany
275	Frankfurt Trust Investment Gesellschaft Managed Portfolio Opportunities	DE000A0NEBL8	Germany
276	Frankfurt Trust R1 Value Portfolio	DE000A0MURC1	Germany
277	FT Unternehmer Werte	DE000A0KFFW9	Germany
278	Hansainvest Hanseatische Investment Eniso Forte; E	DE000A0RHHA2	Germany
279	Hansainvest Hanseatische Investment Gesellschaft Hi Top Select; D	DE0009817726	Germany
280	Hansainvest Hanseatische SI Bestselect	DE000A0MP268	Germany
281	Hansainvest MUP Verm Gensverwal Horizont10	DE000A0M2H70	Germany
282	Helaba Invest Kapitalanlagegesellschaft HT Individual; W	DE000A0RCCX6	Germany
283	Inovesta Classic	DE0005117493	Germany
284	Keppler Lingohr Global Equity	DE000A0JDCH4	Germany
285	Landesbank Berlin Investment Best Invest 100	DE0005319826	Germany
286	Landesbank Berlin Investment Keppler Global Value LBB Invest	DE000A0JKNP9	Germany
287	Landesbank Berlin Investment Private Banking Premium Aktiendachfds	DE0005320022	Germany
288	Metzler Investment Expert Select	DE0009787598	Germany
289	Metzler Investment GMBH Premium Aktien Global; B	DE000A0Q2TT2	Germany
290	Monega Fairinvest Aktien	DE0007560849	Germany
291	Monega Kapitalanlagegesellschaft Innovation	DE0005321020	Germany
292	Nordcon Global Chall Index FDS	DE000A0LGNP3	Germany
293	Oppenheim Kapitalanlagegesellschaft Advisor Global	DE0005547160	Germany
294	Pioneer Investments Aktien Rohstoffe L EUR	DE000A0JDPS3	Germany
295	Pioneer Investments Kapitalanlagegesellschaft German Equity	DE000A0RL2F6	Germany
296	Siemens Weltinvest Aktien	DE0009772624	Germany
297	UBS Brinson Investment D Key Select Fund Global Equities	DE0008488214	Germany
298	Union Investment Privatfonds Unifavorit Aktien	DE0008477076	Germany
299	Universal Investment Aktien Opportunity UI	DE000A0Q2SK3	Germany
300	Universal Investment Aktiv Chance	DE000A0JEK49	Germany
301	Universal Investment Collegium Portfolio II	DE000A0MQ977	Germany
302	Universal Investment Gesellschaft mbH Berenberg Eur Equity Selection; R	DE000A1C2XN2	Germany
303	Universal Investment Gesellschaft Morgen Portfolio Universal Fonds	DE0008490723	Germany
304	Universal Investment Tiberius Exploration Fund	DE000A0J3UF6	Germany
305	Warburg Invest Kapitalanlagegesellschaft Zukunft Strategie FDS	DE0006780265	Germany
306	Westlb Mellon Asset Management Embrica Aktien Select	DE000A0NAL20	Germany
307	Anima Forza 5 A	IT0001352084	Italy
308	Euromobiliare Azioni Internazionali; A	IT0001049755	Italy
309	Fondo Alto Internazionali Azion Accumulation	IT0001338489	Italy
310	AB FCP I - Global Value Portfolio; I	LU0128316923	Luxembourg
311	AB SICAV I - Thematic Research Portfolio; I	LU0069063542	Luxembourg
312	Aberdeen Global Emerging Markets Equity C2 Accumulation	LU0355302315	Luxembourg

Appendix 3.4. Sample of European conventional funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
313	Aberdeen Global Services SIC Technology Fund S2	LU0476877211	Luxembourg
314	Aberdeen Global Technology I2	LU0231481374	Luxembourg
315	Aberdeen Global World Equity A2 Accumulation	LU0094547139	Luxembourg
316	Aberdeen World Resources S2	LU0505784297	Luxembourg
317	ABN Amro MMF FOM European Equities A Capital	LU0321538794	Luxembourg
318	Akragas UCITS SICAV Heracles Fund CC	LU0628581331	Luxembourg
319	Allianz Dresdner Asset Management Luxembourg Agif RCM Global Equity; A	LU0101244092	Luxembourg
320	Allianz GEM Equity High Dividend	LU0293314216	Luxembourg
321	Allianz Global Investment Fund RCM Agricultural Trends; C	LU0342689089	Luxembourg
322	American Express Funds World Equities	LU0096362180	Luxembourg
323	Amundi Funds Equity Emerging Focus - IU (C)	LU0319685342	Luxembourg
324	Amundi Funds Equity Global Resources - MU (C)	LU0347593914	Luxembourg
325	Artico Dynamic Flagship	LU0638828441	Luxembourg
326	Artico Sicav - Artico Global Core QI	LU0638827807	Luxembourg
327	AXA WF Framlington Global I C	LU0503939414	Luxembourg
328	AXA WF II Global Masters Equities A D	LU0011972584	Luxembourg
329	Bel Air Top Global Equity; C	LU0322874925	Luxembourg
330	Belgrave Capital Management Vitruvius Growth Opportunities	LU0372199835	Luxembourg
331	Berenberg Systematic Approach - Global Stockpicker Fund; B	LU0267932894	Luxembourg
332	BGF Global Opportunities; D2	LU0368270509	Luxembourg
333	BL Global Equities Capital	LU0117287580	Luxembourg
334	Blackrock Global Funds Luxembourg Dynamic Equity X2	LU0331284876	Luxembourg
335	Blackrock ML Investment Managers Luxembourg IIF Global Opportunities C2	LU0147402100	Luxembourg
336	Blackrock ML Investment Managers Luxembourg IIF New Energy C2	LU0147411861	Luxembourg
337	Blakeney Investors A Capital	LU0060539474	Luxembourg
338	Caceis Margin of Safety Fund 1 A Capital	LU0152376942	Luxembourg
339	Candriam Equities L EMU C Capital	LU0317020898	Luxembourg
340	Candriam Quant Equities EMU C Capital	LU0267558830	Luxembourg
341	Candriam Quant Equities World C Capital	LU0235267860	Luxembourg
342	Capital Group Global Equity (LUX); X	LU0118859858	Luxembourg
343	Capital International Emerging Markets Fund; B	LU0100551489	Luxembourg
344	Carls Fund Management Company DnB Nor Eco Absolute Return A EUR	LU0547714286	Luxembourg
345	Deutsche Postbank Asset Management Dynamic Vision; T	LU0130393993	Luxembourg
346	Fidelity Funds Euro Blue Chip Fund A Accumulation	LU0251128657	Luxembourg
347	Fidelity World; E	LU0115769746	Luxembourg
348	Flossbach Von Storch Global Equity; R	LU0366178969	Luxembourg
349	Goldman Sachs Emerging Markets Equity Portfolio E Accumulation	LU0133267202	Luxembourg
350	Invesco European Growth Equity A Accumulation	LU0194779913	Luxembourg
351	MFS Meridian Funds - Global Concentrated Fund A1	LU0219441572	Luxembourg
352	Morgan Stanley Eur Value Equity Fund; A	LU0073234501	Luxembourg
353	Pictet Fixed Income Fund Water; P	LU0104884860	Luxembourg
354	Pictet Funds LUX Global Megatrend Selection; P	LU0386885296	Luxembourg
355	Robeco European Conservative Equity; I	LU0312333569	Luxembourg
356	Schroder International Selection Fund Eur Special Situations B Accumulation	LU0246036288	Luxembourg
357	Schroder International Selection QEP Global Quality C Accumulation	LU0319795521	Luxembourg
358	Schroder Investment Management Luxembourg ISF Emerging Markets C Accumulation	LU0106252546	Luxembourg
359	Schroder Investment Management Luxembourg ISF Global Active Value C Accumulation	LU0203346498	Luxembourg
360	T Rowe Eur Equity; A	LU0285830955	Luxembourg
361	ABN Amro Funds Beleggingsmodel Fonds 6	NL0000766061	Netherlands
362	ACH Wereld AANDFD3	NL0006259996	Netherlands
363	Aegon Equity Fund	NL0006354243	Netherlands
364	Aegon Paraplufonds I Wereld Index Aandelen Fonds Capitalisation	NL0009415298	Netherlands

Appendix 3.4. Sample of European conventional funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
365	Aegon World Equity Fund Capital	NL0000685477	Netherlands
366	Allianz Duurzaam Wereld Aandelen Fonds	NL0009497965	Netherlands
367	BGF Global Dynamic Equity A2	LU0238689110	Netherlands
368	BNP Paribas OBAM NV	NL0006294035	Netherlands
369	BNP Paribas Strategie Fondsen Multi Manager Profiel Fonds 6 C	NL0000604759	Netherlands
370	Duurzaam Wereldfonds	NL0010623047	Netherlands
371	Friesland Aandelenfonds	NL0010558813	Netherlands
372	Insinger De Beaufort Multi Manager International Equity	NL0000284883	Netherlands
373	NN Aandelen Fonds Capital	NL0010622692	Netherlands
374	Robeco Duurzaam Aandelenfonds	NL0000288843	Netherlands
375	Robeco Group Institutional Conservative Equity	NL0000686707	Netherlands
376	Robeco Institutioneel Wereldwijd Aandelen Fonds; I	NL0000208601	Netherlands
377	SNS Optimaal Paars	NL0010579181	Netherlands
378	Sns Wereld Aandelenfonds	NL0010579124	Netherlands
379	Alfred Berg Humanfond	NO0010032055	Norway
380	Alfred Berg Nordic Best Selection	NO0010089527	Norway
381	Danske Invest Norske Aksjer Institusjon; I	NO0010047228	Norway
382	Delphi Fondene Norden	NO0010039670	Norway
383	DnB Nor Kapitalforvaltning Norden II	NO0008001658	Norway
384	DNB Norden	NO0010335805	Norway
385	Eika Spar	NO0010003999	Norway
386	Holberg Norden	NO0010072945	Norway
387	Holberg Norge	NO0010073224	Norway
388	Nordea Plan 100	NO0010392640	Norway
389	Odin Forvaltning AS Maritim	NO0008000015	Norway
390	Odin Norden; C	NO0008000155	Norway
391	Pareto Nordic Value; A	NO0010545353	Norway
392	Skagen Global; A	NO0008004009	Norway
393	Skagen Vekst; A	NO0008000445	Norway
394	AMF Sverige PN	SE0000739195	Sweden
395	Avanza Zero	SE0001718388	Sweden
396	Carlson QuantGlobal	SE0000622631	Sweden
397	Catella Sverige Index; A	SE0000577272	Sweden
398	Danske Invest Europa SE	SE0000569667	Sweden
399	Didner & Gerge Aktiefond	SE0000428336	Sweden
400	Enterkapital Enter Sverige	SE0000813917	Sweden
401	Handelsbanken Astra Zeneca Allemansfond	SE0000900169	Sweden
402	Handelsbanken Sverige/Varlden	SE0000992869	Sweden
403	HQ Sverige Select	SE0002098442	Sweden
404	Nordea Institutionella Aktiefonden Europa UTD	SE0001018102	Sweden
405	Nordnet Aggressiv	SE0002757039	Sweden
406	Ohman Utlandsfond; A	SE0000432791	Sweden
407	SEB Asset Management Aktiespar	SE0000984130	Sweden
408	SEB Asset Management Stiftelse Utland	SE0000691776	Sweden
409	SEB Asset Management Strategi Global	SE0001066333	Sweden
410	SEB Asset Management Sverige	SE0000775298	Sweden
411	SEB Dynamisk Aktiefond	SE0000775348	Sweden
412	SEB Private Banking Global	SE0002159913	Sweden
413	SEB Sverige Expanderad	SE0000984197	Sweden
414	Skandia Fonder AB SF Sverige	SE0000810913	Sweden
415	Skandia Fonder AB SF Time Global	SE0001112715	Sweden
416	Skandia Fonder AB SF Utland Offensiv	SE0001519141	Sweden

Appendix 3.4. Sample of European conventional funds (continued)

FUND	NAME	ISIN/TICKER	DOMICILE
417	Sparbanken Global	SE0002623876	Sweden
418	Swedbank Robur Aktiefond Pension	SE0000602278	Sweden
419	Swedbank Robur Allemansfond IV	SE0000538910	Sweden
420	Swedbank Robur Folksam Global Aktie	SE0000891889	Sweden
421	Swedbank Robur Folksam LO Varlden	SE0000540627	Sweden
422	Swedbank Robur Folksam Tjanstemannafond Varlden	SE0000615908	Sweden
423	Swedbank Robur Globalfond	SE0000539439	Sweden
424	Swedbank Robur Globalfond Mega	SE0000542839	Sweden
425	Swedbank Robur IP Aktiefond	SE0000542979	Sweden
426	Swedbank Robur Kapitalinvest	SE0000996241	Sweden
427	Swedbank Robur Premium Offensiv	SE0001108721	Sweden
428	Swedbank Robur Privatiseringsfond	SE0000538977	Sweden
429	Swedbank Robur Sverigefond	SE0000996233	Sweden
430	Aberdeen AM Life & Pension Builder; B	GB0003916417	United Kingdom
431	Aberdeen AM Life & Pension Global Growth 1 GR	GB0030287428	United Kingdom
432	Aberdeen AM Life & Pension UK Small Company; F	GB0009055814	United Kingdom
433	Aberdeen Asset Managers Limited UK Growth; E	GB0006013063	United Kingdom
434	Aberdeen Capital	GB0004268008	United Kingdom
435	Aberdeen European ex-UK Equity A Accumulation	GB0032146820	United Kingdom
436	Aberdeen Global Equity A Accumulation	GB0032147455	United Kingdom
437	Aberdeen Global UK Equity A2 Accumulation	LU0011963757	United Kingdom
438	Aberdeen Life Asia Pacific Equity	GB00B1C6SZ34	United Kingdom
439	Aberdeen Life Euro Equity Growth	GB00B1C6T274	United Kingdom
440	Aberdeen Multi Manager Constellation Portfolio R Accumulation	GB0030672173	United Kingdom
441	Aberdeen Multi Manager Select Boutiques A Accumulation	GB00B2941R03	United Kingdom
442	Aberdeen UK Equity Dividend A Income	GB0033318378	United Kingdom
443	Aberdeen UK Opptys Equity A Accumulation	GB0032143140	United Kingdom
444	Alico Aberdeen Emerging Markets	GB0005722425	United Kingdom
445	Alico PPB Jupiter Income PN GBP	GB0030764178	United Kingdom
446	Alico PPB Jupiter UK Growth PN GBP	GB0030763097	United Kingdom
447	Alico TGSB Jupiter UK Growth PN	GB0030787922	United Kingdom
448	Aviva Jupiter UK Growth S7 - PEN	GB00B0ZKBT09	United Kingdom
449	Aviva Life & Pensions UK Limited Aberdeen Multi Asset S4	GB0032332230	United Kingdom
450	AXA Sun Life Aberdeen Japan Growth P2	GB00B28SVB77	United Kingdom
451	AXA Sun Life Aberdeen Life Global Growth P2	GB00B28SVG23	United Kingdom
452	AXA Sun Life Jupiter UK Growth	GB00B2QXTJ88	United Kingdom
453	Baring Global Agriculture; A	GB00B3B9VC56	United Kingdom
454	Canada Life Jupiter Income Trust LS4	GB00B23K0F52	United Kingdom
455	Canada Life Jupiter UK Growth PS4	GB00B23JNC07	United Kingdom
456	Canlife Jupiter Merlin Growth Portfolio LS4-LF	GB00B3MVLG43	United Kingdom
457	Canlife Jupiter Merlin Worldwide Portfolio LS3-LF	GB00B5ZT8K24	United Kingdom
458	CF Bentley US Dollar	GB00B0XQ3L61	United Kingdom
459	Clerical Medical Investment IOM Adventures Managed	GB00B02GQ072	United Kingdom
460	CMI INS IOM G Euro Top 50	GB00B02GQQ30	United Kingdom
461	Discovery Managed Growth Eur	GB00B1G2HF02	United Kingdom
462	Fidelity Life Insurance Limited Aberdeen Global Growth CL4 A	GB00B23NCL45	United Kingdom
463	IM Argonaut European Alpha I Accumulation	GB00B6T6S066	United Kingdom
464	Jupiter European Income	GB0006664683	United Kingdom
465	Jupiter Financial Opportunities	GB0004790191	United Kingdom
466	Jupiter Global Emerging Markets; I	GB00B4PF5918	United Kingdom
467	Jupiter Growth & Income	GB0001577351	United Kingdom
468	Jupiter Income	GB0004791389	United Kingdom

Appendix 3.4. Sample of European conventional funds (continued)

469	Jupiter Merlin Growth Portfolio Income	GB0003629150	United Kingdom
470	Jupiter Merlin Worldwide Income	GB0003699831	United Kingdom
471	Jupiter Monthly Income	GB0009500207	United Kingdom
472	Jupiter UK Growth Income	GB0004792130	United Kingdom
473	Jupiter UK Special Situations Income	GB0004777347	United Kingdom
474	Jupiter Undervalued Assets Accumulation	GB0003237418	United Kingdom
475	Legal & General Jupiter Merlin	GB00B0ZQ8N10	United Kingdom
476	Legal & General Jupiter Merlin Growth Portfolio	GB00B0H4K266	United Kingdom
477	Legal & General Life Jupiter Eur Special Situations	GB00B0NNH269	United Kingdom
478	LVFS Limited Jupiter Japan Income Pension	GB00B3BM1J17	United Kingdom
479	LVFS Limited Jupiter UK Growth PN.S2	GB00B63S5411	United Kingdom
480	M&G Global Basics C Eur	GB0030932783	United Kingdom
481	M&G Global Select A Euro Accumulation	GB0030938145	United Kingdom
482	M&G Japan C EUR	GB0030938699	United Kingdom
483	M&G Recovery C EUR	GB0032139809	United Kingdom
484	Merchant Investors Jupiter Merlin Growth Portfolio S8 PN	GB00B1J32L13	United Kingdom
485	Metlife Jupiter Global Managed	GB00B1RPY466	United Kingdom
486	Metlife Jupiter UK Growth	GB00B1RGL371	United Kingdom
487	Neptune European Opportunities A Accumulation	GB00B60T5P82	United Kingdom
488	Neptune Global Equity C Accumulation	GB00B60T5N68	United Kingdom
489	OMW Aberdeen European Equity - PEN	GB00B0SYF756	United Kingdom
490	OMW Aberdeen Multi Manager Constellation Portfolio - PEN	GB00B09MSC47	United Kingdom
491	OMW Aberdeen Multi Manager Equity MGD SP-PEN	GB00B09MSK21	United Kingdom
492	OMW Aberdeen World Equity - PEN	GB0033332973	United Kingdom
493	OMW Jupiter European SP-PEN	GB0033356469	United Kingdom
494	OMW Jupiter Income - PEN	GB0002736311	United Kingdom
495	OMW Jupiter Merlin Growth - Life	GB00B1L56V34	United Kingdom
496	OMW Jupiter Merlin Worldwide - PEN	GB00B1L57216	United Kingdom
497	OMW Jupiter UK Growth - PEN	GB0002736758	United Kingdom
498	OMW Jupiter UK Special Situations - PEN	GB0002736972	United Kingdom
499	Prudential Assurance Company Jupiter Merlin Growth Portfolio 5	GB00B3BWSC34	United Kingdom
500	Prudential Assurance Company Jupiter Merlin Worldwide Portfolio 5	GB00B3BWSH88	United Kingdom
501	Prudential Assurance Company Jupiter UK Growth 5	GB00B3BW6185	United Kingdom
502	RLP Jupiter Financial Opportunities - PEN	GB00B68M6P63	United Kingdom
503	RLP Jupiter Merlin Worldwide Portfolio - PEN	GB00B680S543	United Kingdom
504	Sarasin International Equity Income Accumulation	GB00B3SL2R61	United Kingdom
505	Scottish Widows Aberdeen Eur Smaller Companies	GB0030875495	United Kingdom
506	Scottish Widows Aberdeen UK Growth S2 PN	GB0030836661	United Kingdom
507	Scottish Widows Jupiter UK Growth Series 2	GB00B032DM50	United Kingdom
508	Standard Life Assurance Jupiter Merlin Growth S4 PN	GB00B3K60424	United Kingdom
509	Standard Life Assurance Jupiter Merlin Worldwide S4 PN	GB00B3K60648	United Kingdom
510	Sterling Assurance Jupiter Undervalued Assets	GB00B03GVB21	United Kingdom
511	Winterthur Life Aberdeen Emerging Markets	GB00B4N51C86	United Kingdom
512	Winterthur Life Jupiter UK Growth 4	GB00B3DBJ927	United Kingdom
513	Winterthur Life UK Jupiter High Income 3	GB00B0Z3SL02	United Kingdom
514	Winterthur Life United Kingdom WL Jupiter Income	GB0002411113	United Kingdom
515	Zurich Aberdeen UK EQ ZP-PEN	GB0033770024	United Kingdom
516	Zurich Assurance Limited Sterling Aberdeen Emerging Markets	GB00B5P06P68	United Kingdom
517	Zurich Assurance STG Aberdeen UK EQ Income Plus	GB0033840462	United Kingdom
518	Zurich Assurance STG Jupiter Income	GB0031480592	United Kingdom
519	Zurich Assurance STG Jupiter UK Growth	GB0031480717	United Kingdom

CHAPTER 4 – RISK-SHIFTING IN THE SOCIALLY RESPONSIBLE MUTUAL FUND INDUSTRY: TOURNAMENT VERSUS STRATEGIC BEHAVIOR

4.1. Introduction

The behavior of mutual fund managers has been subject to considerable academic research particularly because, as rational agents, they are supposed to adjust their actions according to the incentives they face (Ammann and Verhofen, 2009). For instance, there are several authors that, from a theoretical point of view, focus on agency conflicts in the mutual fund industry, with emphasis on asymmetric information between mutual fund managers and investors, and compensation schemes. Our main interest relies on managers' behavior pattern concerning the risk-return binomial, i.e., how managers adjust funds' risk in response to their past returns.

In the financial literature, there are two main contrasting views regarding how portfolio managers adapt their investment behavior to economic incentives. According to the competition hypothesis, the mutual fund industry can be viewed as a competition among managers aiming to finish in the best possible place at the year-end (tournament behavior). In turn, the interaction hypothesis (in the sense of taking into account the actions of the others) assumes interaction between active fund managers (strategic behavior). Existing empirical studies have failed to deliver clear evidence on this topic. On the one hand, some authors find evidence that managers of "loser" funds (funds with returns below the median) during the first months of the year increase their total risk during the rest of the year relative to higher performing funds (e.g., Brown *et al.*, 1996; Koski and Pontiff, 1999; Schwarz, 2012), supporting the tournament behavior. On the other hand, some papers document that it is intra-year "winners" that actively alter the risk in response to past performance (e.g., Chevalier and Ellison, 1997; Qui, 2003; Taylor, 2003), consistent with strategic behavior.

So, the purpose of this third essay is to test the tournament and strategic hypotheses in the SRI fund industry. We investigate the pattern in SRI fund managers' risk-taking behavior by answering the question of whether managers of SRI portfolios likely to end up as "losers" will manipulate risk differently than those managing SRI portfolios likely to be "winners". It is well known that managers give considerable attention to fund performance, as there is extensive evidence that high performing funds attract larger money flows from investors, resulting in a

higher compensation for the manager. Nevertheless, the financial literature still discusses the moral hazard problems associated with managers' compensation schemes, particularly if fund managers act according to their private benefits, or in investors' best interest. As Brown *et al*. (1996) point out, the mutual fund industry, by putting so much attention on relative fund performance that is evaluated on an annual basis, may as a matter of fact turn managers' goals from a long-term to a short-term horizon. Since the philosophy of responsible investing is mainly long-term oriented, we perform a comprehensive analysis of SRI fund managers' behavior concerning risk as a response to past returns (i.e., how they react and which factors drive their behavior).

We will also evaluate the tournament and strategic behavior hypotheses of SRI funds according to their ethical strategy focus, namely concerning screening intensity, types of screens (environment, social, governance, products, and shareholder engagement), sectoral and transversal screens, positive screening strategy, and social labels. Given that socially responsible practices currently have strong societal visibility and reputational impact, funds' screening features may present additional pressure for management to deliver results. Previous research that has been devoted to the relationship between the screening process and financial performance shows that the number and type of screens employed by SRI funds (e.g., Barnett and Salomon, 2006; Renneboog *et al*., 2008b), the positive screening strategy (e.g., Humphrey and Lee, 2011) and the application of sectoral and transversal screening criteria (e.g., Capelle-Blancard and Monjon, 2014) have an effect on financial returns of SRI funds. To the best of our knowledge, this is one of the first studies analyzing competition in the context of the SRI fund industry.

Additionally, we will analyze if conventional and SRI fund managers behave differently, i.e., if managers of conventional and SRI funds adjust risk in the same direction as a response to past performance. On the one hand, the fact that managers of non-SRI funds are mainly profit-driven (they only consider risk and return in their utility function), whereas managers of SRI funds also recognize the importance of ESG issues in the investment decision-making process, may support different risk-taking behavior. On the other hand, if the compensation of mutual fund managers is mainly short-term based, their risk-adjustment behavior may be similar to that of conventional fund managers.

This essay adds to the literature in several ways. First, we provide an interesting setting to examine the tournament *versus* strategic behavior issue, by including conventional and SRI equity mutual funds from the US and Europe over 2003 to 2014. Previous studies in the field have mainly

focused on US and UK conventional fund markets. To the best of our knowledge, this is the first investigation on the competition behavior of SRI funds in the US and a large set of European markets. To date, Marco *et al.* (2011) is the only paper to examine the risk-taking behavior of SRI fund managers in response to past performance, but their analysis is restricted to the British and Italian markets. Second, an important contribution of this essay is that it is the first one to incorporate screening characteristics in the analysis and thus, to provide insights on the impact of screening strategies on risk-shifting.

For the 2003 to 2014 period, our study empirically shows that conventional fund managers tend to present a strategic behavior pattern, i.e., managers of "winner" funds (funds with the highest ranking in the first part of the year) are the ones who increase risk the most. Differently, when we focus on SRI fund managers, we observe a tournament behavior pattern for the global sample and US subsample, and mixed evidence for European (with and without UK) subsamples. However, after introducing social screening features in the models, this behavior pattern turns out to be strategic. For UK SRI funds, our tests show that managers exhibit a tournament behavior. In other words, managers of "loser" funds (funds with the worst ranking in the first part of the year) increase the level of risk in the second part of the year to a greater extent than managers of "winner" funds. Additionally, we also find evidence that the screening characteristics impact SRI managers' attitude towards risk. Particularly, some types of screens (environment, governance, and shareholder engagement) intensify the level of risk exposure, while the application of sectoral and positive screens contribute to risk reduction. Concerning SRI labels, we observe a dual effect: a positive impact for US funds, and a negative one for European (whole and except UK) and UK funds.

4.2. Prior research

4.2.1. How do managers adjust risk in reaction to relative performance?

There is extensive research on the effect of past performance on mutual fund managers' attitude towards risk, particularly concerning conventional funds, and with emphasis on whether managers behave as they are competing in a tournament, or engaging in strategic behavior. The central prediction of the tournament hypothesis formulated by the seminal paper of Brown *et al*.

(1996) is that funds with below median returns during the first months of the year ("losers") increase their risk during the rest of the year relative to the higher performing funds ("winners"). Nevertheless, there are other theoretical arguments that suggest more complex hypotheses, and empirical results opposite to those found by Brown *et al*. (1996). For example, subsequent research by Chevalier and Ellison (1997) documents contrasting evidence to Brown *et al.* (1996), suggesting that it is "winners" rather than "losers" who gamble, a finding supported by Qui (2003) and Taylor (2003), among others. Taylor (2003) further shows that the choice of the benchmark is determinant for the response of managers, while Busse (2001) considers that the tournament behavior is conditional on the frequency of data. Additionally, Kempf and Ruenzi (2008) defend that the size of the fund management company impacts the risk taken by fund managers.

4.2.2. Tournament behavior

The extension of the tournament model to the fund management industry began with Brown *et al.* (1996). Their seminal paper, considering monthly returns of 334 growth-oriented mutual funds during 1976 to 1991, reports empirical evidence that managers with poor relative performance in the first part of the year trade securities to increase the return of their portfolios during the latter part of the year (i.e., managers increase risk in an attempt to boost fund returns). By increasing fund volatility, mid-year "losers" increase their probability of finishing the tournament among the end of year "winners" (Busse, 2001). The authors attribute this behavior to fee contracts that base managers' compensation on the total amount of assets under management. This explanation is intrinsically related with the phenomenon analyzed in our second essay (namely the asymmetric response of money flows to performance), and the well-known evidence that high-performing funds receive large inflows, but funds that underperform are not penalized with outflows to the same extent. Brown *et al.* (1996) also demonstrate that these results are robust with respect to the timing of the interim performance review as well as any "window dressing" effects that may occur in the month of December.

In a relatively similar direction, Busse (2001) finds the same pattern of tournament behavior documented by Brown *et al*. (1996) for 230 domestic US equity funds from 1985 through 1995. However, the author shows that the conclusions of Brown *et al*. (1996) are only supported when using monthly returns. When using daily returns, Busse (2001) was unable to find evidence

that intra-year "winners" or "losers" actively shifted the risk of their portfolios in reaction to past performance. Furthermore, Busse (2001) finds that a large portion of a fund's intra-year change in risk arises from changes in the volatility of common stock market risk factors, suggesting that very little is attributable to the deliberate actions of the fund manager. Goriaev *et al.* (2005) corroborate the results of Busse (2001) that there is weak evidence of the tournament hypothesis. Nevertheless, the authors show that the cross-correlation in fund returns may lead to spurious tournament effects for both monthly and daily returns, and that the tests of the tournament hypothesis based on monthly data are more robust to autocorrelation effects than tests based on daily data.

For the US market, Koski and Pontiff (1999) and Schwarz (2012) are two studies that also document a negative relation between a fund's risk and prior performance. Koski and Pontiff (1999) analyze how derivatives affect the relation between past performance and risk. The authors propose an alternative explanation to managerial incentive gaming (as put forward by Brown *et al.*, 1996 and Chevalier and Ellison, 1997, among others), namely that managers may respond slowly to new cash flows. After a strong performance, new cash flows into a fund, causing fund risk to decrease until managers fully invest that cash. Likewise, after a poor performance, investors redeem shares, and fund risk increases as managers borrow to meet redemptions. Using a sample of 679 US equity mutual funds, the results of Koski and Pontiff (1999) show that change in risk is significantly related to prior performance, and that these changes are consistently less severe for derivative users. In particular, change in risk is negatively related to prior interim performance within one calendar year. Notwithstanding, change in fund risk during the early part of one year is significantly positively related to fund performance during the end of the prior year.

Employing US data from 1990 to 2006, Schwarz (2012) shows that it is the sorting process typically used in prior studies that is driving the results. The authors argue that when they correct for the sorting bias using a methodology based on portfolio holdings, low performing managers during the first part of the year increase the risk of their portfolios in the second half of the year. Furthermore, they find that the tournament behavior over the 1990 to 2006 period is unrelated to the median mutual fund return in the first half of the year. Karoui and Meier (2015a) replicate the paper of Schwarz (2012) for a large sample of US domestic equity mutual funds and confirm the need to control for the sorting bias. In fact, they also find that regressing variation in risk over the second part of the year on performance ranks over the first part of the year generates biased results.

However, the authors also show that introducing risk over the first part of the year in the regression approach is an efficient way to correct sorting bias.

In a quite different line of research, Karoui and Meier (2015b) investigate whether changes in fund risk derive from portfolio holdings or managers' actions. Using data on 5,565 actively managed US equity mutual funds during 1991 to 2010, the authors show weak evidence of tournament behavior. In particular, they find that volatility gap variations (a proxy for managers' actions) only marginally contribute to the tournament process (fund managers actively alter the portfolio weights but their control over risk-shifting is limited).

Other two studies – Acker and Duck (2006) and Jans and Otten (2008) – examine the tournament hypothesis for UK funds. To incorporate the idea of taking bets (either with or against the market), and using data for UK investment trusts over the period 1997 to 2001, Acker and Duck (2006) predict that "losing" managers will adopt extreme portfolios (portfolios that consist mainly of shares, i.e., involving very low or very high market exposure), and to a higher extent the further behind the fund is and the nearer the ranking date is. The authors find that UK investment trusts do indeed exhibit tournament behavior, and that "losing" managers choose a high/low market exposure depending both on anticipated market movements, and on whether they have sufficient assets to take advantage of a rising market.

The conclusions of Jans and Otten (2008) for 422 UK equity mutual funds from 1989 to 2003 are two-fold. First, using the entire sample period, no consistent evidence for tournament behavior is found. Second, splitting the sample period into two sub-periods reveals an interesting pattern: significant evidence for tournament behavior during the first part of the sample period (1989-1996), and significant support for strategic behavior during the second part of the sample period (1997-2003).

In a distinct approach, which incorporates the role played by employment and compensation incentives in the fund managers' risk-taking behavior, Kempf *et al.* (2009) reach a dual conclusion. Employing information on portfolio holdings of US equity mutual funds and stock returns from 1980 to 2003, the authors conclude that these incentives are decisive in determining the managerial risk-taking behavior. Specifically, compensation incentives lead managers with a poor midyear performance to increase risk to catch up with the midyear winners, whilst employment incentives lead managers with a poor midyear performance to decrease risk relative to leading managers to prevent potential job loss. Popescu and Xu (2017) confirm these

results but for the period between 1980 and 2010, as they find that "loser" ("winner") funds are likely to increase (decrease) risk in bull markets, while the opposite occurs in bear markets.

4.2.3. Strategic behavior

Chevalier and Ellison (1997) are one of the first studies to present contrasting evidence to the tournament hypothesis. The authors estimate the shape of the relationship between performance and new fund flows because it may create incentives for fund managers to increase or decrease the risk of the fund. Using monthly returns, they find that higher January-September excess returns are clearly correlated with larger risk increases.

The results of Chevalier and Ellison (1997) are consistent with the theoretical developments of Taylor (2003), who suggests that the choice of the tournament benchmark for deciding "winners" and "losers" will influence strategic responses by participants. Essentially, Taylor (2003) argues that using an exogenous benchmark will induce "losing" managers to gamble while "winning" managers will lock their lead. In contrast, using an endogenous benchmark, such as the median fund performance, will induce "winning" managers to gamble. The intuition behind this result is that the "winner" will expect the "loser" to gamble (based on tournament hypothesis) so the "winner" will therefore gamble in order to maintain the lead. As the "loser" recognizes that the "winner" has a higher probability of success, and given the asymmetric nature of the flow-performance relationship, the "loser" also recognizes that the optimum strategy is not to gamble. Therefore, previous results that were first interpreted as evidence against tournament hypothesis might well be explained as strategic behavior instead (Hallahan *et al*., 2008).

The evidence of Qiu (2003) is consistent with the hypothesis of Taylor (2003). Analyzing US growth-oriented funds from 1992 to 1999, and using both a contingency table test and semi-parametric regression analysis, the author shows that managers of "loser" funds adjust their portfolios' risk lower than do those of "winner" funds, in what the author interprets as the "*winner takes it all*" phenomenon (i.e., a strong incentive for the fund managers to be the top manager).

Furthermore, for a sample of US equity funds from 2001 to 2005, Ammann and Verhofen (2007, 2009) find that performance in the first half of the year has, in general, a positive impact on the choice of the risk level in the second half of the year. Successful fund managers increase volatility, beta, and assign a higher proportion of their portfolio to value stocks, small firms, and

momentum stocks in comparison to unsuccessful fund managers. Unsuccessful fund managers only increase, on average, the tracking error. The authors give a two-sided explanation that combines the models of Lynch and Musto (2003) for unsuccessful managers, and Berk and Green (2004) for successful managers: first, poor performing managers follow a more passive strategy to minimize the risk of their own future replacement; second, successful managers take more risk, because they have become more confident in their own skills.

Following a similar line of reasoning (use of additional risk measures beyond returns' volatility) and employing data on US mutual funds during 1962 to 2006, Chen and Pennacchi (2009) document a tendency for underperforming fund managers to increase the standard deviation of the tracking error, but not the standard deviation of returns.

The studies of Hallahan *et al*. (2008), Hallahan and Faff (2009) and Elton *et al*. (2010) also support Taylor's (2003) risk-shifting hypothesis for financial year-end tournaments, i.e., they find that good (poor) interim performers tend to increase (decrease) risk. Hallahan *et al.* (2008) explore the tournament effect in the behavior of Australian superannuation fund managers over the period 1989-2004. In particular, the authors conduct comparative tests of the Brown *et al.* (1996) and Taylor (2003) versions of the risk-shifting hypothesis. The findings support the hypothesis formulated by Taylor (2003) of a positive association between interim performance and risk-shifting for the financial year tournaments. Employing Australian multi-sector growth funds for the 1989-2001 period and applying a non-parametric methodology, Hallahan and Faff (2009) also find evidence in favor of Taylor's model: when an exogenous benchmark is used, the support is particularly evident for the calendar-year analysis; viewed as a whole, the analysis involving endogenous benchmarks is also quite supportive. Finally, focusing on 215 domestic US stock mutual funds during the period 1994 to 2005, Elton *et al.* (2010) study the phenomenon of tournament behavior using a methodology based on monthly holdings data and two different measures of risk – beta and standard deviation. The authors conclude that mutual funds with high return in the first part of the year increase risk while low return funds decrease risk.

Marco *et al.* (2011) conduct a similar analysis to Kempf *et al*. (2009), focusing on ethical funds and their conventional peers in the British and Italian markets. In the preliminary analysis, the authors find weak evidence of strategic behavior in British conventional global equity funds and the absence of prior performance having any influence on risk-taking behavior. However, by explicitly considering employment incentives, they observed strategic behavior in both

conventional and ethical mutual funds, and for both the Italian and British markets. The authors also conclude that ethical investment portfolios managers enjoy greater freedom for shifting their risk exposure compared to conventional counterparts.

Furthermore, investigating US mutual funds over the period January 1991-June 2006 and distinguishing intentional changes from changes that occur through trades for other reasons (and that may cause mean reversion of risk), Cullen *et al.* (2012) note that there is no evidence of a relationship between past performance and changes to return variance or tracking error variance when considering funds that deliberately trade to change risk.

4.3. Research hypotheses

Rational managers attempting to maximize their expected compensation may revise the composition of their portfolios depending on their relative performance during the year (Brown *et al*., 1996). Thus, a large number of studies in Finance have focused on the search of a pattern in this risk-shifting behavior of fund managers. Some studies find that it is interim "losers" who appear to increase risk the most in subsequent periods – the tournament hypothesis (Brown *et al*., 1996; Koski and Pontiff, 1999; Acker and Duck, 2006; Schwarz, 2012) whereas others find interim "winners" adopting this behavior – the strategic behavior hypothesis (Chevalier and Ellison, 1997; Qiu, 2003; Taylor, 2003; Elton *et al*., 2010). We will analyze how SRI fund managers adjust risk as a response to prior returns, and we will also compare their behavior with the behavior of conventional fund managers. Since SRI funds incorporate social concerns beyond the simple pursue of financial gains, it is quite reasonable to assume that their pattern of risk-shifting behavior may be different. Thus, we established two competing testable hypotheses for both SRI and conventional funds:

Hypothesis 1a: Managers of "losing" funds in the first part of the interim assessment period will increase portfolio risk in the second part of the interim assessment period (tournament hypothesis).

Hypothesis 1b: Managers of "winning" funds in the first part of the interim assessment period will increase portfolio risk in the second part of the interim assessment period (strategic behavior hypothesis).

Turning to SRI funds' idiosyncrasies, we will evaluate if certain screening characteristics influence the risk-taking behavior of SRI fund managers. Similar to our previous essays, the empirical investigation comprises several aspects of the screening process likely to affect returns and hence the managers' behavior with regard to the risk-return binomial: screening intensity, type of screens (environment, social, governance, products, and shareholder engagement), sectoral and transversal screens, screening signal (positive *versus* negative), and labels. Along these social dimensions, managers may be induced to exhibit a different risk-taking behavior depending on the firm's social responsibility policy. For example, if some component of executive compensation is linked to social responsibility, the screening process may influence the risk-taking by managers to boost performance and, hence, their earnings.

Regarding funds' screening intensity and its impact on performance, there are two distinct views widely discussed in SRI research, based on modern portfolio theory and stakeholder theory. On the one hand, following modern portfolio theory (Markowitz, 1952), the imposition of social screens limits a manager's ability to diversify, implying that the portfolio's risk is higher and that risk-adjusted returns are sacrificed. On the other hand, in line with stakeholder theory (Freeman, 1984), companies are responsible towards all stakeholders. According to this perspective, the implementation of social responsibility practices is a mechanism that allows to integrate all stakeholders' interests in the company's strategy, thereby signaling information on management quality. Following these lines of reasoning, we establish the following hypothesis:

Hypothesis 2: The screening intensity affects the risk-taking behavior of SRI fund managers in the second part of the interim assessment period.

Socially responsible funds vary not only on the intensity of their social screening, but also in the types of screens they employ. Previous research (e.g., Barnett and Salomon, 2006; Renneboog *et al.* 2008b; Laurel, 2011) finds evidence of specific screens impacting the performance of SRI funds. Therefore, we will apply the screening criteria adopted by US SIF – The Forum for Sustainable and Responsible Investment, according to which SRI funds may use 16 screens (classified in five major categories – environment, social, governance, products, and shareholder engagement) to filter firms from their investment portfolios, and postulate the next hypotheses:

Hypothesis 3a: Environmental screening (e.g., screens related with climate/clean tech, or pollution/toxics) influences the risk-taking behavior of SRI fund managers in the second part of the interim assessment period.

Hypothesis 3b: Social screening (e.g., screens related with community development, or labor relations) influences the risk-taking behavior of SRI fund managers in the second part of the interim assessment period.

Hypothesis 3c: Governance screening (e.g., screens related with board issues, or executive pay) influences the risk-taking behavior of SRI fund managers in the second part of the interim assessment period.

Hypothesis 3d: Products screening (e.g., screens related with alcohol, gambling, or tobacco) influences the risk-taking behavior of SRI fund managers in the second part of the interim assessment period.

Hypothesis 3e: Shareholder engagement screening (e.g., screens related with filling shareholder resolution, or private dialogue concerning ESG issues) influences the risk-taking behavior of SRI fund managers in the second part of the interim assessment period.

Following Capelle-Blancard and Monjon (2014), who advocate that the only damaging exclusion criteria for SRI investors are those who target specific sectors (sectoral screens), and not those that apply to all firms (transversal screens), we will distinguish between sectoral and transversal screens. This distinction may be relevant and have a different impact on the binomial risk-return. Thus, we hypothesize the following:

Hypothesis 4: The application of sectoral and transversal screens impacts the risk-taking behavior of SRI fund managers in the second part of the interim assessment period.

Furthermore, screens applied by funds may be positive (in that they select certain desirable firms into the portfolio) or negative (in that they eliminate entire industries and sectors from a

portfolio), implying a trade-off between selectivity and diversification. Previous papers in SRI literature (e.g., Humphrey and Lee, 2011; Nofsinger and Varma, 2014; Leite and Cortez, 2015) show that the screening strategy (positive *versus* negative) may impact performance differently. We thereby postulate the next hypothesis:

Hypothesis 5: The enforcement of a positive screening strategy has an effect on the risk-taking behavior of SRI fund managers in the second part of the interim assessment period.

Finally, bearing in mind the conclusions of our previous essays, we will also analyze if the certification by social labels may influence fund managers' attitude towards risk. Social labels are an instrument to guide investors on the funds' commitment to observing ESG standards in the investment process. These labels are attributed by independent entities with the purpose of providing investors with more information and more transparency on SRI products[71]. We thus hypothesize:

Hypothesis 6: The certification by social labels affects the risk-taking behavior of SRI fund managers in the second part of the interim assessment period.

4.4. Data and methods

4.4.1. Sample description

Our sample covers conventional and SRI equity mutual funds from the US and 11 European countries (Austria, Belgium, Denmark, France, Germany, Italy, Luxembourg, Netherlands, Norway, Sweden, and United Kingdom) over the period 2003 to 2014. Although ethical investment is currently a global phenomenon, US and Europe are still the most relevant markets around the world in terms of number of funds and assets under management. The GSIA, an alliance of well-known sustainable investment organizations (like US SIF or EUROSIF), reports about 23 trillion dollars of assets under management at the start of 2016, of which Europe accounts about

[71] Considering that the denomination of a fund as SRI is self-assigned by the fund itself, there are concerns that this denomination may be more of a marketing tool (Utz and Wimmer, 2014). Thus, the purpose of social labels is to ensure investors that the fund is actually following the stated social screens.

53%, while the US accounts for 38%.

Information on the number and types of social screens of US funds is mainly obtained from the Mutual Fund Performance Chart at the end of 2014, and SRI Trends Reports from US SIF[72]. Additionally, we also check the funds' prospectuses and websites, and the US SEC files. Regarding Europe, we focus on the countries analyzed by reports and studies from Vigeo Eiris. To collect data on screening, we first construct a list of funds based on a search of certain keywords on Datastream (e.g., socially responsible investment, ethical, green, religious), and then crossed the list with the funds' fact sheets available on the yourSRI website. These fact sheets disclose information on investment objectives, SRI classification (screens and social labels), and investment profile of SRI funds. Based on the SRI subsample, we construct a matched sample of conventional funds (for each SRI fund, we select three conventional funds) based on fund size and age.

As mentioned by Brown et *al.* (1996), disappearance is more likely to be associated to underperforming funds and therefore the results of the tournament hypothesis may be biased if only surviving funds are considered. To minimize those effects, we consider both surviving and non-surviving funds[73].

Following prior research (e.g., Jans and Otten, 2008), the tournaments are evaluated on an annual basis, and a fund is only included in a certain year if at least a full year of data is available, starting the first of January. This implies that in each year all funds with less than 12 monthly returns a year are excluded. Furthermore, a critical issue in this field of research is the periodicity of the returns data, namely the use of daily or monthly returns. For example, Busse (2001) argues that autocorrelation in daily fund returns can bias monthly volatility estimates, leading to the spurious appearance of a tournament effect. Nonetheless, Goriaev *et al.* (2005) find that tests of the tournament hypothesis based on monthly data are more robust to autocorrelation effects than tests based on daily data, although they also find that cross-correlation in fund returns may lead to spurious tournament effects. Thus, we chose to employ monthly observations of returns and, as funds within the same investment style exhibit higher cross-correlation of fund returns, we mitigate the critique of Goriaev *et al.* (2005) by including equity funds with different Lipper categories. The returns are extracted from CRSP (US funds) and Datastream (European funds) and, in order

[72] We checked US SIF reports published in 2001, 2003, 2005, 2007, 2010 and 2012.
[73] Nevertheless, we cannot ensure that we were able to identify all dead funds.

to avoid duplication, only one class of each fund is considered. Accordingly, our database, described in detail in our second essay, contains the monthly returns of 253 SRI funds and 759 conventional funds from the US and Europe over the period between January 2003 and December 2014.

Tables 4.1.A, 4.1.B and 4.1.C report the descriptive statistics concerning the monthly returns of our sample (SRI and conventional funds) by geographic region (global, US and Europe). Both when we focus on the global sample, or when we split the sample between US and European funds, the tables show a similar evolution over time of the returns of conventional and SRI funds. Nevertheless, it is worth mentioning that in 4 of the 12 years considered (2006, 2009, 2012, and 2013), SRI funds outperformed (in average) conventional funds for either US and European markets.

Table 4.1.A. Descriptive statistics of SRI and conventional funds' monthly returns

This table reports the descriptive statistics (mean, maximum, minimum, median and standard deviation) of monthly returns for 253 SRI and 759 conventional funds. The statistics are computed for each of the year covered by our research (2003-2014) and across funds.

			Monthly Returns				
	Year	**Nr. Observations**	**Mean**	**Maximum**	**Minimum**	**Median**	**Standard Deviation**
Socially responsible funds	2003	1,332	0.025177	0.226446	-0.098105	0.022197	0.043733
	2004	1,476	0.012610	0.428841	-0.105069	0.013466	0.034506
	2005	1,560	0.007645	0.131806	-0.110743	0.005566	0.031987
	2006	1,692	0.019360	0.757269	-0.105339	0.02005	0.036176
	2007	1,788	0.009446	0.554226	-0.108971	0.007522	0.036428
	2008	2,124	-0.042728	0.230240	-0.355035	-0.028752	0.092090
	2009	2,508	0.028199	0.284126	-0.177840	0.029944	0.081353
	2010	2,628	0.008849	0.259766	-0.203034	0.008089	0.068075
	2011	2,844	-0.009533	0.197612	-0.300264	-0.003916	0.064516
	2012	3,024	0.013694	2.627437	-0.696749	0.019995	0.084202
	2013	3,036	0.021402	2.411972	-0.155457	0.022303	0.056506
	2014	2,916	-0.000826	0.126074	-0.714677	0.005169	0.040918
Conventional funds	2003	3,792	0.017876	0.205543	-0.128307	0.019240	0.043311
	2004	4,104	0.010336	0.145526	-0.112426	0.01177	0.028923
	2005	4,548	0.015800	0.277444	-0.171433	0.018403	0.034234
	2006	5,316	0.011833	0.224827	-0.140624	0.014219	0.032010
	2007	6,240	0.00566	0.442837	-0.172497	0.007459	0.034130
	2008	6,912	-0.038419	0.203039	-0.493275	-0.022679	0.073073
	2009	7,476	0.025095	0.378698	-0.240679	0.031404	0.066201
	2010	7,908	0.013265	0.229134	-0.271516	0.016990	0.047431
	2011	8,568	-0.006827	0.378099	-0.915996	-0.004933	0.050434
	2012	9,048	0.011333	0.266476	-0.98991	0.014869	0.044421
	2013	8,916	0.016484	4.848619	-0.709361	0.017559	0.068388
	2014	8,748	0.005913	0.153612	-0.162476	0.008813	0.031230

Table 4.1.B. Descriptive statistics of US SRI and conventional funds' monthly returns

This table reports the descriptive statistics (mean, maximum, minimum, median and standard deviation) of monthly returns for US funds: 80 SRI and 240 conventional funds. The statistics are computed for each of the year covered by our research (2003-2014) and across funds.

			Monthly Returns				
	Year	**Nr. Observations**	**Mean**	**Maximum**	**Minimum**	**Median**	**Standard Deviation**
Socially responsible funds	2003	408	0.021581	0.123821	-0.051339	0.019969	0.032406
	2004	456	0.008899	0.112458	-0.085246	0.008020	0.026697
	2005	480	0.006102	0.089550	-0.060127	-0.000396	0.030227
	2006	564	0.011427	0.140705	-0.065574	0.012183	0.026097
	2007	600	0.005417	0.114627	-0.085973	0.003643	0.030186
	2008	708	-0.034393	0.230240	-0.344986	-0.02351	0.090210
	2009	852	0.027673	0.284126	-0.175897	0.030072	0.082156
	2010	864	0.014092	0.145022	-0.203034	0.024702	0.058438
	2011	900	-0.003537	0.189444	-0.300264	0.005866	0.060620
	2012	948	0.015429	2.627437	-0.696749	0.017145	0.128435
	2013	960	0.025377	2.411972	-0.065829	0.023927	0.084335
	2014	960	-0.000286	0.117737	-0.714677	0.010252	0.049952
Conventional funds	2003	1,524	0.023444	0.205543	-0.081695	0.018857	0.036944
	2004	1,620	0.011193	0.141145	-0.112426	0.013148	0.031128
	2005	1,848	0.009049	0.277444	-0.141119	0.006223	0.034494
	2006	2,316	0.010742	0.212889	-0.131201	0.013513	0.032937
	2007	2,676	0.010218	0.132555	-0.099927	0.011361	0.033240
	2008	2,820	-0.040480	0.197080	-0.493275	-0.026506	0.077941
	2009	2,820	0.027509	0.332521	-0.230105	0.035947	0.065911
	2010	2,820	0.014991	0.229134	-0.271516	0.025650	0.059156
	2011	2,844	-0.002652	0.378099	-0.311195	-0.005644	0.057916
	2012	2,832	0.011494	0.146166	-0.180687	0.017887	0.038985
	2013	2,796	0.021467	0.184339	-0.070117	0.024997	0.028869
	2014	2,772	0.004157	0.153612	-0.162476	0.007231	0.033420

Table 4.1.C. Descriptive statistics of European SRI and conventional funds' monthly returns

This table reports the descriptive statistics (mean, maximum, minimum, median and standard deviation) of monthly returns for European funds: 173 SRI and 519 conventional funds. The statistics are computed for each of the year covered by our research (2003-2014) and across funds.

			Monthly Returns				
	Year	**Nr. Observations**	**Mean**	**Maximum**	**Minimum**	**Median**	**Standard Deviation**
Socially responsible funds	2003	924	0.026764	0.226446	-0.098105	0.023908	0.047819
	2004	1,020	0.014270	0.428841	-0.105069	0.017106	0.037368
	2005	1,080	0.008330	0.131806	-0.110743	0.009100	0.032729
	2006	1,128	0.023326	0.757269	-0.105339	0.026253	0.039701
	2007	1,188	0.011481	0.554226	-0.108971	0.010409	0.039058
	2008	1,416	-0.046896	0.195863	-0.355035	-0.030981	0.092766
	2009	1,656	0.028469	0.251885	-0.177840	0.02949	0.080960
	2010	1,764	0.006281	0.259766	-0.186597	-0.004774	0.072205
	2011	1,944	-0.012309	0.197612	-0.286799	-0.009694	0.066074
	2012	2,076	0.012901	0.201055	-0.175890	0.020760	0.052904
	2013	2,076	0.019564	0.130998	-0.155457	0.021743	0.037045
	2014	1,956	-0.001091	0.126074	-0.132261	0.003530	0.035669
Conventional funds	2003	2,268	0.014135	0.188049	-0.128307	0.019552	0.046745
	2004	2,484	0.009776	0.145526	-0.111574	0.010805	0.027382
	2005	2,700	0.020420	0.091354	-0.056138	0.024949	0.033281
	2006	3,000	0.012675	0.083424	-0.076416	0.014778	0.031255
	2007	3,564	0.002238	0.074455	-0.073013	0.004165	0.034393
	2008	4,092	-0.036998	0.110938	-0.201689	-0.019917	0.069493
	2009	4,656	0.023634	0.189587	-0.138403	0.028540	0.066341
	2010	5,088	0.012308	0.111750	-0.084746	0.014792	0.039433
	2011	5,724	-0.008902	0.106390	-0.128534	-0.004743	0.046134
	2012	6,216	0.01126	0.103105	-0.097364	0.013808	0.046692
	2013	6,120	0.014208	0.086300	-0.061433	0.014591	0.080105
	2014	5,976	0.006727	0.064556	-0.069659	0.009373	0.030129

4.4.2. Risk and returns

In this study, we will apply two methodologies – contingency tables and regression analysis – to evaluate the relationship between prior returns and subsequent risk.

With regard to the contingency tables approach, we will employ two variables regarding returns and risk, namely the cumulative return and risk adjustment ratio, respectively. In general, the cumulative return is a measure based on funds' monthly returns (calculated for each year), while the risk adjustment ratio quantifies the funds' volatility (or standard deviation)[74]. Since we consider five cut-off points in terms of midyear periods (as we will explain later), we will establish five rankings by year for each group of funds (conventional and SRI). Furthermore, the rankings will be drawn up globally, and by geographical regions (US, Europe, Europe except UK, and UK).

Slightly differently, in regression analysis, and similar to Kempf *et al.* (2009) and Marco *et al*. (2011), we will use raw monthly returns as basis[75], and calculate the position that a fund *i* occupies in the ranking at the end of the first part of the year *t*. Similar to the contingency tables approach, rankings will be defined for the global sample, and geographical subsamples (US, Europe, Europe except UK, and UK). A fund ranking is computed by comparing the total returns obtained by the fund at the end of the first part of the year relative to total returns of the competing funds. Funds are ordered from greatest to least total return, and assigned a number in descending order. For example, if we have a group of five funds, we will assign number 5 to the fund with the highest return, and number 1 to the fund with the lowest return. In order to be able to compare the results and given that the number of funds varies between years and countries, rankings are normalized to be equally distributed between zero and one. In other words, managers of funds which have shown the best performance will have a ranking closer to one, while managers of those that performed the worst will have a ranking closer to zero. Managers with a ranking below 0.5 are classified as midyear "losers", whilst managers with a ranking not below 0.5 are classified as midyear "winners". Like Marco *et al.* (2011), risk is computed through the annualized standard deviations of monthly returns.

[74] Section 4.4.5.1 describes in detail the construction of these two variables.
[75] Kempf *et al.* (2009) justify the use of performance ranks based on raw returns instead of risk-adjusted returns with the argument that investors mainly care about ranks when making the investment decisions.

4.4.3. Social variables

Following the line of reasoning of our first and second essays, we will employ in the regression analysis variables that we consider to reflect distinct dimensions of social screening, namely screening intensity, screening types, positive screening strategy, and labels.

The variable screening intensity is measured as the number of screens applied by each fund (between 1 and 16), while screening types are dummy variables which represent five types of screening criteria. Both variables are based on US SIF categorization, who defines 16 screens pooled by 5 categories: environment (screens related to climate, clean technology, pollution, toxics and other environmental issues), social (screens associated with community development, diversity and equal employment, human rights, labor relations and Sudan), governance (screens that account for board and executive pay issues), products (screens that exclude companies involved in alcohol, animal welfare, defense/weapons, gambling and tobacco products) and shareholder engagement. As an alternative to total screening intensity, and to test hypothesis 4, we use the number of sectoral screens (screens that exclude entire sectors), and the number of transversal screens (screens that apply to all firms). Sectoral screens vary from 1 to 8, and transversal screens from 1 to 4. The positive screening variable is quantified as the number of positive screens (screens that seek to provide incentives in the form of investment for companies that act in a socially responsible manner) employed by each fund, while labels is a dummy variable that assumes the value of 1 if a fund has been certified with at least one social label.

As previously mentioned, for US funds the information on the social variables (except for the dummy labels) was collected from the US SIF Mutual Fund Performance Chart at the end of year 2014, as well as from the funds' prospectuses and websites, and SEC files. For European funds, the data was obtained from the yourSRI fact sheets. From this source we also retrieved data for the social labels awarded to US funds.

4.4.4. Control variables

Concerning the regression approach, in line with our previous essays and empirical research, we will also investigate the impact of additional factors that might influence the behavior of fund managers, specifically age, size and expense ratio. By way of example, Qiu (2003) and

Hallahan *et al.* (2008) control for age and size, whilst Kempf *et al*. (2009) also explore the effect of the expense ratio.

With regard to age, Hallahan *et al.* (2008) argue that younger funds have a greater incentive and greater freedom to chase returns in comparison to older funds. According to the authors, investors will be presumably more influenced by poor short-term performance for a fund with a short performance history than for a fund that has been around for some time. In what concerns size, they contend that the smaller (larger) the assets of a fund, the easier (harder) it is for the fund to alter its risk. Additionally, larger funds are likely to face greater scrutiny from the investment community. The expense ratio may also impact funds' financial returns, and thus affect the relationship between risk and returns.

In this study, age is measured as the total number of months since the fund's inception, whilst size is computed through the fund's total net assets (in million US dollars). Total expense ratio is a measure of total costs associated with managing and operating an investment fund. Annual data with regard to funds' total net assets and expense ratio are collected from Datastream and CRSP databases, whereas inception dates are obtained from Bloomberg and Morningstar websites.

4.4.5. Assessing the relationship between returns and risk-shifting

In order to analyze the risk-taking behavior of fund managers, we employ two different approaches. First, we apply a non-parametric approach, namely contingency tables, which allows us to verify how SRI and conventional fund managers adjust risk in the second part of the year as a reaction to funds' performance in the first part of the year. Second, we apply a parametric approach, specifically regression analysis, to also evaluate the impact of social factors and control variables on risk-taking by SRI fund managers. The advantage of this approach is that while the contingency table approach only allows for a distinction between midyear "winners" and midyear "losers", the regression approach allows us to examine the continuous impact of the fund's ranking on variations in risk.

4.4.5.1. Contingency tables

Following Brown *et al.* (1996) and subsequent studies, we will test whether funds' performance in the first part of an assessment period explains the change in the volatility of funds' returns in the second part of that assessment period by means of contingency tables. We first start be computing two variables regarding return and risk. For each period, we compute the first-half returns, and the risk adjustment ratios to test whether "winners" or "losers" adjust the second-half risk of their portfolios. The underlying intuition of the tournament hypothesis is the following:

$$\left(\frac{\sigma_{2L}}{\sigma_{1L}}\right) > \left(\frac{\sigma_{2W}}{\sigma_{1W}}\right) \tag{4.1}$$

Where:

σ_{1L} (σ_{2L}) represents the standard deviation of the "loser" fund returns in the first (second) part of the year; and
σ_{1W} (σ_{2W}) represents the standard deviation of the "winner" fund returns in the first (second) part of the year[76].

To test funds' risk-shifting behavior, two variables from the monthly mutual fund data are constructed. First, sub-groups of interim "winners" and "losers" are constructed according to the funds' cumulative returns. For fund *j*, month *M*, and year *y*, the M-month cumulative return (RTN) is calculated as follows:

$$RTN_{jMy} = \left[\left(1 + r_{j1y}\right)\left(1 + r_{j2y}\right) \ldots \left(1 + r_{jMy}\right)\right] - 1 \tag{4.2}$$

Where:

r_{jMy} is the raw return of fund *j*, on month *M*, in year *y*.

[76] Expression (4.1) represents only a general trend and does not have to be verified in all situations, i.e., risk does not always have to be higher (lower) in the second period for "loser" ("winner") funds.

Concerning the assessment periods, besides the typical division of the year into the first six months *versus* last six months, there are other possible cut-offs. For example, Brown *et al.* (1996) and Elton *et al.* (2010) look for evidence of risk-shifting in the last five months of the year *versus* the first seven months, whereas Busse (2001) separates the evaluation period from the latter part of the year at five different break points: April, May, June, July, and August. So, following previous literature and since managers do not necessarily compare the first six months of the year and adjust the risk of their portfolios in the last six months of the year (even because countries' fiscal years are not necessarily coincident), in our analysis M varies between April and August.

Based on the cumulative returns calculated for each year, and for each different evaluation period, funds are ranked from high RTN to low RTN: funds that perform above the median RTN are labelled "winner" funds, while funds that perform below the median[77] RTN are considered "loser" funds[78]. Given that we use five cut-off points, five RTN rankings are created for every year in the sample.

Second, a ratio of each funds' volatility before and after the interim assessment period is computed as in Brown *et al.* (1996), Qiu (2003), and Schwarz (2012), among others. The Risk Adjustment Ratio (RAR) is calculated as follows:

$$RAR_{ij} = \sqrt{\frac{\sum_{m=M+1}^{12}\left(r_{jmy} - r_{j(12-M)y}\right)^2/((12-M)-1)}{\sum_{m=1}^{M}\left(r_{jmy} - r_{jMy}\right)^2/(M-1)}} \qquad (4.3)$$

The Risk Adjustment Ratio measures the standard deviation of the second period of the year, relative to the standard deviation of the first period of the same year, with the cut-off points taken at five points during the year, as previously mentioned.

After calculating the return and risk variables, we build two-way contingency tables – a commonly used methodology in the risk-shifting behavior literature (e.g., Brown *et al*., 1996; Jans and Otten, 2008; Hallahan and Faff, 2009) – to assess the relationship between returns and risk-shifting. Funds are classified into "winners" and "losers" on the basis of those two variables:

[77] The use of the median (instead of the mean, for example) to split the sample between "winners" and "losers" is due to the fact that it generates two samples of the same dimension to compare. This division of "winners" and "losers" based on the median is also typically used in performance persistence studies (e.g., Brown and Goetzmann, 1995).

[78] If the RTN and/or the RAR of a fund in a given year and evaluation period is coincident with the median, we exclude that fund for that year and evaluation period.

whether the first-half returns are above ("winners") or below ("losers") that period's median first-half returns, and whether the risk adjustment ratios are above or below that period's median risk adjustment ratios. The intuition is that if underperforming funds tend to have above median risk adjustment ratios, there is evidence of tournament behavior. Conversely, if outperforming funds tend to have above median risk adjustment ratios, there is evidence of strategic behavior.

Thus, based on equations (4.2) and (4.3), for each fund *j* on month *M* of year *y*, we create pairs consisting of the RTN measure linked to the RAR measure of that fund in the same year. This results in four different categories: (high RTN, high RAR), (high RTN, low RAR), (low RTN, high RAR), and (low RTN, low RAR). We classify each observation into one of these four cells of the contingency tables and calculate the sample frequency for each cell. The null hypothesis of independency between the two variables is that each of the four categories would contain 25 per cent of the frequencies. To test this hypothesis, we will use the Chi-square (χ^2) test with one degree of freedom. For every year of the 12-year sample, a matrix was created for every month between April and August. The χ^2 tests were performed on each of the five matrixes. The null hypothesis for the χ^2 tests (i.e., that each cell is independent and that the percentage in each cell is 25%) implies that the fund risk adjustment ratio in period 2 is independent of its compounded return in period 1 (Qiu, 2003).

We also compute the cross product ratio, also known as the odds ratio, as follows:

$$CPR = \frac{(High\ RTN, Low\ RAR) * (Low\ RTN, High\ RAR)}{(High\ RTN, High\ RAR) * (Low\ RTN, Low\ RAR)} \quad (4.4)$$

An odds ratio higher than 1 indicates evidence of tournament behavior, i.e., managers of "loser" ("winner") funds in the first part of the year take more (less) risk in the second part of the year compared to "winner" ("loser") funds. Conversely, if the odds ratio is lower than 1, there is evidence of strategic behavior.

4.4.5.2 Regression analysis

Given that the contingency tables analysis does not allow us to investigate the impact of social variables and control for other fund characteristics that might affect the binomial risk-return,

we will complement the empirical study with regression analysis. Following Marco *et al*. (2011), we regress funds' performance rankings on risk variation, as follows:

$$\Delta\sigma_{i,t} = \beta_1 Rank_{i,t} + \beta_2 Size_{i,t} + \beta_3 Age_{i,t} + \beta_4 TER_{i,t} + \varepsilon_{i,t} \quad (4.5)$$

Where:

$\Delta\sigma_{i,t}$ is the variation in risk experienced by fund *i* between the second and the first part of year *t*;
$Rank_{i,t}$ is the ranking obtained by fund *i* by the end of the first part of year *t*;
$Size_{i,t}$ is the logarithm of the total net assets for fund *i* at time *t*;
$Age_{i,t}$ is the logarithm of the number of months since inception for fund *i* at time *t*; and
$TER_{i,t}$ is the total expense ratio for fund *i* at time *t*.

As previously mentioned, and similar to Marco *et al.* (2011), risk is measured based on the annualized standard deviation of monthly returns. Since β_1 is the coefficient on the ranking obtained by fund *i* by the end of the first part of the year, a significant β_1 value would indicate that prior performance has an influence on the fund manager's risk-taking behavior. If β_1 is negative, this indicates the existence of tournament behavior, in which interim "losers" – fund managers with the worst ranking at the end of the first part of the year – increase the levels of risk exposure to a greater extent than interim "winners". On the other hand, a positive β_1 implies the existence of strategic behavior, whereby it is the interim "winners" who proportionally increase risk exposure the most.

Equation (4.5) is estimated through a random effects model with standard errors adjusted for potential autocorrelation and heteroscedasticity. Random effects and fixed effects are two adequate alternatives for panel data modelling (Verbeek, 2012). Notwithstanding, after performing a Hausman test, a statistical tool which compares the two estimators, we cannot reject the null hypothesis that random effects is the preferred model[79].

Similar to the contingency table approach, we consider five cut-offs between the first and

[79] Verbeek (2012) draws attention to the fact that if the Hausman test does not reject the null hypothesis, it is not necessarily the case that the random effects model should be preferred. To ensure the robustness of our methodology, we tested the application of the fixed effects model. The results are very similar to the ones obtained by the random effects model.

second part of the year, namely in April, May, June, July, and August. Additionally, in line with Marco *et al*. (2011), we provide comparative empirical evidence for SRI and conventional mutual funds, but we further extend the analysis to examine if the social screening features influence SRI managers' risk-taking behavior. Therefore, regression (4.6) is formulated as follows:

$$\Delta\sigma_{i,t} = \gamma_1 Rank_{i,t} + \gamma_2 Screening\ Intensity_i + \gamma_3 Screening\ Types_i + \gamma_4 Positive\ Screening\ Intensity_i + \gamma_5 Labels_i + \gamma_6 Size_{i,t} + \gamma_7 Age_{i,t} + \gamma_8 TER_{i,t} + \varepsilon_{i,t} \quad (4.6)$$

Where:

Screening Intensity$_i$ represents the total number of screens of fund *i*, or the number of sectoral screens plus the number of transversal screens;
Screening Types$_i$ are dummy variables that represent the types of screens applied to fund *i*, namely Environment, Social, Governance, Products, and Shareholder Engagement;
Positive Screening Intensity$_i$ is the number of positive screens applied by fund *i*; and
Labels$_i$ is a dummy variable that assumes the value of 1 if the fund *i* has been certified with at least one social label.

In line with our previous essays, equation (4.6) will be estimated using a between effects model. Given our data structure – we have variables that vary over time (e.g., variation in risk and rankings), and screening strategies constant during the sample period –, we cannot apply a fixed effects model, in the sense that it suppresses the time-invariant variables from the model. With regard to random effects, we rejected the null hypothesis of the Hausman test that the random effects model is the preferred one. Thus, the between effects estimator emerges as a robust methodology for our panel data. Though it discards the information about time series contained in the data, it examines the cross-sectional information (i.e., the differences between funds).

4.5. Empirical results

This section presents the results on the risk-shifting behavior of SRI funds and conventional

funds. We start by analyzing the results obtained from the contingency tables and then proceed the regression analysis (equations 4.5 and 4.6).

4.5.1. Contingency tables

We first perform a general test on the global sample and then we extend the analysis to geographical subsamples: US, Europe, Europe except UK, and UK. Table 4.2 (4.3) reports the results for SRI (conventional) funds.

Concerning SRI funds (table 4.2), our results show a statistically significant (at the 5% level) tournament behavior in the UK subsample for the (7,5) evaluation period. This seems to indicate that managers of UK SRI funds with low (high) cumulative returns in the first part of the year (January to July), increase (decrease) risk in the final part of the year (August to December). The same phenomenon was observed for UK conventional funds by Acker and Duck (2006), when analyzing UK investment trusts during 1997-2001, and Jans and Otten (2008), focusing on UK equity mutual funds over the period 1989-1996. For the global sample and other subsamples, there are no significant results although, in general, the (high RTN, low RAR) and (low RTN, high RAR) cells contain more than 25 per cent of the data (the CPR is higher than 1 in most cases), which is evidence in favor of the tournament hypothesis initially formulated by Brown *et al.* (1996).

Turning to conventional funds (table 4.3), there are no significant results for both the global sample, or geographical subsamples. Nevertheless, unlike the SRI subsample, the CPR is inferior to 1 for most of the evaluation periods, what seems to be indicative of the strategic behavior first discussed by Taylor (2003).

In the following section, we will investigate if the regression approach corroborates these results, particularly with respect to the tournament behavior found for UK SRI funds.

Table 4.2. Risk-shifting behavior of SRI funds – contingency tables

This table reports, for the global sample, and geographical subsamples (Europe, Europe except UK, US, and UK), the 2x2 contingency tables containing the percentage of the number of observations included in each cell. Concerning the assessment period (M,12-M), M represents the evaluation period itself between January and month M, while 12-M represents the residual part of the year. In each cell, we include the pairs of (RTN, RAR), where RTN represents the fund cumulative returns, and RAR is the risk adjustment ratio. The combination of these two variables results in four categories: (high RTN, high RAR), (high RTN, low RAR), (low RTN, high RAR), and (low RTN, low RAR). The sample frequency is calculated for each cell, and the χ^2 statistic is based on the null hypothesis that each cell should contain the same sample frequency (25%). TB is a period where there is evidence of statistically significant tournament behavior, and SB is a period where there is evidence of statistically significant strategic behavior. The sample includes 253 socially responsible funds for the 2003-2014 period. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

				Sample frequency (percentage of observations)						
				Low RTN		High RTN				
Countries/Regions	Nr. Funds	Nr. Observations	Assessment period (M,12-M)	Low RAR	High RAR	Low RAR	High RAR	Cross-Product Ratio	χ^2	Behavior (TB/SB)
Global sample	253	2243	(4,8)	24%	25%	26%	25%	1.08	0.0400	-
		2241	(5,7)	22%	27%	28%	23%	1.49	1.0004	-
		2242	(6,6)	24%	26%	26%	24%	1.17	0.1600	-
		2243	(7,5)	26%	24%	24%	26%	0.85	0.1600	-
		2242	(8,4)	25%	25%	25%	25%	1.00	0.0000	-
Europe	173	1517	(4,8)	24%	26%	26%	24%	1.17	0.1600	-
		1518	(5,7)	22%	28%	28%	22%	1.62	1.4400	-
		1518	(6,6)	23%	27%	27%	23%	1.38	0.6400	-
		1517	(7,5)	25%	25%	25%	25%	1.00	0.0000	-
		1518	(8,4)	25%	25%	25%	25%	1.00	0.0000	-
Europe (except UK)	143	1243	(4,8)	25%	25%	25%	25%	1.00	0.0000	-
		1244	(5,7)	23%	28%	27%	22%	1.49	1.0004	-
		1243	(6,6)	23%	27%	27%	23%	1.38	0.6400	-
		1244	(7,5)	26%	24%	24%	26%	0.85	0.1600	-
		1246	(8,4)	26%	24%	24%	26%	0.85	0.1600	-
US	80	725	(4,8)	24%	25%	26%	25%	1.08	0.0400	-
		724	(5,7)	25%	25%	25%	25%	1.00	0.0000	-
		723	(6,6)	25%	24%	25%	26%	0.92	0.0400	-
		725	(7,5)	26%	24%	24%	26%	0.85	0.1600	-
		725	(8,4)	24%	25%	26%	25%	1.08	0.0400	-
UK	30	272	(4,8)	24%	26%	26%	24%	1.17	0.1600	-
		273	(5,7)	22%	28%	28%	22%	1.62	1.4400	-
		271	(6,6)	22%	29%	28%	21%	1.76	1.9608	-
		273	(7,5)	18%	32%	32%	18%	3.16	7.8400	TB**
		273	(8,4)	21%	30%	29%	20%	2.07	3.2413	-

Table 4.3. Risk-shifting behavior of conventional funds – contingency tables

This table reports, for the global sample, and geographical subsamples (Europe, Europe except UK, US, and UK), the 2x2 contingency tables containing the percentage of the number of observations included in each cell. Concerning the assessment period (M,12-M), M represents the evaluation period itself between January and month M, while 12-M represents the residual part of the year. In each cell, we include the pairs of (RTN, RAR), where RTN represents the fund cumulative returns, and RAR is the risk adjustment ratio. The combination of these two variables results in four categories: (high RTN, high RAR), (high RTN, low RAR), (low RTN, high RAR), and (low RTN, low RAR). The sample frequency is calculated for each cell, and the χ^2 statistic is based on the null hypothesis that each cell should contain the same sample frequency (25%). TB is a period where there is evidence of statistically significant tournament behavior, and SB is a period where there is evidence of statistically significant strategic behavior. The sample includes 759 conventional funds for the 2003-2014 period. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

				Sample frequency (percentage of observations)						
				Low RTN		High RTN				
Countries/Regions	Nr. Funds	Nr. Observations	Assessment period (M,12-M)	Low RAR	High RAR	Low RAR	High RAR	Cross-Product Ratio	χ^2	Behavior (TB/SB)
Global sample	759	6795	(4,8)	26%	24%	24%	26%	0.85	0.1600	-
		6795	(5,7)	25%	25%	25%	25%	1.00	0.0000	-
		6797	(6,6)	26%	24%	24%	26%	0.85	0.1600	-
		6796	(7,5)	28%	22%	22%	28%	0.62	1.4400	-
		6796	(8,4)	27%	23%	23%	27%	0.73	0.6400	-
Europe	519	4323	(4,8)	26%	24%	24%	26%	0.85	0.1600	-
		4321	(5,7)	25%	25%	25%	25%	1.00	0.0000	-
		4321	(6,6)	25%	25%	25%	25%	1.00	0.0000	-
		4321	(7,5)	27%	23%	23%	27%	0.73	0.6400	-
		4322	(8,4)	25%	25%	25%	25%	1.00	0.0000	-
Europe (except UK)	429	3524	(4,8)	26%	24%	24%	26%	0.85	0.1600	-
		3525	(5,7)	25%	25%	25%	25%	1.00	0.0000	-
		3524	(6,6)	25%	26%	25%	24%	1.08	0.0400	-
		3526	(7,5)	27%	23%	23%	27%	0.73	0.6400	-
		3527	(8,4)	25%	25%	25%	25%	1.00	0.0000	-
US	240	2474	(4,8)	24%	25%	26%	25%	1.08	0.0400	-
		2471	(5,7)	27%	23%	23%	27%	0.73	0.6400	-
		2471	(6,6)	26%	24%	24%	26%	0.85	0.1600	-
		2474	(7,5)	28%	22%	22%	28%	0.62	1.4400	-
		2474	(8,4)	27%	23%	23%	27%	0.73	0.6400	-
UK	90	796	(4,8)	27%	24%	23%	26%	0.79	0.3601	-
		797	(5,7)	26%	24%	24%	26%	0.85	0.1600	-
		796	(6,6)	26%	24%	24%	26%	0.85	0.1600	-
		797	(7,5)	24%	26%	26%	24%	1.17	0.1600	-
		796	(8,4)	25%	25%	25%	25%	1.00	0.0000	-

4.5.2. Regression analysis

In this section, we estimate the effect of a fund's ranking (and social factors) on risk variation, controlling for some funds' characteristics, namely age, size and expenses. The contingency tables methodology previously used is less flexible than the regression approach, and thus it is mainly used as an exploratory analysis, complementary to regression models. Regression analysis goes beyond categorizing variables in a binary way and testing for their independency and, unlike contingency tables, allows us to quantify the impact of performance rankings and screening features (and other characteristics) on funds' risk exposure.

Accordingly, we start by evaluating whether the ranking obtained by a fund (based on its returns) over the first part of the year has influence on the risk taken by the fund manager in the second part of the year. For both SRI and conventional subsamples, the results are presented in tables 4.4 to 4.8.

For the whole sample (table 4.4), there is strong evidence of strategic behavior of conventional fund managers. In other words, considering the (6,6), (7,5), and (8,4) evaluation periods, conventional fund managers likely to end up as "winners" ("losers") increase (decrease) the level of risk exposure in the second part of the year. Differently, SRI funds managers exhibit tournament behavior. Specifically, for the (5,7) and (8,4) evaluation periods, there is significant evidence that interim "losers" ("winners") are the ones who increase (decrease) risk the most.

When we focus on the US subsample (table 4.5), the conclusions are quite similar, except for the fact that for conventional funds there is evidence of management strategic behavior for the (4,8), (5,7), and (7,5) evaluation periods. Considering the European conventional subsample, there is weak evidence (for a significance level of 10%) of the strategic behavior hypothesis for the (6,6) evaluation period. With respect to SRI funds, the evidence is mixed, i.e., there is a positive and significant relationship between funds' ranking and subsequent risk (strategic behavior) for the (4,8) evaluation period, while "losing" funds in the first part of the year increase their risk in the remaining part of the year (tournament behavior) for the (5,7), (6,6) and (8,4) evaluation periods. Excluding the UK, conventional and SRI funds exhibit similar results, although the tournament behavior found in the European SRI subsample only holds for the (8,4) evaluation period. Finally, for UK conventional funds, we find no evidence of tournament or strategic behavior for all time scenarios. The results obtained for the UK SRI subsample reinforce the findings previously

obtained when applying the contingency tables approach. Except for the (4,8) evaluation period, we find that managers of funds with below interim performance ranking subsequently increase the risk in the second part of the year.

Concerning the control variables, all three fund characteristics seem to have significant effects on managers' risk adjustment. Size impacts positively the variation in risk of US and UK conventional funds, whilst age has a negative impact for most subsamples. There is no conclusive evidence with respect to the total expense ratio: for both SRI and conventional US subsamples, the expense ratio has a positive effect on risk' variation, while having the opposite effect for the conventional global sample and remaining subsamples.

The results on the influence that social variables have on fund management risk-shifting behavior (equation 4.6) are presented in tables 4.9 to 4.18. Similar to equation (4.5), we perform the regressions on the global sample, and geographical subsamples (US, Europe, Europe except UK, and UK). Additionally, we estimate the equations employing the total screening intensity or alternatively, the number of sectoral and transversal screens.

When we consider the whole sample (tables 4.9 and 4.10), we find weak evidence of management strategic behavior, as there is a positive and statistically significant (at the 10% level) relationship between the funds' ranking and subsequent variation in risk for the (6,6) evaluation period. With regard to screening features, some types of screens (environment, governance, and shareholder engagement) and the positive screening strategy seem to affect the change in risk levels. Particularly, for most of the assessment periods, the types of screens increase the level of risk exposure in the second part of the year, whereas the enforcement of positive screens reduce the risk assumed by the fund manager in the final part of the year for the (6,6) and (7,5) evaluation periods. Moreover, both age and the expense ratio seem to have a negative impact on the variation in risk experienced by a fund. The conclusions are quite similar when we replace the total screening intensity by the number of sectoral and transversal screens. However, it should be mentioned that for the June cut-off the number of sectoral screens has a negative and statistically significant (at the 10% level) effect on risk variation.

Table 4.4. Risk-shifting behavior of conventional and SRI funds – global sample

This table reports the results of panel data regressions for the risk-shifting behavior for SRI and non-SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variable is the ranking obtained by a fund by the end of the first part of the year (RANK). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using random effects with standard errors robust for autocorrelation and heteroscedasticity. The sample includes 253 socially responsible funds and 759 conventional funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	0.010551 (1.24)	0.002749 (0.28)	0.015190*** (2.86)	0.020040*** (3.03)	0.021137*** (3.39)	0.014409 (1.33)	-0.013351* (-1.84)	-0.005241 (-0.55)	-0.000282 (-0.03)	-0.019986*** (-3.62)
Size (L_SIZE)	0.001724 (1.10)	0.002387 (1.41)	0.001718 (1.48)	0.001144 (0.85)	0.001082 (0.94)	0.000503 (0.20)	-0.000565 (-0.19)	0.001047 (0.82)	0.002574 (1.64)	0.000865 (0.97)
Age (L_AGE)	-0.006053 (-1.48)	-0.005438 (-1.27)	-0.004692 (-1.41)	-0.003998 (-1.09)	-0.005253 (-1.50)	-0.016081 (-1.05)	-0.016545 (-1.01)	-0.010178 (-1.53)	-0.014913* (-1.83)	-0.006423** (-2.45)
Total expense ratio (TER)	-0.003357*** (-2.82)	-0.000480 (-0.40)	-0.003261*** (-4.38)	-0.008384*** (-7.47)	-0.007032*** (-7.72)	-0.003164 (-0.44)	-0.006619 (-0.93)	-0.004016 (-1.03)	-0.003065 (-0.73)	0.002812 (1.29)
Observations	5,540	5,540	5,540	5,540	5,540	2,086	2,086	2,086	2,086	2,086
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 4.5. Risk-shifting behavior of conventional and SRI funds – US subsample

This table reports the results of panel data regressions for the risk-shifting behavior for SRI and non-SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variable is the ranking obtained by a fund by the end of the first part of the year (RANK). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using random effects with standard errors robust for autocorrelation and heteroscedasticity. The sample includes 80 socially responsible funds and 240 conventional funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	0.011103*** (2.63)	0.014449*** (4.31)	0.003405 (1.04)	0.017562*** (4.47)	-0.001579 (-0.38)	0.012280 (0.57)	-0.022286*** (-3.23)	-0.013210 (-1.07)	-0.007050 (-0.57)	-0.046037** (-2.41)
Size (L_SIZE)	0.00109** (2.36)	0.000424 (0.86)	0.000470 (1.05)	0.001126** (2.42)	0.001855*** (3.39)	-0.008856 (-0.92)	-0.010999 (-1.03)	-0.002298 (-1.38)	-0.003815 (-1.64)	-0.000263 (-0.16)
Age (L_AGE)	-0.002317* (-1.66)	0.001456 (1.06)	-0.000054 (-0.04)	-0.001098 (-0.79)	-0.005441*** (-3.30)	-0.030957 (-1.02)	-0.028597 (-0.91)	-0.010092 (-0.76)	-0.011411 (-0.71)	0.001337 (0.40)
Total expense ratio (TER)	0.845036*** (3.80)	0.477372** (2.26)	0.520945** (2.52)	0.573750*** (3.27)	0.672392*** (3.14)	-0.033084 (-0.62)	-0.041982 (-0.75)	-0.007170 (-0.34)	-0.013741 (-0.56)	0.015118*** (3.95)
Observations	2,315	2,315	2,315	2,315	2,315	725	725	725	725	725
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 4.6. Risk-shifting behavior of conventional and SRI funds – European subsample

This table reports the results of panel data regressions for the risk-shifting behavior for SRI and non-SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variable is the ranking obtained by a fund by the end of the first part of the year (RANK). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using random effects with standard errors robust for autocorrelation and heteroscedasticity. The sample includes 173 socially responsible funds and 519 conventional funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	0.002174 (0.14)	-0.007187 (-0.41)	0.015548* (1.79)	0.001117 (0.10)	0.004497 (0.45)	0.012186** (2.53)	-0.008144* (-1.80)	-0.009866** (-2.08)	-0.006307 (-1.10)	-0.017138*** (-2.80)
Size (L_SIZE)	0.001974 (0.91)	0.003053 (1.30)	0.002143 (1.44)	0.001231 (0.67)	0.001426 (0.95)	-0.000284 (-0.41)	-0.000440 (-0.54)	-0.000176 (-0.20)	0.000076 (0.09)	0.000554 (0.61)
Age (L_AGE)	-0.008061 (-1.64)	-0.005921 (-1.16)	-0.006050 (-1.57)	-0.007679* (-1.74)	-0.007867* (-1.89)	-0.003721 (-1.37)	-0.003936 (-1.37)	-0.006899** (-2.22)	-0.009773*** (-2.85)	-0.010594*** (-2.87)
Total expense ratio (TER)	-0.004311 (-1.42)	-0.005725* (-1.93)	-0.003089 (-1.46)	-0.003582 (-1.42)	-0.002147 (-1.01)	0.002134 (1.05)	0.002031 (0.96)	0.001157 (0.50)	0.003935 (1.52)	0.001544 (0.56)
Observations	3,225	3,225	3,225	3,225	3,225	1,361	1,361	1,361	1,361	1,361
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 4.7. Risk-shifting behavior of conventional and SRI funds – European subsample (without UK)

This table reports the results of panel data regressions for the risk-shifting behavior for SRI and non-SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variable is the ranking obtained by a fund by the end of the first part of the year (RANK). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using random effects with standard errors robust for autocorrelation and heteroscedasticity. The sample includes 143 socially responsible funds and 429 conventional funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	0.000588 (0.03)	-0.007290 (-0.35)	0.016940* (1.91)	0.002413 (0.18)	0.002848 (0.27)	0.014124** (2.46)	-0.007465 (-1.45)	-0.007652 (-1.44)	-0.002181 (-0.33)	-0.013953* (-1.91)
Size (L_SIZE)	0.001687 (0.70)	0.002890 (1.09)	0.001940 (1.20)	0.001305 (0.63)	0.001517 (0.92)	-0.000027 (-0.03)	-0.000569 (-0.81)	-0.000702 (-0.85)	0.000133 (0.15)	0.000220 (0.26)
Age (L_AGE)	-0.009597* (-1.74)	-0.006810 (-1.20)	-0.006569 (-1.53)	-0.007876 (-1.59)	-0.008779* (-1.91)	-0.004982 (-1.48)	-0.003288 (-0.97)	-0.006248* (-1.70)	-0.012378*** (-2.90)	-0.010886** (-2.51)
Total expense ratio (TER)	-0.004492 (-1.40)	-0.005707* (-1.80)	-0.002700 (-1.21)	-0.002894 (-1.07)	-0.001666 (-0.74)	0.001681 (0.70)	0.000878 (0.40)	-0.000344 (-0.15)	0.004612 (1.47)	0.000098 (0.03)
Observations	2,883	2,883	2,883	2,883	2,883	1,105	1,105	1,105	1,105	1,105
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Table 4.8. Risk-shifting behavior of conventional and SRI funds – UK subsample

This table reports the results of panel data regressions for the risk-shifting behavior for SRI and non-SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variable is the ranking obtained by a fund by the end of the first part of the year (RANK). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using random effects with standard errors robust for autocorrelation and heteroscedasticity. The sample includes 30 socially responsible funds and 90 conventional funds for 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	Conventional Funds					**SRI Funds**				
	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	0.009725 (1.41)	0.006615 (1.14)	0.01003 (1.57)	0.006861 (0.79)	0.014672 (1.58)	0.002047 (0.31)	-0.013150* (-1.78)	-0.021528*** (-3.03)	-0.028563*** (-4.12)	-0.031714*** (-3.93)
Size (L_SIZE)	0.002931*** (5.28)	0.003112*** (4.22)	0.003131*** (3.43)	0.001159 (1.37)	0.001301** (2.21)	-0.000049 (-0.04)	0.000392 (0.18)	0.001548 (0.78)	0.001781 (1.07)	0.002373 (1.09)
Age (L_AGE)	-0.001024 (-0.30)	0.001696 (0.50)	-0.002291 (-0.56)	-0.005086 (-1.32)	-0.002886 (-0.90)	-0.004444** (-1.98)	-0.005904* (-1.81)	-0.005785* (-1.70)	-0.007810** (-2.31)	-0.009886** (-2.51)
Total expense ratio (TER)	0.000480 (0.11)	-0.006232* (-1.88)	-0.007339** (-2.37)	-0.004571 (-1.35)	-0.001311 (-0.41)	0.004487 (1.08)	0.007282 (1.50)	0.005522 (1.26)	0.004677 (1.13)	0.008173 (1.41)
Observations	342	342	342	342	342	256	256	256	256	256
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Focusing on the US subsample (tables 4.11 and 4.12), similar to the global sample, we document the existence of strategic behavior for the (6,6) assessment period, for both total screening intensity, and number of sectoral and transversal screens. Additionally, governance screens and the certification by social labels seem to have a positive impact on changes in funds' risk for most evaluation periods. For European funds (tables 4.13 and 4.14), we find a positive and statistically significant (at the 5% level) coefficient associated with the fund ranking for the (4,8) and (7,5) evaluation periods. Also, environmental screens contribute to the increase in the level of risk, whilst the dummy labels reduce the risk assumed by fund managers in the second part of the year (for the April cut-off point). We obtain similar evidence when employing sectoral and transversal screening criteria, and after excluding the UK, with one exception: without considering UK SRI funds, size has a negative impact on changes in fund risk for most evaluation periods. Finally, for the UK subsample (tables 4.17 and 4.18), the coefficient associated with the fund ranking is negative and statistically significant when we consider the July and August cut-offs. In other words, there is evidence of management tournament behavior, which holds for the (8,4) evaluation period after replacing the total number of screens by the number of sectoral and transversal screens. Besides that, we find that social labels contribute negatively to changes in risk exposure for most assessment periods. Concerning the control variables, funds' size and expense ratio exhibit positive coefficients, while age shows a negative one.

In sum, when we introduce the social factors in the analysis of how SRI fund managers manipulate risk in the second part of the year given the fund ranking in the first part of the year, there is some contrasting evidence in comparison to the results of estimating equation (4.5). Taking into account the social characteristics, the results for the global sample and geographical subsamples (except for the UK) broadly support the strategic behavior hypothesis, suggesting that managers of funds with the highest ranking in the first part of the year are the ones who raise the risk to a greater extent in the final part of the year. For the UK, the results are consistent with those obtained with the contingency tables approach, and the regression results without social variables. In particular, UK fund managers that incorporate social criteria and are interim "losers" (i.e., with the worst ranking in the first part of the year) assume a higher risk in the second part of the year. Interestingly, beyond performance ranking, some social features also affect the variation in risk. Environmental, governance, and shareholder engagement screens seem to have a positive effect on changes in risk (for the global sample and certain subsamples), suggesting that these types of

screens represent additional sources of risk for SRI funds. However, the number of sectoral screens and the number of positive screens have the opposite effect. Concerning the certification by social labels, there is mixed evidence: we find a positive link between labels and variation in risk for the US subsample, and a negative one for the European (with and without UK) and UK subsamples. Fund age, size and expense ratio also have a significant impact on management risk adjustment behavior: for the global sample and the UK subsample, older funds tend to have lower risk variation, while there are mixed results with regard to size and expense ratio.

Table 4.9. Risk-shifting behavior and screening characteristics – global sample

This table reports the results of panel data regressions for the risk-shifting behavior for SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variables include: the ranking obtained by a fund by the end of the first part of the year (RANK), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), and a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using between effects. The sample includes 253 socially responsible funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	0.015735 (0.21)	-0.084036 (-1.10)	0.062300* (1.95)	0.052458 (1.39)	0.011158 (0.86)
SI	-0.002853 (-0.55)	-0.003067 (-0.54)	-0.002902 (-1.20)	-0.002607 (-0.88)	-0.001422 (-1.42)
ENV	0.025047 (0.91)	0.030484 (1.01)	0.021856* (1.70)	0.027149* (1.72)	0.017277*** (3.26)
SOC	0.016850 (0.73)	0.017680 (0.69)	0.009145 (0.85)	0.011521 (0.87)	0.002627 (0.59)
GOV	0.083475* (1.83)	0.099613** (1.99)	0.037314* (1.76)	0.038593 (1.48)	-0.003486 (-0.40)
PROD	-0.023731 (-0.83)	-0.027375 (-0.87)	-0.009014 (-0.68)	-0.010133 (-0.62)	0.005410 (0.98)
SHENG	0.044743 (1.07)	0.041763 (0.91)	0.032134* (1.66)	0.042078* (1.77)	0.020259** (2.52)
PSCR	-0.008515 (-1.62)	-0.009360 (-1.62)	-0.004305* (-1.76)	-0.005347* (-1.78)	-0.001314 (-1.30)
LAB	0.017352 (1.00)	0.022028 (1.15)	0.010151 (1.25)	0.008311 (0.82)	-0.000317 (-0.09)
L_SIZE	-0.001042 (-0.22)	-0.001458 (-0.28)	-0.001036 (-0.46)	-0.001189 (-0.43)	-0.000641 (-0.69)
L_AGE	-0.024129 (-1.37)	-0.023417 (-1.22)	-0.016406** (-2.05)	-0.019114* (-1.93)	-0.003407 (-1.02)
TER	-0.020286 (-1.48)	-0.025046* (-1.66)	-0.005303 (-0.83)	-0.008180 (-1.04)	0.003041 (1.14)
Observations	2,086	2,086	2,086	2,086	2,086
Year dummies	Included	Included	Included	Included	Included

Table 4.10. Risk-shifting behavior and screening characteristics (sectoral and transversal screens) – global sample

This table reports the results of panel data regressions for the risk-shifting behavior for SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variables include: the ranking obtained by a fund by the end of the first part of the year (RANK), the number of sectoral (SECT) and transversal (TRNSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), and a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using between effects. The sample includes 253 socially responsible funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. * *p-value < 0.10;* ** *p-value < 0.05;* *** *p-value < 0.01*

	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	0.022473 (0.30)	-0.073713 (-0.96)	0.067541** (2.10)	0.056495 (1.49)	0.011813 (0.91)
SECT	-0.006377 (-1.02)	-0.006819 (-0.99)	-0.005013* (-1.74)	-0.004672 (-1.31)	-0.001808 (-1.50)
TRNSV	0.010986 (0.66)	0.010729 (0.59)	0.004845 (0.63)	0.004260 (0.45)	-0.000487 (-0.15)
ENV	0.026729 (0.96)	0.032684 (1.07)	0.022978* (1.78)	0.028679* (1.81)	0.017652*** (3.29)
SOC	-0.002180 (-0.07)	-0.001126 (-0.03)	-0.001583 (-0.11)	0.002103 (0.11)	0.001360 (0.22)
GOV	0.070058 (1.62)	0.085702* (1.80)	0.026668 (1.32)	0.029184 (1.18)	-0.007189 (-0.85)
PROD	-0.020595 (-0.71)	-0.023675 (-0.74)	-0.006983 (-0.52)	-0.007824 (-0.47)	0.005964 (1.06)
SHENG	0.041043 (1.03)	0.037976 (0.87)	0.028183 (1.54)	0.038822* (1.72)	0.018367** (2.40)
PSCR	-0.010122* (-1.80)	-0.010975* (-1.78)	-0.005182** (-1.99)	-0.006116* (-1.91)	-0.001404 (-1.30)
LAB	0.017657 (1.01)	0.022367 (1.17)	0.010451 (1.29)	0.008656 (0.86)	-0.000245 (-0.07)
L_SIZE	-0.001366 (-0.28)	-0.001725 (-0.33)	-0.001188 (-0.53)	-0.001338 (-0.48)	-0.000653 (-0.70)
L_AGE	-0.022884 (-1.30)	-0.022348 (-1.16)	-0.015657* (-1.95)	-0.018481* (-1.86)	-0.003316 (-0.98)
TER	-0.018994 (-1.38)	-0.023602 (-1.56)	-0.004438 (-0.69)	-0.007439 (-0.94)	0.003195 (1.19)
Observations	2,086	2,086	2,086	2,086	2,086
Year dummies	Included	Included	Included	Included	Included

Table 4.11. Risk-shifting behavior and screening characteristics – US subsample

This table reports the results of panel data regressions for the risk-shifting behavior for SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variables include: the ranking obtained by a fund by the end of the first part of the year (RANK), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), and a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using between effects. The sample includes 80 socially responsible funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	-0.082228 (-0.32)	-0.279427 (-1.12)	0.192095* (1.89)	0.004307 (0.03)	0.032535 (1.26)
SI	-0.015993 (-1.08)	-0.015215 (-0.93)	-0.006852 (-1.04)	-0.007092 (-0.86)	-0.000781 (-0.49)
ENV	0.017729 (0.20)	0.012958 (0.13)	0.016050 (0.41)	0.011282 (0.23)	0.010236 (1.09)
SOC	-0.001434 (-0.02)	0.005272 (0.06)	-0.011435 (-0.34)	0.000474 (0.01)	0.000602 (0.08)
GOV	0.259725** (2.42)	0.279501** (2.39)	0.095447* (2.00)	0.121004** (2.03)	-0.000809 (-0.07)
PROD	-0.107156 (-1.14)	-0.116367 (-1.13)	-0.053452 (-1.28)	-0.064858 (-1.23)	-0.003319 (-0.33)
SHENG	-0.004900 (-0.05)	-0.028946 (-0.28)	0.018628 (0.45)	0.004052 (0.08)	0.014525 (1.47)
PSCR	-0.006627 (-0.66)	-0.005542 (-0.51)	-0.005287 (-1.22)	-0.004384 (-0.79)	-0.001419 (-1.35)
LAB	0.106125* (1.79)	0.119899* (1.85)	0.039681 (1.50)	0.056172* (1.71)	0.002107 (0.33)
L_SIZE	-0.016603 (-1.01)	-0.020578 (-1.15)	-0.007343 (-1.01)	-0.010113 (-1.11)	-0.000656 (-0.37)
L_AGE	-0.029755 (-0.36)	-0.016754 (-0.18)	-0.021352 (-0.57)	-0.007896 (-0.17)	0.006656 (0.75)
TER	-0.10593 (-1.50)	-0.113952 (-1.47)	-0.043690 (-1.41)	-0.052348 (-1.35)	0.011167 (1.49)
Observations	725	725	725	725	725
Year dummies	Included	Included	Included	Included	Included

Table 4.12. Risk-shifting behavior and screening characteristics (sectoral and transversal screens) – US subsample

This table reports the results of panel data regressions for the risk-shifting behavior for SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variables include: the ranking obtained by a fund by the end of the first part of the year (RANK), the number of sectoral (SECT) and transversal (TRNSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), and a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using between effects. The sample includes 80 socially responsible funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. * *p-value < 0.10;* ** *p-value < 0.05;* *** *p-value < 0.01*

	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	-0.079779 (-0.31)	-0.267666 (-1.07)	0.190377* (1.87)	0.008447 (0.05)	0.033381 (1.29)
SECT	-0.034313 (-1.52)	-0.035541 (-1.43)	-0.014341 (-1.43)	-0.016304 (-1.30)	-0.000498 (-0.21)
TRNSV	0.022675 (0.41)	0.031057 (0.51)	0.006869 (0.28)	0.011238 (0.36)	-0.004650 (-0.78)
ENV	0.034396 (0.38)	0.029889 (0.30)	0.024108 (0.61)	0.020682 (0.41)	0.011879 (1.24)
SOC	-0.065339 (-0.58)	-0.070845 (-0.58)	-0.034254 (-0.69)	-0.030076 (-0.48)	0.006421 (0.54)
GOV	0.222519** (2.39)	0.241549** (2.39)	0.081155* (1.96)	0.105154** (2.04)	-0.000370 (-0.04)
PROD	-0.076631 (-0.78)	-0.084074 (-0.79)	-0.039892 (-0.92)	-0.048828 (-0.89)	-0.002332 (-0.22)
SHENG	-0.012817 (-0.15)	-0.034792 (-0.36)	0.015290 (0.39)	0.001724 (0.04)	0.014271 (1.53)
PSCR	-0.008151 (-0.79)	-0.007516 (-0.67)	-0.005777 (-1.29)	-0.005123 (-0.90)	-0.001235 (-1.14)
LAB	0.098584 (1.66)	0.111485* (1.71)	0.036515 (1.37)	0.052243 (1.58)	0.002019 (0.32)
L_SIZE	-0.017372 (-1.06)	-0.021337 (-1.19)	-0.007699 (-1.06)	-0.010519 (-1.15)	-0.000685 (-0.39)
L_AGE	-0.028886 (-0.35)	-0.015410 (-0.17)	-0.021505 (-0.57)	-0.008102 (-0.17)	0.005597 (0.62)
TER	-0.107471 (-1.52)	-0.115350 (-1.49)	-0.044738 (-1.44)	-0.053355 (-1.37)	0.010477 (1.39)
Observations	725	725	725	725	725
Year dummies	Included	Included	Included	Included	Included

Table 4.13. Risk-shifting behavior and screening characteristics – European subsample

This table reports the results of panel data regressions for the risk-shifting behavior for SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variables include: the ranking obtained by a fund by the end of the first part of the year (RANK), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), and a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using between effects. The sample includes 173 socially responsible funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	0.029052**	0.010767	0.010142	0.034212**	0.011661
	(2.22)	(0.85)	(0.76)	(2.45)	(0.78)
SI	0.001624	0.000116	-0.001184	0.000367	-0.000612
	(1.23)	(0.09)	(-0.85)	(0.23)	(-0.38)
ENV	0.002384	0.009623	0.014203**	0.018259**	0.011544
	(0.38)	(1.54)	(2.17)	(2.51)	(1.53)
SOC	-0.007990	-0.005466	-0.001534	-0.002908	-0.004669
	(-1.52)	(-1.05)	(-0.28)	(-0.48)	(-0.74)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	-0.002719	-0.002487	0.002131	0.001057	0.002177
	(-0.48)	(-0.44)	(0.36)	(0.16)	(0.32)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	-0.000267	-0.000736	-0.000364	-0.002021	0.000905
	(-0.11)	(-0.30)	(-0.14)	(-0.70)	(0.30)
LAB	-0.007092*	-0.003804	0.002139	-0.002591	-0.000977
	(-1.89)	(-1.02)	(0.55)	(-0.59)	(-0.22)
L_SIZE	-0.001467	-0.001467	-0.001438	-0.001571	-0.001077
	(-1.51)	(-1.54)	(-1.45)	(-1.41)	(-0.94)
L_AGE	-0.001526	-0.002806	-0.004413	-0.005489	-0.003525
	(-0.46)	(-0.85)	(-1.28)	(-1.41)	(-0.87)
TER	0.001387	0.002703	0.002157	0.002810	0.001227
	(0.55)	(1.07)	(0.83)	(0.97)	(0.41)
Observations	1,361	1,361	1,361	1,361	1,361
Year dummies	Included	Included	Included	Included	Included

Table 4.14. Risk-shifting behavior and screening characteristics (sectoral and transversal screens) – European subsample

This table reports the results of panel data regressions for the risk-shifting behavior for SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variables include: the ranking obtained by a fund by the end of the first part of the year (RANK), the number of sectoral (SECT) and transversal (TRNSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), and a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using between effects. The sample includes 173 socially responsible funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	0.029032**	0.010494	0.009935	0.034225**	0.011667
	(2.22)	(0.83)	(0.74)	(2.45)	(0.78)
SECT	0.001646	0.000140	-0.001166	0.000384	-0.000614
	(1.24)	(0.10)	(-0.84)	(0.24)	(-0.38)
TRNSV	-0.001362	-0.002369	-0.003057	-0.002100	-0.000405
	(-0.28)	(-0.50)	(-0.62)	(-0.38)	(-0.07)
ENV	0.000538	0.008096	0.013056*	0.016734**	0.011672
	(0.08)	(1.18)	(1.82)	(2.09)	(1.41)
SOC	-0.005993	-0.003801	-0.000275	-0.001259	-0.004808
	(-0.98)	(-0.63)	(-0.04)	(-0.18)	(-0.66)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	-0.002089	-0.001970	0.002523	0.001578	0.002133
	(-0.36)	(-0.34)	(0.42)	(0.24)	(0.31)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	0.001450	0.000685	0.000707	-0.000603	0.000786
	(0.40)	(0.19)	(0.19)	(-0.14)	(0.18)
LAB	-0.007028*	-0.003754	0.002177	-0.002537	-0.000981
	(-1.87)	(-1.01)	(0.56)	(-0.58)	(-0.22)
L_SIZE	-0.001453	-0.001454	-0.001429	-0.001560	-0.001078
	(-1.49)	(-1.52)	(-1.44)	(-1.39)	(-0.93)
L_AGE	-0.001488	-0.002762	-0.004379	-0.005459	-0.003528
	(-0.44)	(-0.83)	(-1.26)	(-1.40)	(-0.86)
TER	0.001377	0.002682	0.002144	0.002802	0.001228
	(0.54)	(1.06)	(0.82)	(0.96)	(0.41)
Observations	1,361	1,361	1,361	1,361	1,361
Year dummies	Included	Included	Included	Included	Included

Table 4.15. Risk-shifting behavior and screening characteristics – European subsample (without UK)

This table reports the results of panel data regressions for the risk-shifting behavior for SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variables include: the ranking obtained by a fund by the end of the first part of the year (RANK), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), and a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using between effects. The sample includes 143 socially responsible funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	0.030377**	0.009200	0.008506	0.038252**	0.019639
	(2.06)	(0.65)	(0.57)	(2.46)	(1.19)
SI	0.000687	-0.000609	-0.001467	-0.000564	-0.000850
	(0.45)	(-0.40)	(-0.91)	(-0.31)	(-0.47)
ENV	0.005929	0.015937**	0.020248**	0.025708***	0.020308**
	(0.76)	(2.09)	(2.46)	(2.87)	(2.25)
SOC	-0.006271	-0.002546	0.001881	0.002676	0.001512
	(-0.96)	(-0.40)	(0.28)	(0.36)	(0.20)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	0.000652	0.002937	0.005399	0.006350	0.007034
	(0.10)	(0.47)	(0.81)	(0.87)	(0.95)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	0.000345	-0.001413	-0.001828	-0.002937	-0.001510
	(0.11)	(-0.47)	(-0.56)	(-0.83)	(-0.42)
LAB	-0.007923*	-0.004007	0.000157	-0.004484	-0.003095
	(-1.87)	(-0.97)	(0.04)	(-0.91)	(-0.63)
L_SIZE	-0.001393	-0.001914*	-0.002353**	-0.002371*	-0.002352*
	(-1.24)	(-1.77)	(-2.03)	(-1.85)	(-1.82)
L_AGE	0.001030	0.002176	-0.000693	-0.002740	0.000616
	(0.25)	(0.54)	(-0.16)	(-0.57)	(0.13)
TER	0.002324	0.001340	-0.000084	0.0013	-0.001917
	(0.81)	(0.47)	(-0.03)	(0.40)	(-0.58)
Observations	1,105	1,105	1,105	1,105	1,105
Year dummies	Included	Included	Included	Included	Included

Table 4.16. Risk-shifting behavior and screening characteristics (sectoral and transversal screens) – European subsample (without UK)

This table reports the results of panel data regressions for the risk-shifting behavior for SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variables include: the ranking obtained by a fund by the end of the first part of the year (RANK), the number of sectoral (SECT) and transversal (TRNSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), and a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using between effects. The sample includes 143 socially responsible funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	0.030286**	0.008616	0.007662	0.037714**	0.019454
	(2.04)	(0.61)	(0.52)	(2.42)	(1.18)
SECT	0.000662	-0.000618	-0.001483	-0.000584	-0.000877
	(0.43)	(-0.41)	(-0.92)	(-0.32)	(-0.49)
TRNSV	-0.002769	-0.003631	-0.006171	-0.005214	-0.004926
	(-0.46)	(-0.63)	(-0.99)	(-0.76)	(-0.71)
ENV	0.003505	0.013847	0.017011*	0.022439**	0.017447*
	(0.40)	(1.62)	(1.85)	(2.22)	(1.71)
SOC	-0.003981	-0.000537	0.005030	0.005761	0.004214
	(-0.53)	(-0.07)	(0.64)	(0.66)	(0.48)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	0.001327	0.003515	0.006310	0.007250	0.007831
	(0.20)	(0.56)	(0.93)	(0.97)	(1.04)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	0.002448	0.000411	0.001010	-0.000112	0.000971
	(0.52)	(0.09)	(0.21)	(-0.02)	(0.18)
LAB	-0.007959*	-0.004049	0.000100	-0.004560	-0.003141
	(-1.88)	(-0.98)	(0.02)	(-0.92)	(-0.64)
L_SIZE	-0.001408	-0.001926*	-0.002373**	-0.002388*	-0.002370*
	(-1.25)	(-1.78)	(-2.05)	(-1.85)	(-1.83)
L_AGE	0.001070	0.002242	-0.000592	-0.002657	0.000672
	(0.26)	(0.55)	(-0.14)	(-0.55)	(0.14)
TER	0.002307	0.001295	-0.000136	0.001264	-0.001940
	(0.80)	(0.46)	(-0.05)	(0.39)	(-0.59)
Observations	1,105	1,105	1,105	1,105	1,105
Year dummies	Included	Included	Included	Included	Included

Table 4.17. Risk-shifting behavior and screening characteristics – UK subsample

This table reports the results of panel data regressions for the risk-shifting behavior for SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variables include: the ranking obtained by a fund by the end of the first part of the year (RANK), the total number of screens employed by each fund (SI), the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), and a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using between effects. The sample includes 30 socially responsible funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	-0.013594 (-0.35)	-0.065479 (-1.22)	-0.039194 (-1.01)	-0.051922* (-1.91)	-0.100676*** (-4.60)
SI	0.001194 (0.19)	0.005129 (0.78)	0.006140 (1.23)	0.004777 (1.11)	0.002170 (0.58)
ENV	0.001572 (0.08)	0.008193 (0.42)	0.011548 (0.79)	0.009800 (0.74)	0.017771 (1.54)
SOC	-0.007441 (-0.52)	0.002613 (0.17)	0.003441 (0.31)	0.006673 (0.68)	0.005972 (0.71)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	-0.002241 (-0.07)	-0.007225 (-0.21)	-0.002643 (-0.10)	0.005561 (0.24)	0.024208 (1.20)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	0.003329 (0.36)	-0.003811 (-0.41)	-0.007468 (-1.07)	-0.004194 (-0.67)	-0.001186 (-0.22)
LAB	0.007462 (0.34)	-0.022008 (-1.02)	-0.033505* (-2.05)	-0.032435* (-2.16)	-0.037877** (-2.97)
L_SIZE	-0.001294 (-0.38)	0.002554 (0.70)	0.004548 (1.62)	0.004774* (2.03)	0.008563*** (4.36)
L_AGE	-0.013689 (-1.06)	-0.023673* (-1.81)	-0.022189* (-2.20)	-0.021253** (-2.40)	-0.031515*** (-4.21)
TER	-0.009005 (-0.76)	0.021259 (1.55)	0.029103** (3.05)	0.035715*** (4.46)	0.035576*** (5.21)
Observations	256	256	256	256	256
Year dummies	Included	Included	Included	Included	Included

Table 4.18. Risk-shifting behavior and screening characteristics (sectoral and transversal screens) – UK subsample

This table reports the results of panel data regressions for the risk-shifting behavior for SRI funds. The dependent variable is the variation in risk experienced by a fund between the second and first part of the year ($\Delta\sigma$). The independent variables include: the ranking obtained by a fund by the end of the first part of the year (RANK), the number of sectoral (SECT) and transversal (TRNSV) screens employed by each fund, the types of screens applied by each fund (Environment – ENV; Social – SOC; Governance – GOV; Products – PROD; and Shareholder Engagement – SHENG), the number of positive screens enforced by each fund (PSCR), and a dummy variable that assumes the value of 1 if the fund has been certified with at least one social label, and 0 otherwise (LAB). Control variables are: lagged logarithm of the variable Size, measured by fund's total net assets in million US dollars (L_SIZE); lagged logarithm of the variable Age, measured as the number of months since the fund's inception (L_AGE); and Total Expense Ratio, in percentage (TER). The model is estimated using between effects. The sample includes 30 socially responsible funds for the 2003-2014 period with five cut-off points for each year: April (4,8), May (5,7), June (6,6), July (7,5), and August (8,4). t-statistics are shown in parentheses. ** p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01*

	(4,8)	(5,7)	(6,6)	(7,5)	(8,4)
Ranking (RANK)	-0.013802 (-0.34)	-0.066728 (-1.18)	-0.040342 (-1.01)	-0.051807 (-1.81)	-0.100846*** (-4.39)
SECT	-0.000596 (-0.08)	0.006327 (0.79)	0.008153 (1.38)	0.005008 (0.95)	0.001548 (0.34)
TRNSV	0.005894 (0.48)	0.002136 (0.17)	0.00099 (0.11)	0.004167 (0.50)	0.003801 (0.53)
ENV	-0.000284 (-0.01)	0.009406 (0.45)	0.013579 (0.88)	0.010036 (0.71)	0.017138 (1.39)
SOC	-0.008222 (-0.55)	0.003240 (0.20)	0.004389 (0.38)	0.006767 (0.65)	0.005711 (0.64)
GOV	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PROD	-0.004356 (-0.12)	-0.005861 (-0.16)	-0.000297 (-0.01)	0.005827 (0.24)	0.023492 (1.10)
SHENG	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
PSCR	0.002457 (0.25)	-0.003276 (-0.33)	-0.006516 (-0.89)	-0.004081 (-0.61)	-0.001488 (-0.26)
LAB	0.012538 (0.50)	-0.025265 (-1.00)	-0.039090* (-2.09)	-0.033106* (-1.88)	-0.036107** (-2.42)
L_SIZE	-0.001780 (-0.48)	0.002830 (0.71)	0.005045 (1.70)	0.004839* (1.87)	0.008394*** (3.90)
L_AGE	-0.012122 (-0.87)	-0.024604 (-1.75)	-0.023819* (-2.24)	-0.021463* (-2.23)	-0.030969*** (-3.81)
TER	-0.011411 (-0.85)	0.022987 (1.48)	0.031878** (3.00)	0.036023*** (3.93)	0.034736*** (4.44)
Observations	256	256	256	256	256
Year dummies	Included	Included	Included	Included	Included

4.5.3. Robustness tests

We perform a series of robustness checks[80] (for both contingency tables and regression approach) to test the sensitivity of our results to the dynamic of risk-shifting behavior over time, the exclusion of the month of December, alternative variables to ranking and risk variation, and sorting bias.

First, in line with previous empirical studies (e.g., Marco *et al*., 2011), to investigate if the results are consistent during the time horizon of our research, we split the sample into two equal sub-periods: 2003 to 2008, and 2009 to 2014. Whether the dynamics of risk-shifting behavior over time may affect the results for the entire period is an issue that has been raised by several authors. By way of example, Jans and Otten (2008) exhibits evidence for tournament behavior during the first part of the sample period (1989-1996), and evidence for strategic behavior during the second part of the sample period (1997-2003).

Concerning the contingency tables approach, when we divide the sample into two equal sub-periods, some new results emerge for the conventional global sample, and UK subsamples. In particular, there is evidence of strategic behavior for the conventional global sample for the 2003-2008 period, and (7,5) and (8,4) evaluation periods. For the UK conventional subsample, the results are similar to those achieved for the global sample but, for the second part of the sample period (2009-2014), we find a significant tournament behavior for the (7,5) evaluation period. With regard to UK SRI funds, our results corroborate and extend those obtained for the whole period. Specifically, we detect a tournament pattern behavior for both sub-periods, and (6,6) (only for 2009 to 2014), (7,5), and (8,4) assessment periods.

With respect to regression analysis, there are also some differences in comparison to the whole sample period. For the conventional global sample, the results hold for the 2003-2008 period. For the years between 2009 and 2014, the strategic behavior only exists for the (6,6) assessment period. The conclusions for US conventional funds are mixed, since we find different patterns of management behavior depending on the subsample period, and evaluation moments. The European (with and without UK) subsamples exhibit a strategic behavior for the 2003-2008 period for all evaluation periods (with the exception of the August cut-off). For UK funds, we find evidence of strategic behavior for the 2003-2008 period, and the July and August cut-offs. Turning to SRI

[80] For the sake of space, we do not present the results, but they are available upon request.

funds, for the global sample, we find similar results to table 4.4 for the first sample period. Nevertheless, when we consider the 2009-2014 period, conclusions are dual: there is evidence of strategic (tournament) behavior for the (4,8) ((8,4)) evaluation period, for the simple model (equation 4.5). The results for US and UK SRI funds confirm a tournament pattern behavior for both time periods. Interestingly, for both European subsamples, the conclusions differ when we compare the two sub-periods. There is evidence of tournament behavior for the first part of the sample (2003-2008), while a strategic behavior pattern is uncovered for the 2009-2014 period.

Second, as in Brown *et al.* (1996), Jans and Otten (2008), and Elton *et al.* (2010), among others, we will examine the management risk-taking behavior excluding the month of December. Given that fund managers may use a "window dressing" strategy at the end of the calendar year in order to improve performance, we alternatively perform our analysis on a dataset that excludes the December returns.

Focusing on the contingency tables methodology, after excluding the observations of December, our analysis indicates tournament behavior in the US and UK SRI subsamples and (4,7) evaluation period, besides the results already obtained for UK SRI funds for the (7,5) evaluation period. Applying the regression analysis, for conventional funds, the only significant difference that we should highlight is the disappearance of the strategic behavior previously found for Europe (with and without UK) in the (6,5) assessment period. The results obtained for SRI funds are also consistent with the main analysis. Notwithstanding, we observe that there is now evidence of strategic behavior in the global sample and US subsample for the (7,4) assessment period. Furthermore, whilst the tournament pattern disappears for European SRI funds in the June cut-off, our results suggest strategic behavior in both European subsamples for the (5,6) evaluation period.

Third, like Hallahan *et al.* (2008), we regress the two variables from the contingency tables methodology (i.e., the funds' cumulative returns – RTN – and the risk adjustment ratio – RAR), alternatively to ranking and variation in risk. We find quite similar results for conventional and SRI subsamples.

Finally, in line with Schwarz (2012) and Karoui and Meier (2015a), who argue that tournament literature is affected by sorting bias, we introduce the standard deviation over the first part of the year as explanatory variable on equations (4.5) and (4.6). With the exception of UK conventional funds, for which there is evidence of strategic behavior in the (4,8), (6,6), and (7,5) evaluation periods, when we consider the effect of the sorting bias the results are, in general,

consistent with previous analysis.

4.6. Conclusions

Previous studies in Finance evaluate how mutual fund managers adjust risk in the second part of a reporting year as a response to fund relative performance in the first part of the same year. Theoretical arguments and empirical results on the risk-shifting behavior are mixed: some authors claim that the managers with the worst rankings at the end of the first part of the year (interim "losers") are those who proportionally increase the risk the most – the tournament behavior hypothesis –, while others defend that it is interim "winners" who strategically assume more risk in the second part of the year – the strategic behavior hypothesis.

In this essay, we contend that the mutual fund industry can be seen as a tournament in which the managers compete with each other for new assets (and, hence, higher compensation) based on funds' relative performance, but it is not clear how they manipulate risk in order to achieve their financial goals. Managers may have distinct incentives to change the volatility of their portfolios after an interim performance assessment, not only based on their ranking ("winners" *versus* "losers"), but also depending on the type of fund (conventional *versus* socially responsible) and other financial and social characteristics.

Thus, we analyze the risk-taking behavior of conventional and SRI equity mutual fund managers in response to their relative performance over a period of 12 years (2003 to 2014), and considering five different cut-off points to distinguish the first and the second part of the year, namely April, May, June, July, and August. The empirical study is conducted for the global sample, and four geographical subsamples (US, Europe, Europe except UK, and UK), and we apply two different and complementary methodologies – contingency tables and regression analysis.

In general, for the conventional subsample, our results support the strategic behavior hypothesis. Except for the UK subsample, we find evidence that best performing fund managers are those who increase their risk level, consistent with the prediction of Taylor (2003). This result is observed when we apply the regression approach (there are no significant results when using contingency tables). Regarding the SRI subsample, for the global sample and US subsample, we conclude that subsequent period risk is negatively dependent of the fund ranking, indicating evidence of tournament behavior pattern. However, this pattern is observed only when we regress

funds' ranking on risk variation without considering social factors. When we incorporate the screening features in the analysis, the pattern turns out to be of a strategic behavior nature. For Europe (with and without the UK), the empirical results are mixed for the scenario without social variables. After taking into account the social factors, and similar to the global sample and US subsamples, we conclude that managers who are interim "winners" increase the level of risk of their portfolios. Interestingly, we observe a different risk-return reaction profile in UK SRI fund managers. For both contingency tables and regression analysis, we find consistent evidence favorable to the tournament hypothesis first put forward by Brown *et al.* (1996). In fact, the only significant result applying the contingency tables approach is found for UK SRI funds in the (7,5) evaluation period.

It is generally recognized that investors and managers are increasingly aware of issues related to corporate governance, emission control, global warming, or community investing, and other important factors that they may use to screen firms from their investment portfolios. Given that these social factors may act as a "shield" in mitigating risk (e.g., Jo and Na, 2012; Bouslah *et al*., 2013, Sun and Cui, 2014), we expect them to have a mediation role concerning managers' risk-taking behavior. The risk of reputational damage and the potential of financial damage which may occur in the sequence of an ESG-related incident may operate as a driver for management risk-taking. Examples like BP and Tepco (on environmental issues), Lonmin and Foxconn (on social issues), or UBS, Lehman Brothers, and GlaxoSmithKline (on governance), clearly illustrate the impact of ignoring such issues (Tinelli, 2016). We find some interesting results with regard to screening characteristics. More specifically, environmental, governance, and shareholder engagement screens seem to have a positive impact on fund risk variation. This means that managers of SRI funds that apply these screening types increase their level of risk exposure, a result that is partially consistent with Bouslah *et al.* (2013), who find that Standard & Poor's 500 companies' risk is positively affected by the environmental component of social performance, and corporate governance concerns. Differently, the enforcement of positive and sectoral screening contributes to fund risk reduction. The effect of social labels is conditional on the geographical market: there is a positive effect for US SRI funds, and a negative one for European (with and without UK) and UK SRI subsamples.

Furthermore, focusing on funds' characteristics, our evidence clearly suggests that older conventional and SRI funds have lower risk exposure. With regard to size and expense ratio, the conclusions are mixed.

The robustness tests we performed mainly confirm the consistency of our results. Specially for UK funds, the results hold for both contingency tables and regression analysis when we split the sample between two equal sub-periods (2003-2008 and 2009-2014) and exclude the observations of the month of December, or apply the RTN and RAR measures from contingency tables and correct for sorting bias in the regression approach.

Concerning the methodologies used, we chose a non-parametric (contingency tables) and a parametric (regression analysis) approach, which assumes that all variation in risk derives from the reaction of managers to funds' relative performance. Yet, this is not necessarily the case. In fact, fund managers can alter the risk of their portfolios by adjusting the composition of the portfolios, depending on the benchmarks' evolution, or the information prospects on companies, industries and countries, among other factors. Future research may integrate these considerations in the analysis.

Inferring the incentives and actions of SRI fund managers is relevant for the financial community, regulators, and policy-makers. The major implication of the results is that managers of conventional and SRI funds tend to act similarly regarding the manipulation of risk as reaction to funds' interim performance. Although the SRI academic literature intensively highlights that SRI funds may differ from their conventional in several ways (e.g., Humphrey *et al*., 2016 argue that SRI managers may possess different personal characteristics from conventional managers, which could have an impact on performance), we conclude that both types of managers strategically increase (decrease) the risk exposure of "winner" ("loser") funds. Notwithstanding, we should emphasize that the conclusion is only valid when social factors are taking into account, in what we may interpret as the screening process conveying value-relevant information to fund managers' actions. In fact, both SRI and non-SRI managers revise the risk of their portfolios given the relative performance during the first part of the year but, unlike Brown *et al.* (1996) and following papers that provide evidence of management tournament behavior, we cannot state that overall there are adverse incentives for managers to change the risk exposure of a fund in order to boost performance and consequently managers' compensation.

CHAPTER 5 – CONCLUSIONS, LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Undoubtedly, the performance of SRI is one of the most interesting questions that has emerged in the financial discipline during the last decades. While several studies have argued in favor of the financial benefits of SRI, there is still some skepticism in the financial community towards investing with a social agenda, as the issue of whether investing in socially responsible firms can generate better performance has an unsettled status in the empirical literature.

This research aims to contribute with new insights to this recent mindset in the mutual fund industry, and help clarifying the ambiguity regarding some particular topics of research in the field, particularly the relationship between financial returns and social screening, the flow-performance relationship for conventional and SRI funds, the dichotomy "smart" money *versus* "dumb" money, and the risk-taking behavior of conventional and SRI managers. To explore these issues, we address the following main questions:

i) Does the screening process affect the funds' financial performance? In other words, are ESG-screened funds penalized or rewarded in terms of returns?

ii) How does each of the multiple dimensions of social screening impact the financial performance, money flows, future abnormal returns, and management behavior of SRI funds?

iii) What is the shape of the flow-performance relationship of SRI funds, and are there differences in comparison with non-SRI funds?

iv) Are SRI investors able to allocate resources to funds that will generate positive abnormal returns, i.e., is there a "smart" money effect in the SRI fund industry? And how does this ability compare to conventional investors?

v) Is there a pattern of risk-taking behavior for SRI and conventional fund managers? And do they behave as competing in a tournament or adopting a strategic attitude?

vi) Is the impact of screening dependent on different market states (expansion and recession periods)?

vii) Are there context-specific results? That is, does the analysis for geographic regions or countries uncover regional differences in SRI?

Although the three chapters that cover these questions can be read independently and are

able to stand for themselves, a thorough understanding of this research implies linking all its partial contributions. Hence, we will next summarize the main conclusions of our essays and how they relate with each other.

First, an important conclusion is that, in general, highly screened funds are not penalized with a lower financial performance. For our whole sample and US funds in particular, we find evidence of a curvilinear relationship (in an inverted U-shape) between the number of screens applied by SRI funds and their risk-adjusted returns, reflecting the trade-off between selectivity and diversification that SRI investors face in their investment decisions. This means that when funds increase screening intensity, they first obtain a higher performance but, after a certain level of social screens, performance is detracted. Furthermore, *ceteris paribus*, returns are higher for maximum screening intensity (16 screens) compared with minimum screening intensity (one screen). Focusing on continental Europe and Scandinavia, our results show a positive relationship between the number of screens employed and financial performance, i.e., the higher the screening intensity, the more favorable the financial performance. For the UK subsample, we find a quite divergent conclusion, namely a negative relationship between the number of sectoral screens (we find no significant results for total screening intensity) and financial outcomes.

A second relevant finding concerns the relationship between SRI and conventional money flows and past flows. Overall, it appears that SRI investors react negatively to current (monthly) returns and positively to past (annual) returns, whereas their conventional peers only seem to respond (negatively) in a shorter time horizon (except for US and UK funds, which also tend to respond negatively to annual performance). Unlike previous studies, we do not demonstrate that money flows rush into best performing funds, while remaining with worst performing funds, or that SRI investors are less inclined (in comparison with non-SRI investors) to withdraw money from funds with poor performance. Furthermore, we document UK SRI investors' loyalty, i.e., we obtain evidence of significant persistence in money flows, meaning that UK SRI investors tend to stick with funds that they already own.

Thirdly, we observe the presence of a "smart" money effect for US and European (except for UK) SRI funds. In fact, we show that investors that incorporate ESG considerations in their decisions have the ability to allocate money to funds that will perform well in the future. Nevertheless, we only detect a "smart" money effect for the US subsample when we exclude social screening characteristics. Differently, for the European (without UK) subsample, the "smart"

money effect emerges after taking into account the funds' social characteristics.

Furthermore, we explore the risk-shifting behavior of conventional and SRI fund managers, in order to assess how managers manipulate funds' risk in the second part of a given year as a response to funds' returns in the first part of the same year (i.e., if they engage in a tournament or a strategic behavior). We obtain conclusive evidence that conventional and SRI fund managers exhibit a pattern of strategic behavior, meaning that managers of interim "winners" are those who increase risk the most. However, we should point out however that UK SRI managers, when individually considered, display a tournament behavior. Moreover, interestingly, the strategic behavior for the whole sample, and European (with and without UK) and US subsamples, is only observed when we introduce social variables in the analysis.

We also validate the proposition that the screening features affect funds' risk-adjusted returns, money flows, abnormal future returns, and risk. Specifically, we conclude that governance screens and the certification by social labels enhance the performance of SRI funds. Additionally, if we focus on the US subsample, beyond the positive effect of governance screening on financial returns, we identify a negative impact of environmental and products screening. Concerning the flow-performance relationship, US SRI flows are responsive to screening intensity and types of screens, positive screening and labels. The certification by social labels also seems to influence UK SRI money flows, whilst transversal, products and positive screens affect European fund flows. When we conduct the "smart" *versus* "dumb" money analysis, we see evidence of governance screening and social labels having a positive effect on subsequent abnormal returns. Looking to the risk-return binomial, we conclude that social labels are relevant factors in reducing risk variation of European (with and without UK) and UK SRI funds. For the whole sample, we find mixed evidence: some types of screens seem to contribute positively to risk variation, while sectoral and positive screens show the opposite behavior.

Another noteworthy result concerns the consideration of different market states. When we split the sample between expansion and recession periods, we show that market states mostly play a relevant role in the empirical assessment of the financial performance of screened funds and the cash flow timing skills of SRI investors. Considering screening and performance, our results indicate that the curvilinear relationship between screening intensity and risk-adjusted returns for the global sample and US subsample only holds for expansion times. A similar situation occurs with the positive relationship found for European (except UK) funds, suggesting that these

conclusions are mainly driven by expansion periods. Differently, we only detect a "smart" money effect for the whole sample (in the model without social variables) and European subsample (in the models with social variables), and a "dumb" money effect for the UK subsample, in recession market states. In addition, we also find that the "smart" money of European (without UK) funds is observed only in recession times.

Finally, it is worth mentioning that controlling for fund characteristics, the results indicate that larger SRI funds benefit from higher financial returns, but attract lower money flows, and older SRI funds are less exposed to risk.

Thus, to sum up, we provide a comprehensive analysis of US and European conventional and SRI equity mutual funds from 2003 to 2014, which adds to extant literature in several ways. We first clarify that SRI investors may incorporate additional screens in their investment decisions without suffering a financial loss. Concerning the individual effects of social screening criteria, SRI funds applying corporate governance screens seem to be financially rewarded. Interestingly, funds certified by social labels also seem to benefit in financial terms, in what we believe to be a breakthrough with respect to previous academic research. Moreover, we present compelling evidence of SRI investors having the ability to select funds that will perform well in future. Focusing on fund management, we demonstrate that both conventional and SRI managers tend to present a strategic behavior. Remarkably, the result for SRI managers is only valid when we integrate social considerations in the analysis, reinforcing the idea that ESG information is useful for managerial decision-making process. Furthermore, we find some idiosyncrasies in relation to UK SRI investors and managers, namely the loyalty of UK SRI investors (they tend to remain with funds they already possess) and the tournament behavior of UK SRI managers (they exhibit a pattern of increasing risk in the second part of a year as a reaction to poor performance in the first part of the year). The segmentation between expansion and recession market states also allows us to conclude that the results for the relationship between screening intensity and risk-adjusted performance are mainly expansion-driven, while the opposite occurs for the "smart" money effect (which is mostly recession-induced). Finally, we should stress the cross-country differences between our results. Some of our conclusions are not homogeneous, and depend on the country/region considered, reinforcing the importance of recognizing cultural, social, legal, and political factors as relevant to understand the background and development of socially responsible investing around the world.

Notwithstanding, we acknowledge that our research has some limitations. First and foremost, we recognize the difficulty of obtaining time series on funds' screening. As in some studies, we assume that social screening is not time-varying, since we were not able to keep a track on the evolution of US SIF Mutual Fund Performance Chart or funds' prospectuses and websites during our sample period (2003 to 2014). Another shortcoming relates to the methodology for assessment of risk-adjusted performance. Although we estimate the Carhart (1997) model in a rolling window of 36 months of returns data, which somehow accounts for time-variation of risk, prior research assumes that betas vary over time in response to public information variables that proxy for economic conditions (e.g., Ferson and Schadt, 1996). In addition, several studies in the tournament behavior literature (e.g., Ammann and Verhofen, 2007, 2009; Chen and Pennacchi, 2009) apply measures of risk other than the returns' standard deviation (e.g., the tracking error), while others (e.g., Karoui and Meier, 2015b) highlight that risk exposure is sensitive to other factors than the managers' actions. These limitations of our study are issues to be addressed in future research.

Another interesting path for future research, and that has been intensively mentioned in several studies, concerns the theorization of socially responsible investing. Although investing according to ESG criteria is widely accepted by the financial community, this new paradigm is still in construction and lacks archetypes of reference. Capelle-Blancard and Monjon (2012) argue that SRI academic research is mostly data-driven, in what the authors illustrate as the "*looking for the keys under the lamppost*" syndrome. The authors defend the need of a conceptual and theoretical background that is able to contribute to enlighten the aspirations of SRI investors, the relationship between regulation and SRI, as well as the assessment of extra-financial performance.

In line with the previous suggestion, Behavioral Finance may play a significant role to comprehend the behavior of managers, investors, regulators, and other financial market agents, with respect to socially responsible investing practices. While the majority of research on asset allocation is developed in the context of standard Finance (which views investors as rational decision-makers who simply want to maximize their financial utility), advisers often focus their investment recommendations on factors like their clients' investment goals, needs and reaction lo losses. Behavioral Finance recognizes the relevance of such psychological elements in financial decision-making, and challenges the traditional assumption that investors weigh risk and return rationally and act without biases (Andreu and Sarto, 2015).

Given that empirical studies on emerging markets or even markets different from US and Europe are scarce, further research might focus on issues such as screening and performance, flow-performance relationship or the risk-taking behavior, among others already mentioned as relevant, employing data from funds domiciled in Latin America (e.g., Mexico), Asia-Pacific (e.g., Japan, Singapore, Malaysia), or Africa (e.g., South Africa), as these unexplored markets may uncover interesting results. In terms of financial instruments that might attract socially conscious investors, there are few studies on alternative vehicles for investment like, for example, Exchange-Traded Funds (ETF), bonds or infrastructure and real estate funds. In fact, most of the SRI research focuses on equity mutual funds. Nevertheless, considering other investment options can reinforce the existing knowledge about SRI.

Furthermore, future research may rely on longer time series of returns, that preferably encompass the final decades of the 20th century and the recent years from the 21th century. With longer evaluation periods, one may obtain a broader perspective from the several dimensions of the SRI phenomenon.

Finally, we suggest that researchers devote their work to the development of a valid and generally accepted metric to quantify the multidimensional nature of socially responsible activities. This measure should allow investors to have enough information on screening indicators to be able to fully integrate them into their financial choices.

REFERENCES

Abdullah, F., Hassan, T., & Mohamad, S. (2007). Investigation of Performance of Malaysian Islamic Unit Trust Funds: Comparison with Conventional Unit Trust Funds. *Managerial Finance*, 33(2), 142-153.

Acker, D., & Duck, N. (2006). A Tournament Model of Fund Management. *Journal of Business Finance and Accounting*, 33(9-10), 1460-1483.

Ammann, M., & Verhofen, M. (2007). Prior Performance and Risk-Taking of Mutual Fund Managers: A Dynamic Bayesian Network Approach. *Journal of Behavioral Finance*, 8(1), 20-34.

Ammann, M., & Verhofen, M. (2009). The Impact of Prior Performance on the Risk-Taking of Mutual Fund Managers. *Annals of Finance*, 5, 69-90.

Andreu, L., & Sarto, J. (2015). Strategic Allocation and Rebalancing. In H. Baker, G. Filbeck, & H. Kiymoz (Eds.). *Mutual Funds and Exchange-Traded Funds: Building Blocks to Wealth:* 291-306. New York: Oxford University Press.

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

Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economic Studies*, 58(2), 277-297.

Arellano, M., & Bover, O. (1995). Another Look at the Instrumental Variable Estimation of Error-Components Models. *Journal of Econometrics*, 68(1), 29-51.

Barnett, M., & Salomon, M. (2006). Beyond Dichotomy: The Curvilinear Relationship Between Social Responsibility and Financial Performance. *Strategic Management Journal*, 27(11), 1101-1122.

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

Bauer, R., Otten, R., & Rad, A. (2006). Ethical Investing in Australia: Is There a Financial Penalty? *Pacific-Basin Finance Journal*, 14, 33-48.

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

Bauer, R., & Smeets, P. (2015). Social Identification and Investment Decisions. *Journal of Economic Behavior and Organization*, 117, 121-134.

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

Bello, Z. (2005). Socially Responsible Investing and Portfolio Diversification. *Journal of Financial Research*, 28(1), 41-57.

Bengtsson, E. (2008). A History of Scandinavian Socially Responsible Investing. *Journal of Business Ethics*, 82(4), 969-983.

Benson, K., & Humphrey, J. (2008). Socially Responsible Investment Funds: Investor Reaction to Current and Past Returns. *Journal of Banking & Finance*, 32(9), 1850-1859.

Bergstresser, D., & Poterba, J. (2002). Do After-Tax Returns Affect Mutual Fund Inflows? *Journal of Financial Economics*, 63(3), 381-414.

Berk, J., & Green, R. (2004). Mutual Fund Flows and Performance in Rational Markets. *Journal of Political Economy*, 112(6), 1269-1295.

Berry, T., & Junkus, J. (2013). Socially Responsible Investing: An Investor Perspective. *Journal of Business Ethics*, 112(4), 707-720.

Biehl, C., Hoepner, A., & Liu, J. (2012). Social, Environmental, and Trust Issues in Business and Finance. In H. Baker & J. Nofsinger (Eds.). *Socially Responsible Finance and Investing: Financial Institutions, Corporations, Investors, and Activists:* 111-141. Hoboken, New Jersey: John Wiley & Sons.

Blundell, R., & Bond, S. (1998). Initial Conditions and Moment Restrictions in Dynamic Panel Data Models. *Journal of Econometrics*, 87(1), 115-143.

Boasson, E., Boasson, V., & Cheng, J. (2006). Investment Principles and Strategies of Faith-Based Funds. *Managerial Finance*, 32(10), 837-845.

Bollen, N. (2007). Mutual Fund Attributes and Investor Behavior. *Journal of Financial and Quantitative Analysis*, 42(3), 683-708.

Borgers, A., Derwall, J., Koedijk, K., & Horst, J. (2015). Do Social Factors Influence Investment Behavior and Performance? Evidence from Mutual Fund Holdings. *Journal of Banking and* Finance, 60, 112-126.

Bouslah, K., Kryzanowski, L., & M'Zali, B. (2013). The Impact of the Dimensions of Social Performance on Firm Risk. *Journal of Banking and Finance*, 37(4), 1258-1273.

Brammer, S., Brooks, C., & Pavelin, S. (2009). The Stock Performance of America's 100 Best Corporate Citizens. *Quarterly Review of Economics and Finance*, 49(3), 1065-1080.

Brown, K., Harlow, W., & Starks, L. (1996). Of Tournaments and Temptations: An Analysis of Managerial Incentives in the Mutual Fund Industry. *Journal of Finance*, 51(1), 85-110.

Brown, S., & Goetzmann, W. (1995). Performance Persistence. *Journal of Finance*, 50(2), 679-698.

Brown, S., Goetzmann, W., Ibbotson, R., & Ross, S. (1992). Survivorship Bias in Performance Studies. *Review of Financial Studies*, 5(4), 553-580.

Busse, J. (2001). Another Look at Mutual Fund Tournaments. *Journal of Financial and Quantitative Analysis*, 36(1), 53-73.

Capelle-Blancard, G., & Monjon, S. (2012). Trends in the Literature on Socially Responsible Investment: Looking for the Keys under the Lamppost. *Business Ethics: A European Review*, 21(3), 239-250.

Capelle-Blancard, G., & Monjon, S. (2014). The Performance of Socially Responsible Funds: Does the Screening Process Matter? *European Financial Management*, 20(3), 494-520.

Capon, N., Fitzsimons, G., & Prince, R. (1996). An Individual Level Analysis of the Mutual Fund Investment Decision. *Journal of Financial Services Research*, 10, 59-82.

Carhart, M. (1997). On Persistence in Mutual Fund Performance. *Journal of Finance*, 52(1), 57-82.

Cashman, G., Nardari, F., Deli, D., & Villupuram, S. (2014). Investor Behavior in the Mutual Fund Industry: Evidence from Gross Flows. *Journal of Economics and Finance*, 38(4), 541-567.

Centre for Economic Policy Research – CEPR (2017). *Euro Area Business Cycle Dating Committee*. Retrieved February 21, 2017, from http://www.cepr.org/content/euro-area-business-cycle-dating-committee.

Chang, C., Nelson, W., & White, H. (2012). Do Green Mutual Funds Perform Well? *Management Research Review*, 35(8), 693-708.

Chang, E., & Witte, D. (2010). Performance Evaluation of US Socially Responsible Mutual Funds: Revisiting Doing Good and Doing Well. *American Journal of Business*, 25(1), 9-21.

Chen, H., & Pennacchi, G. (2009). Does Prior Performance Affect a Mutual Fund's Choice of Risk? Theory and Further Empirical Evidence. *Journal of Financial and Quantitative Analysis*, 44(4), 745-775.

Chen, J., Hong, H., Huang, M., & Kubik, J. (2004). Does Fund Size Erode Mutual Fund Performance? The Role of Liquidity and Organization. *American Economic Review*, 94(5), 1276-1302.

Chevalier, J., & Ellison, G. (1997). Risk Taking by Mutual Funds as a Response to Incentives. *Journal of Political Economy*, 105(6), 1167-1200.

Christoffersen, S., & Xu, H. (2017). Investor Attrition and Fund Flows in Mutual Funds. *Journal of Financial and Quantitative Analysis*, 52(3), 867-893.

Chong, J., Her, M., & Phillips, G. (2006). To Sin or Not to Sin? Now That's the Question. *Journal of Asset Management*, 6(6), 406-417.

Climent, F., & Soriano, P. (2011). Green and Good? The Investment Performance of US Environmental Mutual Funds. *Journal of Business Ethics*, 103(2), 275-287.

Cordeiro, J., & Sarkis, J. (1997). Environmental Proactivism and Firm Performance: Evidence from Security Analyst Earnings Forecasts. *Business Strategy and the Environment*, 6, 104-114.

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

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

Cullen, G., Gasbarro, D., Monroe, G., & Zumwalt, J. (2012). Changes to Mutual Fund Risk: Intentional or Mean Reverting? *Journal of Banking and Finance*, 36, 112-120.

Dahlquist, M., Engström, S., & Söderlind, P. (2000). Performance and Characteristics of Swedish Mutual Funds. *Journal of Financial and Quantitative Analysis*, 35(3), 409-423.

de Haan, M., Dam, L., & Scholtens, B. (2012). The Drivers of the Relationship Between Corporate Environmental Performance and Stock Market Returns. *Journal of Sustainable Finance and Investment*, 2(3-4), 338-375.

Del Guercio, D., & Tkac, P. (2002). The Determinants of the Flow of Funds of Managed Portfolios: Mutual Funds vs. Pension Funds. *Journal of Financial and Quantitative Analysis*, 37(4), 523-557.

Derwall, J., Guenster, N., Bauer, R., & Koedijk, K. (2005). The Eco-Efficiency Premium Puzzle. *Financial Analysts Journal*, 61(2), 51-63.

Derwall, J., Koedijk, K., & Horst, J. (2011). A Tale of Values-Driven and Profit-Seeking Social Investors. *Journal of Banking and Finance*, 35(8), 2137-2147.

Diltz, J. (1995). Does Social Screening Affect Portfolio Performance? *Journal of Investing*, 4(1), 64-69.

Dowell, G., Hart, S., & Yeung, B. (2000). Do Corporate Global Environmental Standards Create or Destroy Market Value? *Management Science*, 46(8), 1059-1074.

Dunfee, T. (2003). Social Investing: Mainstream or Backwater? *Journal of Business Ethics*, 43(3), 247-252.

Economic Cycle Research Institute – ECRI (2017). *Business Cycle Peak and Trough Dates, 21 Countries, 1948-2015*. Retrieved February 21, 2017, from http://www.businesscycle.com.

Edmans, A. (2011). Does the Stock Market Fully Value Intangibles? Employee Satisfaction and Equity Prices. *Journal of Financial Economics*, 101(3), 621-640.

El Ghoul, S., & Karoui, A. (2017). Does Corporate Social Responsibility Affect Mutual Fund Performance and Flows? *Journal of Banking and Finance*, 77, 53-63.

Elton, E., Gruber, M., & Blake, C. (1996). The Persistence of Risk-Adjusted Mutual Fund Performance. *Journal of Business*, 69, 133-157.

Elton, E., Gruber, M., Blake, C., Krasny, Y., & Ozelge, S. (2010). The Effect of Holdings Data Frequency on Conclusions about Mutual Fund Behavior. *Journal of Banking and Finance*, 34(5), 915-922.

European Sustainable Investment Forum – EUROSIF (2016). *European SRI Transparency Code*. Retrieved December 20, 2016, from http://www.eurosif.org.

Fabozzi, F., Ma, K., & Oliphant, B. (2008). Sin Stock Returns. *Journal of Portfolio Management*, 35(1), 82-94.

Fama, E. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *Journal of Finance*, 25(2), 383-417.

Fama, E., & French, K. (1993). Common Risk Factors in the Returns on Stocks and Bonds. *Journal of Financial Economics*, 33(1), 3-56.

Feng, X., Mingshan, Z., & Chan, K. (2014). Smart Money or Dumb Money? A Study on the Selection Ability of Mutual Fund Investors in China. *North American Journal of Economics and Finance*, 30, 154-170.

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

Ferreira, M., Keswani, A., Miguel, A., & Ramos, S. (2012). The Flow-Performance Relationship around the World. *Journal of Banking and Finance*, 36, 1759-1780.

Ferreira, M., Keswani, A., Miguel, A., & Ramos, S. (2013). The Determinants of Mutual Fund Performance: A Cross-Country Study. *Review of Finance*, 17, 483-525.

Ferruz, L., Muñoz, F., & Vargas, M. (2012). Managerial Abilities: Evidence from Religious Mutual Fund Managers. *Journal of Business Ethics*, 105(4), 503-517.

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

Filbeck, G., & Gorman, R. (2004). The Relationship Between the Environmental and Financial Performance of Public Utilities. *Environmental and Resource Economics*, 29, 137-157.

Forum Ethibel (2016). *Ethibel PIONEER Label*. Retrieved December 20, 2016, from http://www.forumethibel.org.

Frazzini, A., & Lamont, O. (2008). Dumb Money: Mutual Fund Flows and the Cross-Section of Stock Returns. *Journal of Financial Economics*, 88, 299-322.

Freeman, R. (1984). *Strategic Management: A Stakeholder Approach*. Boston: Pitman.

Galema, R., Plantiga, A., & Scholtens, B. (2008). The Stocks at Stake: Return and Risk in Socially Responsible Investment. *Journal of Banking and Finance*, 32(12), 2646-2654.

Gangi, F., & Trotta, C. (2015). The Ethical Finance as a Response to the Financial Crises: An Empirical Survey of European SRFs Performance. *Journal of Management and Governance*, 19(2), 371-394.

Gasser, S., Rammerstorfer, M., & Weinmayer, K. (2017). Markowitz Revisited: Social Portfolio Engineering. *European Journal of Operational Research*, 258(3), 1181-1190.

Geczy, C., Stambaugh, R., & Levin, D. (2005). Investing in Socially Responsible Mutual Funds. [Working paper]. *University of Pennsylvania, Wharton School*, United States of America.

Gil-Bazo, J., & Ruiz-Verdú, P. (2009). Yet Another Puzzle? The Relation Between Price and Performance in the Mutual Fund Industry. *Journal of Finance*, 64(5), 2153-2183.

Gil-Bazo, J., Ruiz-Verdú, P., & Santos, A. (2010). The Performance of Socially Responsible Mutual Funds: The Role of Fees and Management Companies. *Journal of Business Ethics*, 94, 243-263.

Global Sustainable Investment Alliance – GSIA (2016). Global Sustainable Investment Review 2016. Retrieved November 15, 2017, from http://www.gsi-alliance.org.

Goetzmann, W., & Peles, N. (1997). Cognitive Dissonance and Mutual Fund Investors. *Journal of Financial Research*, 20(2), 145-158.

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

Goriaev, A., Nijman, T., & Werker, B. (2005). Yet Another Look at Mutual Fund Tournaments. *Journal of Empirical Finance*, 12(1), 127-137.

Gregory, A., Matatko, J., & Luther, R. (1997). Ethical Unit Trust Financial Performance: Small Company Effects and Fund Size Effects. *Journal of Business Finance and Accounting*, 24(5), 705-725.

Grinblatt, M., & Titman, S. (1992). The Persistence of Mutual Fund Performance. *Journal of Finance*, 47(5), 1977-1984.

Gruber, M. (1996). Another Puzzle: The Growth in Actively Managed Mutual Funds. *Journal of Finance*, 51(3), 783-810.

Guenster, N., Bauer, R., Derwall, J., & Koedijk, K. (2011). The Economic Value of Corporate Eco-Efficiency. *European Financial Management*, 17(4), 679-704.

Halbritter, G., & Dorfleitner, G. (2015). The Wages of Social Responsibility – Where Are They? A Critical Review of ESG Investing. *Review of Financial Economics*, 26, 25-35.

Hallahan, T., & Faff, R. (2009). Tournament Behavior in Australian Superannuation Funds: A Non-Parametric Analysis. *Global Finance Journal*, 19(3), 307-322.

Hallahan, T., Faff, R., & Benson, K. (2008). Fortune Favors the Bold? Exploring Tournament Behavior among Australian Superannuation Funds. *Journal of Financial Services Research*, 33, 205-220.

Hamilton, S., Jo, H., & Statman, M. (1993). Doing Well While Doing Good? The Investment Performance of Socially Responsible Mutual Funds. *Financial Analysts Journal*, 49(6), 62-66.

Hayat, R., & Kraeussl, R. (2011). Risk and Return Characteristics of Islamic Equity Funds. *Emerging Markets Review*, 12(2), 189-203.

Henke, H. (2016). The Effect of Social Screening on Bond Mutual Fund Performance. *Journal of Banking and Finance*, 67, 69-84.

Hoepner, A., & McMillan, D. (2009). Research on 'Responsible Investment': An Influential Literature Analysis Comprising a Rating, Characterization, Categorization and Investigation. [Working paper]. SSRN eLibrary.

Hoepner, A., Rammal, H., & Rezec, M. (2011). Islamic Mutual Funds' Financial Performance and International Investment Style: Evidence from 20 Countries. *European Journal of Finance*, 17(9-10), 829-850.

Hoepner, A., & Schopohl, L. (2016). On the Price of Morals in Markets: An Empirical Study of the Swedish AP-Funds and the Norwegian Government Pension Fund. *Journal of Business Ethics*, doi:10.1007/s10551-016-3261-0.

Hong, H., & Kacperczyk, M. (2009). The Price of Sin: The Effects of Social Norms on Markets. *Journal of Financial Economics*, 93(1), 15-36.

Huang, J., Wei, K., & Yan, H. (2007). Participation Costs and the Sensitivity of Fund Flows to Past Performance. *Journal of Finance*, 62(3), 1273-1311.

Huang, J., Wei, K., & Yan, H. (2012). Investor Learning and Mutual Fund Flows. [Working paper]. SSRN eLibrary, *AFA Chicago Meetings*.

Humphrey, J., & Lee, D. (2011). Australian Socially Responsible Funds: Performance, Risk and Screening Intensity. *Journal of Business Ethics*, 102(4), 519-535.

Humphrey, J., Warren, G., & Boon, J. (2016). What is Different about Socially Responsible Funds? A Holdings-Based Analysis. *Journal of Business Ethics*, 138(2), 263-277.

Ibikunle, G., & Steffen, T. (2015). European Green Mutual Fund Performance: A Comparative Analysis with their Conventional and Black Peers. *Journal of Business Ethics*, doi:10.1007/s10551-015-2850-7.

Indro, D., Jiang, C., Hu, M., & Lee, W. (1999). Mutual Fund Performance: Does Fund Size Matter? *Financial Analysts Journal*, 55(3), 74-87.

Ippolito, R. (1992). Consumer Reaction to Measures of Poor Quality: Evidence from the Mutual Fund Industry. *Journal of Law and Economics*, 35(1), 45-70.

James, C., & Karceski, J. (2006). Investor Monitoring and Differences in Mutual Fund Performance. *Journal of Banking and Finance*, 30, 2787-2808.

Jans, R., & Otten, R. (2008). Tournaments in the UK Mutual Fund Industry. *Managerial Finance*, 34(11), 786-798.

Jegadeesh, N., & Titman, S. (1993). Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency. *Journal of Finance*, 48(1), 65-91.

Jensen, A. (2016). Introduction to Scandinavia. In T. Hebb *et al.* (Eds.). *The Routledge Handbook of Responsible Investment*: 313-316. New York: Routledge.

Jo, H., & Na, H. (2012). Does CSR Reduce Firm Risk? Evidence from Controversial Industry Sectors. *Journal of Business Ethics*, 110(4), 441-456.

Johnson, W. (2007). Who Monitors the Mutual Fund Managers, New or Old Shareholders? [Working paper]. *University of Oregon*, United States of America.

Karoui, A., & Meier, I. (2015a). A Note on Sorting Bias Correction in Regression-Based Mutual Fund Tournament Tests. *Financial Markets and Portfolio Management*, 29, 21-29.

Karoui, A., & Meier, I. (2015b). Fund Performance and Subsequent Risk: A Study of Mutual Fund Tournaments Using Holdings-Based Measures. *Financial Markets and Portfolio Management*, 29, 1-20.

Kempf, A., & Osthoff, P. (2007). The Effect of Socially Responsible Investing on Portfolio Performance. *European Financial Management*, 13(5), 908-922.

Kempf, A., & Ruenzi, S. (2008). Tournaments in Mutual-Fund Families. *Review of Financial Studies*, 21(2), 1013-1036.

Kempf, A., Ruenzi, S., & Thiele, T. (2009). Employment Risk, Compensation Incentives, and Managerial Risk Taking: Evidence from the Mutual Fund Industry. *Journal of Financial Economics*, 92, 92-108.

Keswani, A., & Stolin, D. (2008). Which Money Is Smart? Mutual Fund Buys and Sells of Individual and Institutional Investors. *Journal of Finance*, 63(1), 85-118.

Kinder, P., & Domini, A. (1997). Social Screening: Paradigms Old and New. *Journal of Investing*, 6(4), 12-19.

King, A., & Lenox, M. (2001). Does it Really Pay to Be Green? An Empirical Study of Firm Environmental and Financial Performance. *Journal of Industrial Ecology*, 5(1), 105-116.

Klassen, R., & McLaughlin, C. (1996). The Impact of Environmental Management on Firm Performance. *Management Science*, 42(8), 1199-1214.

Konar, S., & Cohen, M. (1997). Information as Regulation: The Effect of Community Right to Know Laws on Toxic Emissions. *Journal of Environmental Economics and Management*, 32(1), 109-124.

Konar, S., & Cohen, M. (2001). Does the Market Value Environmental Performance? *Review of Economics and Statistics*, 83(2), 281-289.

Koski, J., & Pontiff, J. (1999). How Are Derivatives Used? Evidence from the Mutual Fund Industry. *Journal of Finance*, 54(2), 791-816.

Kreander, N., Gray, R., Power, D., & Sinclair, C. (2005). Evaluating the Performance of Ethical and Non-Ethical Funds: A Matched Pair Analysis. *Journal of Business Finance and Accounting*, 32(7-8), 1465-1493.

Kurtz, L. (1998). "Mr. Markowitz, meet Mr. Moskowitz" – A Review of Studies on Socially Responsible Investing. In *The Investment Research Guide to Socially Responsible Investing*, The Colloquium on Socially Responsible Investing.

Landier, A., & Nair, V. (2009). *Can SRI Achieve Change?* New York: Oxford University Press.

Laurel, D. (2011). Socially Responsible Investments in Europe: The Effects of Screening on Risk and the Clusters in the Fund Space. [Working paper]. *Politecnico di Milano*, Italy.

Lee, D., Humphrey, J., Benson, K., & Ahn, J. (2010). Socially Responsible Investment Fund Performance: The Impact of Screening Activity. *Accounting and Finance*, 50(2), 351-370.

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

Leite, P., & Cortez, M. (2016). The Performance of European Socially Responsible Fixed-Income Funds. [Working paper]. SSRN eLibrary.

Leite, C., Cortez, M., Silva, F., & Adcock, C. (2018, forthcoming). The Performance of Socially Responsible Equity Mutual Funds: Evidence from Sweden. *Business Ethics: A European Review*.

Louche, C., & Lydenberg, S. (2006). Socially Responsible Investment: Differences Between Europe and United States. [Working paper]. *Vlerick Leuven Gent Working Paper Series 22*.

Lückoff, P. (2011). *Mutual Fund Performance and Performance Persistence: The Impact of Fund Flows and Manager Changes*. Wiesbaden: Gabler Verlag.

Luther, R., Matatko, J., & Corner, D. (1992). The Investment Performance of UK "Ethical" Unit Trusts. *Accounting, Auditing and Accountability Journal*, 5(4), 57-70.

Luxembourg Finance Labelling Agency – LuxFLAG (2016). *Environment Label*. Retrieved December 20, 2016, from http://www.luxflag.org.

Lyn, E., & Zychowicz, E. (2010). The Impact of Faith-Based Screens on Investment Performance. *Journal of Investing*, 19(3), 136-143.

Lynch, A., & Musto, D. (2003). How Investors Interpret Past Fund Returns. *Journal of Finance*, 58(5), 2033-2058.

Mallett, J., & Michelson, S. (2010). Green Investing: Is it Different from Socially Responsible Investing? *International Journal of Business*, 15(4), 395-410.

Mallin, C., Saadouni, B., & Briston, R. (1995). The Financial Performance of Ethical Investment Funds. *Journal of Business Finance and Accounting*, 22(4), 483-496.

Marco, I., Muñoz, F., & Vargas, M. (2011). Do Ethical and Conventional Mutual Fund Managers Show Different Risk-Taking Behavior? *The Spanish Review of Financial Economics*, 9, 11-19.

Markowitz, H. (1952). Portfolio Selection. *Journal of Finance*, 7(1), 77-91.

Martí-Ballester, C. (2015). Investor Reactions to Socially Responsible Investment. *Management Decision*, 53(3), 571-604.

Moskowitz, M. (1972). Choosing Socially Responsible Stocks. *Business and Society Review*, 1, 71-75.

Muñoz, F. (2016). Cash Flow Timing Skills of Socially Responsible Mutual Fund Investors. *International Review of Financial Analysis*, 48, 110-124.

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

Muñoz, F., Vargas, M., & Vicente, R. (2014b). Fund Flow Bias in Market Timing Skill. Evidence of the Clientele Effect. *International Review of Economics and Finance*, 33, 257-269.

Nakai, M., Yamaguchi, K., & Takeuchi, K. (2016). Can SRI Funds Better Resist Global Financial Crisis? Evidence from Japan. *International Review of Financial Analysis*, doi:10.1016/j.irfa.2016.09.002.

National Bureau of Economic Research – NBER (2017). *US Business Cycle Expansions and Contractions*. Retrieved January 21, 2017, from http://www.nber.org/cycles.html.

Neher, A., & Hebb, T. (2016). The Responsible Investment Atlas – An Introduction. In T. Hebb *et al.* (Eds.). *The Routledge Handbook of Responsible Investment*: 53-57. New York: Routledge.

Newey, W., & West, K. (1994). Automatic Lag Selection in Covariance Matrix Estimation. *Review of Economic Studies*, 61, 631-653.

Nofsinger, J., & Varma, A. (2014). Socially Responsible Funds and Market Crises. *Journal of Banking and Finance*, 48, 180-193.

Novethic (2016). *Labels*. Retrieved December 22, 2016, from http://www.novethic.com.

Orlitzky, M. (2013). Corporate Social Responsibility, Noise, and Stock Market Volatility. *Academy of Management Perspectives*, 27(3), 238-254.

Osthoff, P. (2016). What Matters to SRI Investors? In T. Hebb *et al.* (Eds.). *The Routledge Handbook of Responsible Investment*: 705-723. New York: Routledge.

Otten, R., & Bams, D. (2002). European Mutual Fund Performance. *European Financial Management*, 8(1), 75-101.

Petrillo, A., Felice, F., García-Melón, M., & Pérez-Gladish, B. (2016). Investing in Socially Responsible Mutual Funds: Proposal of Non-Financial Ranking in Italian Market. *Research in International Business and Finance*, 37, 541-555.

Pfeifer, J. (2011). Morality in the Financial Market? A Look at Religiously Affiliated Mutual Funds in the USA. *Socio-Economic Review*, 9(2), 235–259.

Pfeifer, J. (2014). Fund Loyalty Among Socially Responsible Investors: The Importance of the Economic and Ethical Domains. *Journal of Business Ethics*, 121, 635-649.

Popescu, M., & Xu, Z. (2017). Market States and Mutual Fund Risk Shifting. *Managerial Finance*, 43(7), 828-838.

Qiu, J. (2003). Termination Risk, Multiple Managers and Mutual Fund Tournaments. *European Finance Review*, 7, 161-190.

Renneboog, L., Horst, J., & Zhang, C. (2008a). Socially Responsible Investments: Institutional Aspects, Performance, and Investor Behavior. *Journal of Banking and Finance*, 32(9), 1723-1742.

Renneboog, L., Horst, J., & Zhang, C. (2008b). The Price of Ethics and Stakeholder Governance: The Performance of Socially Responsible Mutual Funds. *Journal of Corporate Finance*, 14(3), 302-322.

Renneboog, L., Horst, J., & Zhang, C. (2011). Is Ethical Money Financially Smart? Nonfinancial Attributes and Money Flows of Socially Responsible Investment Funds. *Journal of Financial Intermediation*, 20(4), 562-588.

Revelli, C. (2017). Socially Responsible Investing (SRI): From Mainstream to Margin? *Research in International Business and Finance*, 39, 711-717.

Revelli, C., & Viviani, J. (2015). Financial Performance of Socially Responsible Investing (SRI): What Have We Learned? A Meta-Analysis. *Business Ethics: A European Review*, 24(2), 158-185.

Riedl, A., & Smeets, P. (2017). Why Do Investors Hold Socially Responsible Mutual Funds? *Journal of Finance*, doi: 10.1111/jofi.12547.

Rodgers, W., Choy, H., & Guiral, A. (2013). Do Investors Value a Firm's Commitment to Social Activities? *Journal of Business Ethics*, 114(4), 607-623.

Rudd, A. (1981). Social Responsibility and Portfolio Performance. *California Management Review*, 23(4), 55-61.

Ruenzi, S. (2005). Mutual Fund Growth in Standard and Specialist Market Segments. *Financial Markets and Portfolio Management*, 19(2), 153-167.

Russo, M., & Fouts, P. (1997). A Resource-Based Perspective on Corporate Environmental Performance and Profitability. *Academy of Management Journal*, 40(3), 534-559.

Sacconi, L. (2012). Corporate Social Responsibility and Corporate Governance. In H. Baker & J. Nofsinger (Eds.). *Socially Responsible Finance and Investing: Financial Institutions, Corporations, Investors, and Activists:* 299-322. Hoboken, New Jersey: John Wiley & Sons.

Salama, A. (2005). A Note on the Impact of Environmental Performance on Financial Performance. *Structural Change and Economic Dynamics*, 16(3), 413-421.

Salzmann, A. (2012). International and Cultural Views. In H. Baker & J. Nofsinger (Eds.). *Socially Responsible Finance and Investing: Financial Institutions, Corporations, Investors, and Activists:* 87-107. Hoboken, New Jersey: John Wiley & Sons.

Sandberg, J., Juravle, C., Hedesström, T., & Hamilton, I. (2009). The Heterogeneity of Socially Responsible Investment. *Journal of Business Ethics*, 87, 519-533.

Sapp, T., & Tiwari, A. (2004). Does Stock Return Momentum Explain the "Smart Money" Effect? *Journal of Finance*, 59(6), 2605-2622.

Sawick, J., & Finn, F. (2002). Smart Money and Small Funds. *Journal of Business Finance and Accounting*, 29(5-6), 825-846.

Schlegelmilch, B. (1997). The Relative Importance of Ethical and Environmental Screening: Implications for the Marketing of Ethical Investment Funds. *International Journal of Bank Marketing*, 15(2), 48-53.

Scholtens, B. (2005). What Drives Socially Responsible Investment? The Case of the Netherlands. *Sustainable Development*, 13(2), 129-137.

Schröder, M. (2004). The Performance of Socially Responsible Investments: Investment Funds and Indices. *Financial Markets and Portfolio Management*, 18(2), 122-142.

Schueth, S. (2003). Socially Responsible Investing in the United States. *Journal of Business Ethics*, 43(3), 189-194.

Schwarz, C. (2012). Mutual Fund Tournaments: The Sorting Bias and New Evidence. *Review of Financial Studies*, 25(3), 913-936.

Shrider, D. (2009). Running from a Bear: How Poor Stock Market Performance Affects the Determinants of Mutual Fund Flows. *Journal of Business Finance and Accounting*, 36(7-8), 987-1006.

Silva, F., & Cortez, M. (2016). The Performance of US and European Green Funds in Different Market Conditions. *Journal of Cleaner Production*, 135, 558-566.

Simpson, W., & Kohers, T. (2002). The Link Between Corporate Social and Financial Performance: Evidence from the Banking Industry. *Journal of Business Ethics*, 35(2), 97-109.

Sirri, E., & Tufano, P. (1998). Costly Search and Mutual Fund Flows. *Journal of Finance*, 53(5), 1589-1622.

Social Investment Forum – SIF (2001). *Report on Socially Responsible Investing Trends in the United States 2001*. Retrieved June 10, 2015, from http://www.ussif.org.

Social Investment Forum – SIF (2003). *Report on Socially Responsible Investing Trends in the United States 2003*. Retrieved June 10, 2015, from http://www.ussif.org.

Social Investment Forum – SIF (2005). *Report on Socially Responsible Investing Trends in the United States 2005*. Retrieved June 10, 2015, from http://www.ussif.org.

Social Investment Forum – SIF (2007). *Report on Socially Responsible Investing Trends in the United States 2007*. Retrieved June 10, 2015, from http://www.ussif.org.

Social Investment Forum – SIF (2010). *Report on Socially Responsible Investing Trends in the United States 2010*. Retrieved June 10, 2015, from http://www.ussif.org.

Spiegel, M., & Zhang, H. (2013). Mutual Fund Risk and Market Share-Adjusted Fund Flows. *Journal of Financial Economics*, 108(2), 506-528.

Statman, M. (2000). Socially Responsible Mutual Funds. *Financial Analysts Journal*, 56(3), 30-39.

Statman, M., & Glushkov, D. (2009). The Wages of Social Responsibility. *Financial Analysts Journal*, 65(4), 33-46.

Statman, M., & Glushkov, D. (2016). Classifying and Measuring the Performance of Socially Responsible Mutual Funds. *Journal of Portfolio Management*, 42(2), 140-151.

Sun, W., & Cui, K. (2014). Linking Corporate Social Responsibility to Firm Default Risk. *European Management Journal*, 32(2), 275-287.

Taylor, J. (2003). Risk-taking behavior in mutual fund tournaments. *Journal of Economic Behavior and Organization*, 50, 373-383.

The Forum for Sustainable and Responsible Investment – US SIF (2012). *Report on Sustainable and Responsible Investing Trends in the United States 2012*. Retrieved June 10, 2015, from http://www.ussif.org.

The Forum for Sustainable and Responsible Investment – US SIF (2014). *Report on US Sustainable, Responsible and Impact Investing Trends 2014*. Retrieved June 10, 2015, from http://www.ussif.org.

The Forum for Sustainable and Responsible Investment – US SIF (2016). *Report on US Sustainable, Responsible and Impact Investing Trends 2016*. Retrieved January 10, 2017, from http://www.ussif.org.

The Forum for Sustainable and Responsible Investment – US SIF (2016). *Sustainable & Responsible Mutual Fund Chart*. Retrieved December 22, 2016, from http://www.ussif.org.

Tinelli, M. (2016). Reflection – Social Responsible Investment Around the World. In T. Hebb *et al.* (Eds.). *The Routledge Handbook of Responsible Investment*: 364-371. New York: Routledge.

Trinks, P., & Scholtens, B. (2015). The Opportunity Cost of Negative Screening in Socially Responsible Investing. *Journal of Business Ethics*, 30, 1-16.

Umweltzeichen (2016). *The Austrian Ecolabel*. Retrieved December 22, 2016, from http://www.umweltzeichen.at.

United Nations Principles for Responsible Investment – UNPRI (2016). *About the PRI.* Retrieved December 22, 2016, from http://www.unpri.org.

Utz, S., & Wimmer, M. (2014). Are They Any Good at All? A Financial and Ethical Analysis of Socially Responsible Mutual Funds. *Journal of Asset Management*, 15(1), 72-82.

Utz, S., & Wimmer, M., Hirschberger, M., & Steuer, R. (2014). Tri-criterion Inverse Portfolio Optimization with Application to Socially Responsible Mutual Funds. *European Journal of Operation Research*, 234(2), 491-498.

Verbeek, M. (2012). *A Guide to Modern Econometrics*. Chichester, England: John Wiley & Sons.

Vidal-García, J. (2013). The Persistence of European Mutual Fund Performance. *Research in International Business and Finance*, 28, 45-67.

Vidal-García, J., Vidal, M., Boubaker, S., & Uddin, G. (2016). The Short-Term Persistence of International Mutual Fund Performance. *Economic Modelling*, 52(B), 926-938.

Vigeo Eiris (2016). *Green, Social and Ethical Funds in Europe*. Retrieved March 2, 2017, from http://www.vigeo-eiris.com.

Waddock, S., & Graves, S. (1997). The Corporate Social Performance-Financial Performance Link. *Strategic Management Journal*, 18(4), 303-319.

Waddock, S., & Graves, S. (2000). Performance Characteristics of Social and Traditional Investments. *Journal of Investing*, 9(2), 27-38.

Wallis, M., & Klein, C. (2015). Ethical Requirement and Financial Interest: A Literature Review on Socially Responsible Investing. *Business Research*, 8(1), 61-98.

Warther, V. (1995). Aggregate Mutual Fund Flows and Security Returns. *Journal of Financial Economics*, 39, 209-235.

Watson, R. (2011). Ethical and Socially Responsible Investment Funds: Are They Ethically and Responsibly Marketed? *Journal of Financial Regulation and Compliance*, 19(2), 100-110.

Wermers, R. (2003). Is Money Really "Smart"? New Evidence on the Relation Between Mutual Fund Flows, Manager Behavior, and Performance Persistence. [Working paper]. *University of Maryland*, United States of America.

White, M. (1995). The Performance of Environmental Mutual Funds in the United States and Germany: Is There Economic Hope for "Green" Investors? *Research in Corporate Social Performance and Policy*, Supplement 1, 323-344.

Wimmer, S. (2013). ESG-Persistence in Socially Responsible Mutual Funds. *Journal of Management and Sustainability*, 3(1), 9-15.

yourSRI (2016). *Fund Assessments & Label*. Retrieved December 20, 2016, from http://www.yoursri.com.

Zheng, L. (1999). Is Money Smart? A Study of Mutual Fund Investors' Fund Selection Ability. *Journal of Finance*, 54(3), 901-933.