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Socially responsible investments: Institutional aspects, performance, and investor behavior

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Abstract

This paper provides a critical review of the literature on socially responsible investments (SRI). Particular to SRI is that both financial goals and social objectives are pursued. Over the past decade, SRI has experienced an explosive growth around the world reflecting the increasing awareness of investors to social, environmental, ethical and corporate governance issues. We argue that there are significant opportunities for future research on the increasingly important area of SRI. A number of questions are reviewed in this paper on the causes and the shareholder-value impact of corporate social responsibility (CSR), the risk exposure and performance of SRI funds and firms, as well as fund subscription and redemption behavior of SRI investors. We conclude that the existing studies hint but do not unequivocally demonstrate that SRI investors are willing to accept suboptimal financial performance to pursue social or ethical objectives. Furthermore, the emergence of SRI raises interesting questions for research on corporate finance, asset pricing, and financial intermediation.

JEL classification: A13; G11; G12

Keywords: Socially responsible investments; Ethical investing; Corporate social responsibility; Mutual funds; Performance evaluation; Money-flows; Investment screens

1. Introduction

Over the past decade, socially responsible investments (SRI), frequently also called ethical investments or sustainable investments, have grown rapidly around the world. SRI is an investment process that integrates social, environmental, and ethical considerations into investment decision making. Unlike conventional types of investments, SRI apply a set of investment screens to select or exclude assets based on ecological, social, corporate governance or ethical criteria, and often engages in the local communities and in shareholder activism to further corporate strategies towards the above aims.

Following the rapid growth of the SRI industry, academic interest has emerged. The aim of this paper is to provide an overview of the state of the literature on SRI in order to summarize the main findings and to identify puzzles and interesting questions for further research. Although the literature on SRI is growing, a central question is whether or not the decisions of investors are affected by non-financial criteria.

If investors derive non-financial utility from investing in SRI funds or in companies meeting high standards of corporate social responsibility (CSR),[1] then they care less about financial performance than 'conventional' (non-SRI) investors. Bollen (2007) argues that 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

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[1] Henceforth, we define SRI as socially responsible investments made by individual or institutional investors in SRI funds or corporations. CSR (corporate social responsibility) refer to corporate decisions fostering social, corporate governance, ethical and environmental issues.

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values. If such values matter to investors, we expect: (i) further SRI growth even if the risk-adjusted SRI returns are lower than those of conventional investments, and (ii) less sensitive SRI money-flows to past performance. Consistent with the intuition that the Socially Responsible attribute smoothes allocation decisions, Bollen (2007) and Renneboog et al. (2005) find that volatility in SRI funds is lower than conventional funds flow volatility.

In parallel to investors' decisions on SRI, management makes decisions on whether or not to adopt CSR strategies, such as environmental sustainability or community involvement. Hence, closely related questions are whether CSR enhances shareholder value and whether investors are willing to pay for firms adopting CSR. If projects generate positive net present values to shareholders as well as positive externalities to other stakeholders (e.g. a more healthy or safe environment or more social cohesion at the community level), the firm investing in such projects may have higher share prices which in turn translate into better SRI fund performance. The controversies emerge when there is a trade-off between the financial merits of a project and negative externalities (such as pollution). Specifically, SRI which *altruistically* exclude polluting firms or selects firms contributing to the local communities may have weaker financial performance (at least in the short run). However, some CSR studies argue that firms investing in CSR create shareholder value in the long run although stock markets undervalue CSR in the short run. Firms ignoring socially responsibility may destroy long-run shareholder value due to reputation losses and/or potential litigation costs. To understand better the mechanisms influencing the performance of SRI better, we review the theories and empirical evidence on a number of questions in the CSR debate, including: whether or not companies ought to be socially responsible, why companies implement CSR strategies, and whether CSR influences financial performance.

In the first part of the paper, we review the institutional aspects and recent industry trends related to SRI. In particular, we study the historical roots, the market development, the regulatory background, and the effect of investment screens employed by SRI funds. Second, we address a fundamental question at the heart of SRI: should a firm's aim be the maximization of shareholder or stakeholder value? While in competitive and complete markets there may not be a conflict between these two objectives, in practice the maximization of shareholder value often conflicts with the stakeholder value criterion due to the existence of economic externalities.[2]

[2] CSR (as a combination of good corporate governance, sound environmental standards, and care of stakeholder relations) can be rationalized as a signaling device of firms' trustworthiness in providing quality products (Fisman et al., 2006) or a means of softening competition in product markets (Allen et al., 2007). Furthermore, while the literature documents a generally positive relation between CSR and firms' financial performance, especially in terms of accounting measures (Orlitzky et al., 2003), there is no convincing evidence on the direction of the causality and on whether or not CSR is priced in capital markets.

Third, we study whether SRI investors care less about financial performance than conventional investors by discussing the empirical evidence on the risk and return characteristics of SRI. For SRI mutual funds in the US and UK, there is little evidence that the risk-adjusted returns of SRI funds are different from those of conventional funds (see, e.g., Bauer et al., 2005). However, SRI funds in Continental Europe and Asia-Pacific underperform benchmark portfolios (Renneboog et al., submitted for publication).

Fourth, we discuss whether the investment behavior of SRI investors is different from that of conventional investors by reviewing the recent literature on the money-flows into and out of SRI funds. While SRI investors chase past performance, their decision to invest in or withdraw from SRI funds seems less affected by past negative performance than the decision of conventional fund investors (Bollen, 2007). Also, SRI investors base their investment decisions on different types of non-financial investment screens (Renneboog et al., 2005; Zhang, 2006).

Fifth, we review the theories and evidence on whether the emergence of SRI impacts on the real economy. When significant amounts of money are divested from firms not adhering to CSR standards, the cost of capital of these firms may augment due to reduced risk-sharing opportunities among investors or increased costs of litigation resulting from claims related to environmental, socially issues or poor corporate governance (Heinkel et al., 2001). The increased cost of capital may lead to an underinvestment problem for such firms.

The main conclusion of this survey is that while some research has been performed on SRI, there are still a great many issues and puzzles that require further study. The emergence of SRI, combined with the behavioral differences between SRI and conventional investors, raises interesting questions related to asset pricing, corporate finance and financial intermediation. For example, if a significant part of investors exhibits an aversion to corporate behavior that is not inspired by CSR, it is interesting to investigate whether investors require an additional return for investing in non-CSR firms and how this influences the cost of capital of firms as well as the investment and lending decisions of financial institutions. In addition, SRI portfolio managers pursue both financial goals and social objectives. This multi-task nature of SRI managers may weaken fund managers' incentives to pursue high risk-adjusted returns and hence increase potential agency costs. It would be interesting to examine the incentive structures in the SRI industry, and the impact of SRI on the investment and lending decisions of financial institutions.

The remainder of the paper is organized as follows. Section 2 presents the institutional background of SRI. Section 3 reviews the theoretical and empirical literature on CSR. Section 4 introduces the empirical findings on the performance and money-flows of SRI, and Section 5 concludes and discusses a future research agenda.

2. Institutional background of SRI

2.1. History of SRI

Ethical investing has ancient origins in Jewish, Christian, and Islamic traditions. Judaism has a wealth of teachings on how to use money ethically,[3] and in medieval Christian times, there were ethical restrictions on loans and investments which were based on the Old Testament.[4] The Catholic Church imposed a universal prohibition on usury in 1139, which had not been relaxed until the 19th century. In England, a law called The Act Against Usury which prohibited excessive interests on loans was in effect from 1571 to 1624 (Glaeser and Scheinkman, 1998; Lewison, 1999).[5]

In the 17th century, the Quakers refused to profit from the weapons and slaves trade when they settled in North America. The founder of Methodism, John Wesley (1703–1791), stated in his sermon 'The Use of Money' that people should not engage in sinful trade or profit from exploiting others. In the 1920s, the Methodist Church in the UK avoided investing in 'sinful' companies, such as companies involved in the production of alcohol, tobacco, and weapons and in gambling. The first modern mutual fund employing screens based on religious traditions, the Pioneer Fund, was founded in 1928. Ethical investing has also origins in the Islamic tradition. Based on the teachings of the Koran and its interpretations, Islamic investors avoid investing in companies involved in pork production, pornography, gambling, and in interest-based financial institutions.

In contrast to ancient ethical investing which was based on religious traditions, modern SRI is more based on the varying personal ethical and social convictions of individual investors. Since the 1960s, a series of social campaigns, e.g. the anti-war and the anti-racist movements, have made investors aware of the social consequences of their investments. The first *modern* SRI mutual fund, the Pax World Fund, was founded in 1971 in the US. Created for investors opposed to the Vietnam War (and militarism in general), the fund avoided investments in weapon contractors. In the 1980s, the racist system of apartheid in South Africa became a focal point of protests by social investors. SRI investors in the US and Europe have exerted pressure on companies doing business in South Africa to divert those operations to other countries, and urged mutual funds not to include South-African nor western firms with South-African subsidiaries into their investment portfolios. These campaigns were relatively successful, for instance, the state legislature of California passed a law amendment in 1986 requiring the state's pension funds to divest over $6 billion from companies with activities in South Africa (Sparkes, 2002, p. 54).

On April 25th, 1986 the Chernobyl nuclear power plant in the former Soviet Union (now Ukraine) exploded, spreading radioactive material across Europe and increasing the number of cancer deaths by thousands. On March 23th, 1989 the worst environmental disaster in the US occurred when the oil supertanker Exxon Valdez ran aground near Alaska and spilled 11 million gallons of crude oil. The above and other environmental disasters in the late 1980s made investors more aware of the negative environmental consequences of industrial development.

Since the early 1990s, the SRI industry has experienced strong growth in the US, Europe, and the rest of the world. An important factor behind this growth was ethical consumerism, where consumers pay a premium for products that are consistent with their personal values. For example, the consumer market for ethical products and services in the UK is valued at $59 billion in 2005 (Co-operative Bank (Co-op), 2006). Issues like environmental protection, human rights, and labor relations have become common in the SRI investment screens. In recent years, a series of corporate scandals has turned corporate governance and responsibility into another focal point of SRI investors. Hence, criteria like transparency, governance and sustainability have emerged as essential SRI screens.

2.2. The market of SRI

Over the past decade, SRI has experienced a phenomenal growth around the world. Table 1 presents estimates from the industry on the total assets under management (AUM) of SRI portfolios in the US, Europe, Canada and Australia, where portfolios are considered as SRI if they execute a strategy based on social screening, shareholder activism or contributing to the community (see Section 2.4).[6] In the US, the professionally managed assets of SRI portfolios, including retail and (more importantly) institutional funds (e.g. pension funds, insurance funds,

[3] See, e.g., Maimonides, Mishneh Torah, Laws of Gifts to the Poor 10:7: "There are eight degrees of tzedakah (righteous giving), one above the other. The highest degree is to strengthen the hand of a poor person by making a gift or a loan, or entering into a partnership, or finding work for him/her, so that they become self-sufficient". In Torah, Leviticus 19:9–10 "When you reap the harvest of your land, you shall not reap all the way to the edges of the field, or gather the gleanings of your harvest... You shall leave them for the poor and the stranger." and Deuteronomy 15:7–8 "If there be among you a needy person ... you shall not shut your hand from him/her; but you shall surely open your hand and shall surely lend sufficient for his/her need, as to that which is lacking".

[4] See, e.g., Exodus 22:25 "If you lend money to my people, to the poor among you, you are not to act as a creditor to him; you shall not charge him interest" and Deuteronomy 23:19 "You shall not charge interest to your countrymen: interest on money, food, or anything that may be loaned at interest; but you may charge interest from loans to foreigners".

[5] During the reign of Henry VIII (1491–1547), usury was defined as a loan with interest rate higher than 10%.

[6] The estimates from the industry on the SRI market size may be biased upwards due to this general definition of an SRI portfolio. If one adopts a more stringent definition of SRI, the estimates of SRI market size may be much smaller. For example, excluding portfolios using shareholder activism strategies only or simple negative screens (e.g. divesting from tobacco and alcohol sectors; see Section 2.4 for details), the size of SRI market is $140 billion in Europe in 2005, or 1–1.5% of European assets under professional management (Eurosif, 2006).

Table 1
SRI assets under management

Year	US		Europe		Canada		Australia	
	Total AUM ($b)	Retail AUM ($b)	Total AUM ($b)	Retail AUM ($b)	Total AUM ($b)	Retail AUM ($b)	Total AUM ($b)	Retail AUM ($b)
1995	639	12						
1997	1185	96						0.1*
1999	2159	154		11				0.2*
2001	2323	136		13	33*	6.6*	1	0.9
2003	2164	151	470	15	34*	6.7*	2	1.1
2005	2290	179	1400	30	55*	12.5*	6	

This table presents the total assets under management (Total AUM, in billion US$) of SRI portfolios (including retail funds and institutional funds such as pension funds and insurance companies), and the assets under management of retail SRI mutual funds (Retail AUM, in billion US$) in the US, Europe, Canada and Australia, at year ends. Portfolios are counted as SRI if they use at least one of the social screening, shareholder activism or community investing strategies. Data in this table are collected from the following sources: US: SIF (1995, 1997, 1999, 2001, 2003, 2005); Europe: SiRi (2002, 2003, 2005), Eurosif (2003, 2005); Canada: SIO (2002, 2004); Australia: EIA (2001, 2002, 2003, 2005). Starred (*) numbers are taken from the previous year due to data availability.

and separate accounts), reached $2.3 trillion in 2005, growing by 1200% from $162 billion a decade earlier. Currently, SRI assets represent about 10% of total assets under management in the US (SIF, 2005). Although the European SRI market is still in an early stage of development, it is also growing rapidly. In 2005, SRI assets in Europe amounted to $1.4 trillion, representing 10–15% of European funds under management (Eurosif, 2006). In addition, Canadian SRI assets have risen from $33 billion in 2000 to $55 billion in 2004 and in Australia SRI assets have also surged, rising almost fivefold in the period from 2001 to 2005 (SIO, 2004; EIA, 2005).

If one focuses on SRI mutual funds available to retail investors, the market of retail SRI funds (which are mutual funds applying SRI screens in their investment process) is much smaller but is on the rise. From 1995 to 2005, the number of SRI mutual funds has grown from 55 to 201 in the US and from 54 to 375 in Europe (SIF, 2005; SiRi, 2005). Table 1 shows that the assets under management of SRI mutual funds reached $179 billion in US in 2005, and $30 billion in Europe. In a study of money-flows of SRI mutual funds around the world, Renneboog et al. (2005) show that in almost all countries SRI mutual funds account for less than 1% of the domestic mutual fund market. In Europe, the Netherlands and UK are the countries with the highest percentage of SRI mutual funds.

In the foreseeable future, the growth of SRI assets is likely to continue worldwide. Issues like global warming, the Kyoto Protocol, emissions trading, corporate governance, community investing and microfinance[7] have gained attention by governments and investors around the world. The 2007 Nobel Peace Prize was awarded to the UN Intergovernmental Panel on Climate Change (IPPC) and Al Gore for their work of increasing awareness on climate change. Some of the largest pension funds in the world have shown increasing interest in participating in SRI. The California Public Employees' Retirement System (CALPERS), the largest pension fund in the world, actively engages companies to promote socially responsible behavior and was one of the leaders of the tobacco divestment of the late 1990s. The Dutch Pension Fund for Public Employees (ABP), the largest pension fund in Europe, revised its Code for Prudent Investment Policy in 2000, which states that ABP will promote the integration of social, environmental and ethical criteria in its investment process. Mr. Jean Frijns, the former Chief Investment Officer of ABP Investments, regards sustainable investment as "one of the most critical factors driving the future of fiduciary investment" (Financial Times, Jan. 26, 2003). In addition, the Dutch pension fund PGGM, which manages about €45 billion assets, applies two negative screens (weapons production and human rights violation) to all of its investment portfolios (Eurosif, 2003).

2.3. Regulatory background

The growth of the SRI industry can be partly attributed to the changes in regulation regarding the disclosure of social, environmental and ethical information by pension funds and listed companies. In this section, we review the regulatory SRI initiatives taken by national governments and summarize these in Table 2. Most of the SRI regulation is passed in Europe.

2.3.1. UK

The UK was the first country that has regulated the disclosure of social, environmental and ethical investment policies of pension funds and charities. This has contributed considerably to the growth of the SRI industry. In July 2000, the Amendment to the 1995 Pensions Act was approved by the Parliament, requiring the trustees of occupational pension funds to disclose in the Statement of Investment Principles "the extent (if at all) to which social, environmental and ethical considerations are taken into

[7] Microfinance refers to the practice of providing financial services, e.g. tiny loans, to poor people. For example, the United Nations declared the year of 2005 as the International Year of Microfinance. In addition, Grameen Bank, a Bangladesh microfinance organization, and its founder, professor Muhammad Yunus, were jointly awarded the Nobel Peace Prize in 2006.

Table 2
SRI regulations

Country	SRI related regulations
Australia	In a 2001 bill it is stated that all investment firms' product disclosure statements should include a description of "the extent to which labor standards or environmental, social or ethical considerations are taken into account". Since 2001, all listed companies on the Australian Stock Exchange are required to make an annual social responsibility report
Belgium	In 2001, Belgium passed the 'Vandebroucke' law, which requires pension funds to report the degree to which their investments take into account social, ethical and environmental aspects
France	In May 2001, the legislation "New Economic Regulations" came into force requiring listed companies to publish social and environmental information in their annual reports Since February 2001 managers of the Employee Savings Plans are required to consider social, environmental or ethical considerations when buying and selling shares
Germany	Since 1991, the Renewable Energy Act gives a tax advantage to closed-end funds to invest in wind energy Since January 2002, certified private pension schemes and occupational pension schemes 'must inform the members in writing, whether and in what form ethical, social, or ecological aspects are taken into consideration when investing the paid-in contributions'
Italy	Since September 2004 pension funds are required to disclose non-financial factors (including social, environmental and ethical factors) influencing their investment decisions
Netherlands	In 1995, the Dutch Tax Office introduced a 'Green Savings and Investment Plan', which applies a tax deduction for green investments, such as wind and solar energy, and organic farming
Sweden	Since January 2002, Swedish national pension funds are obliged to incorporate environmental and ethical aspects in their investment policies
UK	In July 2000, the Amendment to 1995 Pensions Act came into force, requiring trustees of occupational pension funds in the UK to disclose in the Statement of Investment Principles "the extent (if at all) to which social, environmental and ethical considerations are taken into account in the selection, retention and realization of investments" The Trustee Act 2000 came into force in February 2001. Charity trustees must ensure that investments are suitable to a charity's stated aims, including applying ethical considerations to investments In 2002, The Cabinet Office in the UK published the Review of Charity Law in 2002, which proposed that all charities with an annual income of over £1 m should report on the extent to which social, environmental and ethical issues are taken into account in their investment policy. The Home Office accepted theses recommendations in 2003 The Association of British Insurers (ABI) published a disclosure guideline in 2001, asking listed companies to report on material social, environmental and ethical risks relevant to their business activities
US	Section 406 of the Sarbanes-Oxley Act, which came into effect in July 2002, requires companies to disclose a written code of ethics adopted by their CEO, chief financial officer and chief accountant

This table summarizes the regulatory initiatives regarding SRI taken by national government in western countries.

account in the selection, retention and realization of investments".[8]

The Trustee Act 2000, which came into effect in February 2001, requires charity trustees to ensure that investments are suitable to a charity's stated aims. According to the Charity Commission guidance, charities should include 'any relevant ethical considerations as to the kind of investments that are appropriate for the trust to make'. In 2002, The Cabinet Office in the UK published the Review of Charity Law in 2002, which proposed that all charities with an annual income of over £1 million report on the extent to which social, environmental and ethical issues are taken into account in their investment policies. The Home Office accepted theses recommendations in 2003.

In addition, large organizations of institutional investors also have taken SRI initiatives. For instance, the Association of British Insurers (ABI), whose members invest in about $1 trillion assets, published a disclosure guideline in 2001 suggesting that listed companies report on material social, environmental and ethical risks relevant to their business activities.

2.3.2. Continental Europe

Over the past decade, some national governments in Continental Europe passed a series of regulations on social and environmental investments and savings. Since 1991, the Renewable Energy Act in Germany has given a tax advantage to closed-end funds investing in wind energy (Eurosif, 2003). In 1995, Dutch Tax Office introduced "Green Savings and Investment Plan", which granted a tax deduction to investments in specific 'green' projects, such as wind and solar energy, and organic farming.

Following the British Amendment to 1995 Pensions Act of 2000, four countries in Continental Europe (namely Belgium, Germany, Italy and Sweden) have passed similar regulations requiring pension funds to disclose SRI-related information. In 2001, Belgium passed the 'Vandebroucke' law, which requires pension funds to report the degree to which their investments take into account social, ethical and environmental aspects. In January 2002, Germany adopted a regulation requiring that certified private pension schemes and occupational pension schemes "must inform the members in writing, whether and in what form

[8] The SRI regulation has been introduced against a background of increasing pressure from governments, non-governmental organizations and the general public on companies to improve their CSR. In 1998, the British Parliament incepted the All-Party Parliamentary Group on Socially Responsible Investment chaired by Tony Colman, which has played an important role in bringing about major developments for SRI regulations in the UK.

ethical, social, or ecological aspects are taken into consideration when investing the paid-in contributions" (Eurosif, 2003). Sweden passed a regulation (effective since January 2002), requiring Swedish national pension funds to incorporate environmental and ethical aspects in their investment policies. In Italy, legislation was adopted in September 2004 demanding pension funds to disclose the effect of non-financial factors (including social, environmental and ethical factors) that influence their investment decisions. All these initiatives have clearly had a positive impact on the growth of the SRI fund industry in Europe.

France is the first and so far the only country making social, environmental and ethical reporting mandatory for all listed companies. In May 2001, the legislation "New Economic Regulations" came into force: listed companies are to publish information on their social and environmental initiatives and investments in the annual reports.[9] Meanwhile, since February 2001, the managers of Employee Savings Plans are required to consider SRI issues when buying and selling shares.[10]

2.3.3. Outside Europe

Australia is the only country outside Europe that has adopted a regulation regarding SRI. In 2001, the Australian government passed a bill requiring that all investment firms' product disclosure statements include descriptions of "the extent to which labor standards or environmental, social or ethical considerations are taken into account". Since 2001, all listed companies on the Australian Stock Exchange are obliged to make an annual social responsibility report.

To summarize, we expect that the SRI industry continue to soar as a response to the growing social awareness of investors and increasingly supportive regulatory environment.

2.4. Investment screens

The investment screens used in SRI have evolved over time. Table 3 presents a summary of the SRI screens used by ethical funds around the world. Usually, SRI mutual funds apply a combination of the various types of screens. SIF (2003) reports that 64% of all socially screened mutual funds in the US use more than five screens, while 18% of SRI funds use only one social screen. These screens can be broadly classified into two groups: negative screens and positive ones.

First, the oldest and most basic SRI strategy is based on negative screening. These filters refer to the practice that specific stocks or industries are excluded from SRI portfolios based on social, environmental and ethical criteria. The funds based on such screens account for $2.0 trillion out of the $2.3 trillion SRI assets in the US (SIF, 2003). A typical negative screen can be applied on an initial asset pool such as the S&P 500 stocks from which the alcohol, tobacco, gambling and defense industries, or companies with poor performance in labor relations or environmental protection are excluded. Other negative screens may include irresponsible foreign operations, pornography, abortion, poor workplace conditions, violation of human rights and animal testing. After performing a negative SRI screening, portfolios are created via a financial and quantitative selection. Some SRI funds only exclude companies from the investment universe when these firms' revenues derived from 'a-social or un-ethical' sectors exceed a specific threshold, whereas other SRI funds also apply negative screens to a company's branches or suppliers. A small number of SRI funds use screens based on traditional ideological or religious convictions: for instance they exclude investments in firms producing pork products, in financial institutions paying interest on savings, and in insurance companies insuring non-married people.

Second, SRI portfolios are nowadays also based on positive screens which in practice boil down to selecting shares that meet superior CSR standards. The most common positive screens focus on corporate governance, labor relations, the environment, sustainability of investments, and the stimulation of cultural diversity. Positive screens are also frequently used to select companies with a good record concerning renewable energy usage or community involvement. The use of positive screens is often combined with a 'best in class' approach. Firms are ranked within *each industry* or market sector based on CSR criteria. Subsequently, only those firms in each industry are selected which pass a minimum threshold.

Negative and positive screens are often referred to as the *first* and *second* generation of SRI screens, respectively.[11] 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. This approach is often called "sustainability" or "triple bottom line" (due to its focus on People, Planet and Profit). The *fourth* generation of ethical funds combines the sustainable investing approach (third generation) with shareholder activism. In this case, portfolio managers or the companies specialized in granting ethical labels attempt to influence the company's actions through direct dialogue with the management or by the use of voting rights at Annual General Meetings.

[9] Law No. 2001-420, Art. 225-102-1: "[*The annual report*] *also contains information, the detail of which is being determined by a decree of the Council of State, on how the company takes into account the social and environmental consequences of its activities. The present paragraph applies only to (listed) companies [...].*" (www.eurosif.org).

[10] Law No. 2001-152, Art. 214-39: "*The [fund's] internal rules specify, if need be, the social, environmental or ethical considerations the fund management company must take into account when buying or selling securities, as well as when exercising the voting rights attached to the ownership of these securities. The fund's annual report reports on how these considerations have been taken into account, in terms defined by the Commission des Opérations de Bourse*".

[11] For a more detailed description of the various generations of SRI funds, see: http://www.ethibel.org/subs_e/1_info/sub1_2.html.

Table 3
SRI screens

Screens	Definitions	Type
Tobacco	Avoid manufacturers of tobacco products	–
Alcohol	Avoid firms that produce, market, or otherwise promote the consumption of alcoholic beverages	–
Gambling	Avoid casinos and suppliers of gambling equipment	–
Defense/weapons	Avoid firms producing weapons for domestic or foreign militaries, or firearms for personal use	–
Nuclear power	Avoid manufacturers of nuclear reactors or related equipment and companies that operate nuclear power plants	–
Irresponsible foreign operations	Avoid firms with investments in government-controlled or private firms located in oppressive regimes such as Burma or China, or firms which mistreat the indigenous peoples of developing countries	–
Pornography/adult entertainment	Avoid publishers of pornographic magazines; production studios that produce offensive video and audio tapes; companies that are major sponsors of graphic sex and violence on television	–
Abortion/birth control	Avoid providers of abortion; manufacturers of abortion drugs and birth control products; insurance companies that pay for elective abortions (where not mandated by law); companies that provide financial support to Planned Parenthood	–
Labor relations and workplace conditions	Seek firms with strong union relationships, employee empowerment, and/or employee profit sharing	+
	Avoid firms exploiting their workforce and sweatshops	–
Environment	Seek firms with proactive involvement in recycling, waste reduction, and environmental cleanup	+
	Avoid firms producing toxic products, and contributing to global warming	–
Corporate governance	Seek companies demonstrating "best practices" related to board independence and elections, auditor independence, executive compensation, expensing of options, voting rights and/or other governance issues	+
	Avoid firms with antitrust violations, consumer fraud, and marketing scandals	–
Business practice	Seek companies committed to sustainability through investments in R&D, quality assurance, product safety	+
Employment diversity	Seek firms pursuing an active policy related to the employment of minorities, women, gays/lesbians, and/or disabled persons who ought to be represented amongst senior management	+
Human rights	Seek firms promoting human rights standards	+
	Avoid firms which are complicit in human rights violations	–
Animal testing	Seek firms promoting the respectful treatment of animals	+
	Avoid firms with animal testing and firms producing hunting/trapping equipment or using animals in end products	–
Renewable energy	Seek firms producing power derived form renewable energy sources	+
Biotechnology	Seek firms that support sustainable agriculture, biodiversity, local farmers, and industrial applications of biotechnology	+
	Avoid firms involved in the promotion or development of genetic engineering for agricultural applications	–
Community involvement	Seek firms with proactive investments in the local community by sponsoring charitable donations, employee volunteerism, and/or housing and educational programs	+
Shareholder activism	The SRI funds that attempt to influence company actions through direct dialogue with management and/or voting at Annual General Meetings	+
Non-married	Avoid insurance companies that give coverage to non-married couples	–
Healthcare/pharmaceuticals	Avoid healthcare industries (used by funds targeting the "Christian Scientist" religious group)	–
Interest-based financial institutions	Avoid financial institutions that derive a significant portion of their income from interest earnings (on loans or fixed income securities). (Used by funds managed according to Islamic principles)	–
Pork producers	Avoid companies that derive a significant portion of their income from the manufacturing or marketing of pork products. (Used by funds managed according to Islamic principles)	–

This table summarizes the investment screens used by SRI mutual funds. In the last column, the '–' refers to a negative screen, whereas '+' refers to a positive one. Data are compiled from Social Investment Forum (2003, p. 42) and the Natural Capital Institute (www.responsibleinvesting.org).

Becht et al. (2006) show in a very interesting clinical study the activism of one of the Hermes investment funds. SIF (2003) reports that in 2002 socially responsible investors in the US filed 292 shareholder resolutions on social, environmental and ethical issues. The largest number of resolutions is on environmental issues, followed by issues on global labor standards and equal employment conditions.

3. Firm-level analysis on SRI/CSR

To understand the mechanisms influencing SRI performance better, we review in this section the theories and empirical evidence on a number of questions in the CSR debate: including whether or not companies ought to be socially responsible, why companies implement CSR strategies, and whether CSR influences financial performance.

3.1. Should companies be socially responsible?

Finance textbooks tell us that companies should maximize the value of their shareholders' equity.[12] In other

[12] Value is the present value of future profits over the long run, and it is not necessarily the current market value of the firm, as markets can be irrational. Jensen (2004) argues that overvalued equity creates additional agency costs, which will inevitably lead to the destruction of firm value over the long run. Therefore, managers should regularly communicate with capital markets to prevent not only undervaluation but also overvaluation.

words, companies' only responsibility is a financial one. In recent years, CSR has become a focal point of policy makers (and the public), who demand that corporations assume responsibility towards society, the environment, or the stakeholders in general. SRI investors thus aim at promoting socially and environmentally sound corporate behavior. They avoid companies producing goods that may cause health hazards or exploit employees either in developed or developing countries (negative screening). They select companies with sound social and environmental records and with good corporate governance (positive screening). In general, SRI investors expect companies to focus on social welfare in addition to value maximization.

At the heart of the SRI movement is a fundamental question: is a firm's aim to maximize shareholder value or social value (defined as the sum of the value generated for all stakeholders)? Classical economics (e.g. Adam Smith's 'invisible hand' and the social welfare theorems) states that there is no conflict between the two goals: in competitive and complete markets, when all firms maximize their own profits (value), the resource allocation is Pareto-optimal and the social welfare is maximized.

However, modern economic theory also tells us that in some circumstances, namely when some of the assumptions of the welfare theorems do not hold, profit-maximizing behavior does not necessarily imply social-welfare maximizing outcomes. One of such circumstances is the existence of externalities, arising when the costs and benefits of an agent's action are affected by the actions of other (external) agents in the economy. Jensen (2001) gives a simple example on externalities: where a fishery's catch is impaired by the pollution of an upstream chemical plant. When the chemical plant maximizes its profit by increasing pollution (as the cost of pollution are not borne by the chemical plant), the fishery in the downstream suffers from catching less fish and the social welfare (in this case, it is equal to the sum of the profits of the two stakeholders) is not maximized.

In practice, the maximization of shareholder value often conflicts with the social welfare criterion represented by the interests of all stakeholders of a firm, including employees, customers, local communities, environment and so forth. By maximizing shareholder value, firms may not take care of the interests of other stakeholders. Economic solutions to the externality problem are based on the principle of internalizing externalities, e.g. by imposing regulations (e.g. quotas or taxes on pollution) and creating a market for externalities (e.g. the trading of pollution permits). Furthermore, in Continental European corporate governance regimes, a stakeholder approach is more common than in the Anglo-Saxon countries.[13]

[13] In Germany, for instance, the importance of stakeholders is even legally defined. German law mandates that the supervisory board be made up of representatives of the employees and unions, while the other half of the board consists of representatives of the major shareholders. Interestingly, recent empirical evidence from Germany suggests that employee representation on supervisory boards increases firm efficiency and market value (Fauver and Fuerst, 2006).

Critics of stakeholder-value maximization argue that the stakeholder theory has problems in terms of accountability and managerial incentive issues. According to the shareholder value concept, managers are expected to invest until the marginal project's return exceeds the cost of capital. In the stakeholder value story, managers are asked to balance the interests of all stakeholders to the point that the aggregate welfare is maximized. Still, the stakeholder theory does not define how to aggregate welfare and how to make the tradeoff between stakeholders. If the social value of firms can be maximized, society will by definition benefit. However, the question is whether this goal is achievable and how economic efficiency and managerial incentives are affected by the maximization of stakeholder value (including social and environmental value). Jensen (2001, p. 14) writes, "it is the failure to provide a criterion for making such tradeoffs (among stakeholders), or even to acknowledge the need for them, that makes stakeholder theory a prescription for destroying firm value and reducing social welfare".

Given that the objective function of a manager is not well defined in stakeholder theory, the performance of managers becomes unaccountable. Jensen (2001) argues that the stakeholder theory increases the agency costs and weakens the internal control systems of firms, since performance measures are only vaguely defined. Similarly, Tirole (2001, p. 26) writes, "In a nutshell, management can almost always rationalize any action by invoking its impact on the welfare of *some* stakeholder. An empire builder can justify a costly acquisition by a claim that the purchase will save a couple of jobs in the acquired firm; a manager can choose his brother-in-law as supplier on the grounds that the latter's production process is environmentally friendly". In addition, Tirole (2001) shows that the absence of a reliable performance measure leads to flat – rather than performance-based – managerial compensation contracts, which further weakens managerial incentives.

Another problem of the stakeholder approach is that in a competitive market, a firm lowering its profits in order to pursue social and environmental goals may not survive the competition and disciplining actions from the market for corporate control. The reason is that another company can acquire this firm and replace the incumbent management with a value-maximizing one (Tirole, 2001, p. 24). A similar argument is made by Baumol (1991) who predicts that CSR is not feasible in a competitive economy: CSR requires sacrificing profits which is not possible when competition in product markets is intense. Shleifer (2004) even argues that competitive pressure from markets can enhance unethical corporate behavior. In contrast, Bagnoli and Watts (2003) show that, in a market equilibrium, CSR should survive competition.

Finally, CSR and the stakeholder model are also subject to the Friedman's (1970) arguments: companies should only care about profits and therefore their shareholders, while governments deal with provision of public goods and the existence of externalities. If CSR lowers firms'

profits due to compromises with stakeholders, firms should not implement CSR strategies as it is more efficient if firms charge lower prices and allow consumers to make their own charitable contributions based on personal social and ethical values.

To conclude, in order for CSR to become a workable concept, the following guidelines of performance yardsticks ought to be considered:

(1) Corporate performance must be measurable. A lack of precisely formulated corporate goals and measures destroys firm value and social welfare in the long run. Firm value remains the single most important performance measure for management.
(2) Maximizing long-run firm value is consistent with maximizing social welfare. Tirole (2001) concludes that focusing on shareholder value is a second-best optimum once managerial incentive problems like agency costs have been incorporated in a stakeholder framework.
(3) Even if one adopts the shareholder value criterion, it is important to consider the welfare of all stakeholders (including employees, the community and the environment) as firm behavior induces important externalities. Jensen (2001) notes, "we cannot maximize the long-term market value of an organization if we ignore or mistreat any important constituency (stakeholder)".
(4) Economic theory predicts that companies will be more willing to sacrifice profits in order to be socially responsible, when their management is entrenched or shielded from anti-takeover mechanisms, or competition in product markets is not intense. The reason is that these managers are less likely to be replaced by profit-maximizing ones.
(5) CSR and stakeholder theories have important implications for SRI. SRI portfolio managers pursue both financial goals and social objectives. This multi-task nature of SRI managers may weaken fund managers' incentives to pursue high risk-adjusted returns, and hence increase potential agency costs. Furthermore, if SRI underperforms conventional portfolios, SRI may be subject to Friedman's (1970) critique that it would be more efficient for SRI investors to invest in better-performing conventional funds and use part of the returns to comply to their personal convictions by donating money to good causes.

3.2. Why do companies implement CSR strategies?

Even though economists, in general, have taken a skeptical view on CSR (see above), CSR has become increasingly popular among business leaders and is widely discussed in the national media, political debates, and business school education. This section reviews recent theories explaining why companies implement CSR strategies.

One of the main arguments in favor of CSR is that CSR is consistent with shareholder value-maximization. Heal (2005) states that, by anticipating and minimizing the potential conflicts between corporations and society, CSR plays a role in reducing the costs of conflicts. In contrast to Friedman (1962)('s) critic, Besley and Ghatak (2006) show that CSR is in line with profit-maximization in competitive markets. When firms sell products ('ethical' brands – defined as products branded as organic, environmentally friendly, durable or sustainable, and neutral brands), only those consumers who care about CSR are willing to buy ethical products such that there is no adverse welfare effect on those who do not care. Hence, CSR creates a Pareto improvement for the economy as a whole. Furthermore, Allen et al. (2007) discuss the advantages and disadvantages of stakeholder-oriented firms in relation to shareholder-oriented firms. They show that societies with stakeholder-oriented firms have higher prices and lower output due to reduced competition in product markets. This leads to higher firm values compared with shareholder-oriented economies.

Several theoretical studies argue that CSR can be rationalized under asymmetric information in financial or labor markets. Firms may use CSR as an informational signal upon which stakeholders can base their judgments regarding the quality or reputation of those firms (Fombrun and Shanley, 1990). Brekke and Nyborg (2005) model CSR as a screening device for firms to attract motivated workers, while Fisman et al. (2006) show that CSR may act as a credible signal of firms' trustworthiness in providing quality products.

In addition, firms may implement CSR strategies due to pressure from social and environmental lobbyists. Baron (2001) models CSR as firms' rational responses to 'private politics' where lobbyists put pressure on firms to adopt more stringent environmental standards. Moreover, major shareholders are visible to outsiders and may therefore become the target of social activists and lobbyists. Using detailed ownership data and data on corporate social responsibility of the S&P 500 firms, Goergen and Renneboog (in press) investigate the impact of ownership concentration and types on CSR, but the authors do not find a relation between control concentration and CSR.

In contrast to the above studies on the causes of CSR, Barnea and Rubin (2006) argue that CSR results from agency costs. They argue that insiders (managers and large blockholders) may seek to over-invest in CSR strategies for their private benefit, namely to improve their reputations as good citizens and responsible managers.

Taken together, rational firms may voluntarily opt to implement CSR strategies. CSR may soften competition in product markets and lead to higher firm value, signal a firm's product quality and improve reputation, and help to attract motivated employees. Moreover, CSR may also arise from pressure from lobbyists or agency problems.

3.3. Is CSR priced?

As stated more briefly above, CSR is the sum of environmental efficiency (protecting environmental stakeholders' interests), good corporate governance (protecting shareholders' interests), and good stakeholder relations (protecting the interest of other stakeholders, including those of employees and the local community). Given that economic theory tells us that firms should be "socially responsible" to the extent that it helps maximizing firm value, the crucial empirical question is whether or not investors are willing to pay for CSR. In other words, we ask the question as to whether CSR is incorporated in the share prices.

3.3.1. Environmental screening

Although simple economic logic suggests that a stringent environmental standard can increase the production costs and thus hurt corporate profitability, a growing body of empirical literature reports a positive relation between corporate environmental performance and firm value. Researchers use various methods to study the effect of environmental performance on value. Event studies are used to examine the information content of corporate news on environmental issues. For example, Hamilton (1995), one of the first papers applied to this area, documents a significant negative impact of the announcements of the release of information on the use of toxic chemicals on stock prices in the US. Similarly, Klassen and McLaughlin (1996) find significant positive abnormal returns after a firm receives environmental performance awards, and significant negative returns after environmental crises. Furthermore, Dasgupta et al. (2001) report similar results for a number of developing countries.

While the above event studies document a significant impact of news on corporate environmental performance on shareholder value, it is not clear why there is such an impact. If environmental performance is correlated with firms' future cash-flows, e.g. potential costs of litigation or compliance with environmental regulations, the investor reactions may simply imply that investors react to cash-flow news. Alternatively, if the announcements on environmental performance are not related to the cash-flow evolution, one could argue that capital markets internalize the externalities of firms and investors are willing to pay for corporate environmental performance. However, the above studies have failed to control for the cash-flow content of environmental news, therefore these studies cannot unequivocally conclude that environmental performance *per se* is priced by capital markets.

Other studies take a different approach: they investigate whether higher environmental standards are associated with a higher market value as measured by Tobin's q. Dowell et al. (2000) conclude that US-based multinational enterprises adopting a stringent global environmental standard have a much higher Tobin's q than firms with less stringent standards. Konar and Cohen (2001) dissect Tobin's q into tangible and intangible asset values. They report that poor environmental performance is negatively correlated with intangible asset value. However, these studies are subject to the usual caveat that correlation does not necessarily imply causation. It is possible that the correlation between firm value and environmental performance arises from the fact that highly valued firms tend to apply more stringent environmental standards to avoid negative media coverage, or that alternative factors are causing the documented correlation.

Furthermore, the empirical literature has recently begun to measure the relation between stock returns and environmental performance. Derwall et al. (2004) construct equity portfolios based on environmental performance criteria, namely the "eco-efficiency" scores from Innovest Strategic Value Advisors, and measure the performance of these portfolios by the Carhart (1997) four-factor model. The paper shows that a portfolio of firms with high environmental scores (based on positive screening) outperforms a portfolio of firms with low scores by 6% per annum over the period 1997–2003. This study has important implications for SRI: using environmental information could help to improve portfolio performance. The authors give two potential explanations. First, the stock market undervalues the environmental information, which is at odds with market efficiency. If markets were efficient, constructing portfolios using public information *ex ante* should not generate abnormal returns, even if the information can generate market reactions *ex post*. Second, the eco-efficiency premium captures the premium of some missing risk factors in asset pricing models. It is indeed possible that the abnormal returns of these investment strategies reflect the investor reactions to the release of environmental news. Sound environmental performance may also be a proxy for good corporate governance (which we will discuss below). It is clear that these implications for SRI warrant future research.

3.3.2. Corporate governance screening

Corporate governance addresses the conflicts of interests between an agent (manager) and a principal (investor). This conflict of interest is induced by the separation of ownership and control in the modern corporation, and can bring about large agency costs to shareholders. Managers may exert insufficient effort in enhancing shareholders' value (moral hazard), enjoy building corporate empires and extract private benefits of control, and entrench themselves by anti-takeover provisions like poison pills such that (dispersed) shareholders cannot exercise control. These agency costs are at odds with the definition of corporate governance formulated by Shleifer and Vishny (1997): corporate governance consists of "the ways in which the suppliers of finance to corporations assure themselves of getting a fair return on their investment". Tirole (2001) takes a broader view and defines corporate governance as "the design of institutions that induce or force management to internalize the welfare of stakeholders".

The empirical literature shows that there is a positive relation between corporate governance and a firm's value (e.g. La Porta et al., 2002). Gompers et al. (2003) (hereafter GIM) study the relation between a set of 24 corporate-governance (anti-takeover) provisions and a firm's long-run performance in 1990s. Since the governance structures of a firm are not exogenous, the paper makes no claim about the direction of causality between governance and performance, but rather analyzes whether or not corporate governance is associated with firm value. Based on these provisions for 1500 companies, the authors build a governance index to capture the relative power of shareholders' rights. A striking relation between corporate governance and stock returns is found: a strategy (i.e. an investment screen) that involves buying firms with the strongest shareholder rights and selling firms with the weakest shareholder rights generates a yearly abnormal return of 8.5% per year during the 1990s. In addition, the governance index is highly correlated with firm value measured by Tobin's q. These findings can be interpreted as follows: (i) the stock market underestimates the agency costs induced by the corporate provisions that reduce shareholder rights, (ii) managers have private information (not shared with investors) that future firm performance will be poor, so they may use corporate provisions to entrench themselves and reduce shareholder rights, (iii) the significant abnormal returns generated by corporate governance screening may be not due to market-inefficiency, but rather capture the premium of some risk factors that is missing in the current asset pricing models.

The above approach of defining corporate governance as a set of anti-takeover provisions has limitations. Cremers and Nair (2005) extend GIM's work by classifying corporate governance mechanisms into external governance (takeover vulnerability) and internal governance (the presence of institutional blockholders), and investigate how the interaction of these governance mechanisms is associated with equity returns. In particular, the authors use two proxies for internal governance: the percentage of shares owned by institutional blockholders, and the percentage of shares owned by public pension funds. The paper finds that internal and external governance are complements in relation to stock returns: an investment strategy (screen) based on shareholder rights (external governance) generates an annualized abnormal return of 10–15% when blockholder ownership is high (internal governance). Similarly, an investment strategy based on a firm's internal governance mechanism generates an annual abnormal return of 8% when external governance is strong (i.e. in firms with few anti-takeover provisions).

It is interesting to study if the same pattern appears in other corporate governance regimes, such as in European countries. Bauer et al. (2004) apply the GIM methodology to European data. Corporate governance data are obtained from the Deminor Corporate Governance Ratings, which covers 269 firms included in the FTSE Eurotop 300 for the years of 2000 and 2001. For the period 1997–2000, the governance ratings are assumed to be constant over time. The authors use the overall governance ratings from Deminor, which are the aggregates of 300 criteria covering shareholder rights, takeover defenses, information disclosure and the board structure. The paper shows that good corporate governance leads to higher stock returns and higher firm value in Europe. In addition, contrary to the findings of GIM, the paper reports a negative relation between corporate governance standards and earnings measures (like ROE).

3.3.3. Stakeholder relation screening

The empirical studies on corporate social responsibility have focused on the valuation effect of CSR. For instance, Hillman and Keim (2001) investigate the valuation effect of CSR, for which data are obtained from KLD, a primary data source for SRI screening in the US. The authors argue that CSR consists of two components: one (called 'stakeholder management') refers to improving the relationships with primary stakeholders like employees, customers, suppliers and communities, while the other refers to 'social issue participation' such as a ban on nuclear energy, the avoidance of 'sin' industries (gambling, pornography), and not doing business in countries with poor human rights records. The paper shows that management focusing on stakeholder value can also create shareholder value. In contrast, social issue participation often destroys shareholder value.

Orlitzky et al. (2003) conduct a meta-analysis on the relationship between CSR and corporate financial performance. They summarize this relationship using 52 studies while adjusting for sampling and measurement errors. The results show that, across the existing studies, CSR is positively related to financial performance. However, CSR appears to be more highly correlated with backward-looking measures (accounting returns) of financial performance than with forward-looking indicators (such as shareholder returns). It is important to note that a meta-analysis is subject to some of the same biases (e.g. endogeneity) from which individual studies also suffer. Furthermore, the fact that the performance measurement methodologies have significantly evolved over time, reduces the comparability of earlier studies.

The above studies on the relation between stakeholder management and financial performance are subject to the criticism that correlation does not elucidate the direction of the causation. For example, well-performing firms may accumulate substantial cash flows which allow them to implement CSR strategies improving the reputation of the top managers. Consistent with this hypothesis, Orlitzky et al. (2003) report that measures of CSR are correlated not only with future performance but also with past financial performance.

To conclude this subsection, we summarize the findings of the empirical literature on corporate governance and social responsibility:

(1) Event studies show that news releases on corporate environmental performance/responsibility trigger significant share price reactions. However, the existing empirical evidence does not univocally allow us to conclude that the investors care about environmental performance. In case environmental performance is correlated with firms' future cash-flows, e.g. potential costs of litigation or compliance with environmental regulations, the share price reactions may simply imply that investors react to cash-flow news rather than news related to CSR.
(2) The following components of CSR are associated with higher shareholder value: good corporate governance, sound environmental standards and, to a lesser extent, care of stakeholder relations. However, there is still no unambiguous evidence about the direction of causality, such that 'evidence' about CSR creating shareholder value should be interpreted with caution.
(3) Investing in firms with sound environmental performance or good corporate governance produces superior abnormal returns for shareholders. This implies that *public* information on corporate governance and environmental performance may be underpriced by the stock market, which is at odds with the efficient market hypothesis.

4. Portfolio-level analysis on SRI

Do investors base their decisions exclusively on risk-return characteristics or are they willing to tolerate suboptimal financial performance in order to satisfy their personal values related to social responsibility. This section reviews the theories and empirical evidence on a number of important issues on SRI, including the risk-return characteristics and money-flows of SRI, and the impact of SRI on firm behavior.

4.1. SRI screens, portfolio constraints, and market (in-)efficiencies

4.1.1. Portfolio management

SRI applies various screening processes to retain stocks complying with specific CSR criteria on social, corporate governance, environmental, and ethical issues, which imposes a constraint on the investment universe available to non-SRI investors. SRI screens may therefore limit the diversification possibilities and consequently shift the mean-variance frontier towards less favorable risk-return tradeoffs than those of conventional portfolios.

The logic of this 'underperformance' argument can be illustrated using the following simple example. Suppose that the investment universe consists of four companies: company A generates a positive net present value to shareholders as well as positive externalities to other stakeholders (e.g. better environment or community), B generates positive NPVs but also negative externalities such as pollution, C is associated with financial underperformance but positive externalities such as community benefits, and D generates negative NPVs and negative externalities. Obviously, both SRI and conventional funds will invest in companies A, while neither of them invests in company D. However, their investment behavior as to companies B and C may differ: while only conventional funds invest in B, SRI funds (especially those using positive screens) may invest in C as they care about social objectives. Therefore, if markets correctly value the investment opportunities, SRI funds are expected to generate weaker financial performance than conventional funds for two reasons. First, SRI funds underinvest in financially attractive investment opportunities due to the forgone investment projects such as B. Second, SRI overinvest in negative NPV projects such as C. This can be summarized in the following table:

Companies	Positive NPV	Negative NPV
Positive CSR	(A) both *SRI and conventional* funds invest	(C) only SRI funds with positive screens invest
Negative CSR	(B) only conventional funds invest	(D) neither *conventional* nor *SRI* funds invest

4.1.2. Market (in-)efficiencies

Believers in the efficient market hypothesis argue that it is impossible that SRI funds outperform their conventional peers. Screening portfolios based on public information such as CSR issues cannot generate abnormal returns. However, it is also possible that SRI screening processes generate value-relevant information otherwise not available to investors. This may help fund managers to select securities and consequently generate better risk-adjusted returns than conventional mutual funds. In this case, investors may do (financially) well while doing (socially) good, i.e. investors earn positive risk-adjusted returns while at the same time contributing to a good cause.

There are two arguments supporting this 'outperformance' hypothesis: first, sound social and environmental performance signals good managerial quality, which translates into favorable financial performance. Second, social and environmental screening reduces the possibility of incurring high costs during corporate social crises or environmental disasters, which financial markets tend to undervalue. As discussed in Section 3, the empirical research shows that portfolios constructed by means of corporate governance, environmental and social criteria may outperform their benchmarks.

A key assumption underlying the 'outperformance' hypothesis is that the stock markets misprice information on CSR in the short run. Using the previous example of Section 4.1.1, the 'outperformance' hypothesis essentially argues that there is a causal relationship between CSR

and NPV such that, in the long run, company B destroys shareholder value due to, e.g. the costs of litigation, while company C creates value as it may be more insured against such costs. As a result, SRI may outperform conventional funds in the long run. The 'outperformance' hypothesis is also at odds with the efficient market hypothesis. If SRI screening processes do generate value-relevant information, conventional portfolio managers could easily replicate the screens and the performance edge of SRI over conventional investments should then diminish.

4.2. SRI performance

The question as to whether SRI creates shareholder value is ultimately an empirical one. In this subsection we discuss the empirical findings on the risk-return characteristics of SRI. If investors derive non-financial utility from investing in SRI and care less about financial performance than conventional investors, we expect continued SRI growth even if their risk-adjusted returns are lower than those of conventional investments (see Table 4).

4.2.1. Evidence from the US

There are several studies evaluating SRI fund performance in the US. Hamilton et al. (1993) investigate the performance of 32 SRI funds and 320 randomly selected non-SRI funds in the US for the period of 1981–1990. The CAPM-based Jensen's alpha is measured against the value-weighted NYSE index. For the 17 SRI funds with a longer history, i.e. established before 1985, the average alpha is −0.06% per month, which is higher than the average monthly alpha (−0.14%) of the corresponding 170 non-SRI funds. Meanwhile for the 15 SRI funds with a shorter history, i.e. established after 1985, the average alpha is −0.28% per month, which is worse than the average monthly alpha (−0.04%) of the corresponding 150 non-SRI funds. Note that the differences between average alphas of SRI and of non-SRI funds are not statistically significant.

For the period of 1990–1998, Statman (2000) investigates the performance of 31 SRI funds in the US. The reference group contains 62 non-ethical funds with similar sizes as the ethical ones. The two groups of funds have similar average expense ratios: 1.50% for SRI funds and 1.56% for non-SRI funds. As there are no dead SRI funds in the sample period, the SRI fund sample is attrition free. Jensen's alpha is measured against the S&P 500 Index, but choosing the Domini 400 Social Index (DSI 400), one of the most well known SRI indices, as a benchmark does not change the results. The average monthly alpha is −0.42% for SRI funds and −0.62% for non-SRI funds, but the difference is not significant (the t-statistic is 1.84). The finding suggests that the performance of SRI funds is not significantly different from that of non-SRI funds. In addition, the paper also documents that the DSI 400 index has a higher Sharpe ratio than the S&P 500 index (0.97 vs. 0.92), which indicates that a mean-variance optimizing investor should prefer investing in the former index.

Comparing the average performance of SRI funds to that of non-SRI funds does not necessarily provide useful information to an investor who can selectively invest in a subset of mutual funds. Unlike the above-mentioned studies, Geczy et al. (2006) investigate the diversification cost of an investor who invests in SRI funds but not in conventional mutual funds for the period 1963–2001. The authors construct optimal portfolios of mutual funds for mean-variance investors with short-sale constraints. In a Bayesian framework, each optimization uses the predictive distribution of fund returns conditional upon a range of prior beliefs about model mispricing and manager skills. Then, the optimal portfolio of funds selected from 35 SRI funds is compared to the optimal portfolio selected from a universe of 894 non-SRI funds. The diversification cost of imposing the SRI constraint is measured by the difference between the certainty-equivalent returns on the two portfolios. This financial cost can be interpreted as a lower bound on the value of the non-financial utility that an investor could derive from socially responsible investing. This study reveals that there can be significant financial costs of imposing SRI constraints on mean-variance optimizing investors. It also demonstrates that the SRI cost depends on investors' prior beliefs in the validity of specific asset pricing models and in fund managers' stock-picking skills. To an investor who strongly believes in the CAPM and rules out selection skills, i.e. a market index investor, the financial cost of the SRI constraint is just five basis points per month. To an investor who still disallows skill but instead believes in multifactor pricing models such as the four-factor model proposed by Fama and French (1993) and Carhart (1997), the cost of the SRI constraint is at least 30 basis points per month. The SRI constraint imposes large costs, more than 1.5% per month, on investors whose beliefs allow selection skills, i.e. investors who rely heavily on individual funds' historical risk-adjusted returns to predict future performance. Moreover, further restricting the SRI universe to the funds that screen out "sin" stocks (e.g. alcohol, tobacco or gambling) increases the monthly cost of the SRI constraint by an additional 10 basis points.[14]

[14] Geczy et al. (2006) also show that there are important differences between SRI and non-SRI funds in terms of basic characteristics and the risk exposures. For the funds in their sample, the average expense ratio of SRI funds is higher than that of non-SRI ones (1.33% vs. 1.10%), whereas the average annual turnover of SRI funds is much lower than that of non-SRI funds (81.5% vs. 175.4%). In order to make their results comparable to earlier research, the authors also compare the performance of an equally weighted portfolio of 35 SRI funds to an equally weighted portfolio of 894 non-SRI funds. The monthly alpha, measured by the Carhart (1997) model extended with seemingly unrelated assets, of the first portfolio is higher than that of the second one (0.21% vs. 0.08%), but the difference is insignificant. This finding is consistent with the results of other studies, namely that SRI funds perform no worse than non-SRI funds. Meanwhile, the risk exposure of the SRI portfolio to the size factor (SMB factor) is higher than that of the non-SRI portfolio (0.20 vs. 0.16). This implies that SRI funds are biased towards small-cap companies. The exposures to the momentum factor and book-to-market factor are similar for the two portfolios.

Table 4
SRI performance

Study	Country	Period	No. of funds	Reference group (non-SRI funds)
Panel A: research methodologies of SRI studies				
Luther et al. (1992)	UK	1984–1990	15	No comparisons with non-SRI funds
Luther and Matatko (1994)	UK	1984–1992	9	No comparisons with non-SRI funds
Hamilton et al. (1993)	US	1981–1985 1986–1990	32	320 non-SRI funds, randomly selected
Mallin et al. (1995)	UK	1986–1993	29	29 non-SRI funds, matched by fund size and age
Gregory et al. (1997)	UK	1986–1994	18	18 non-SRI funds, matched by fund size, age, investing area and fund type
Goldreyer et al. (1999)	US	1981–1997	49	180 non-SRI funds, matched by investment objective, fund size and market beta
Statman (2000)	US	1990–1998	31	62 non-SRI funds, matched by fund size
Schroder (2004)	US, Germany Switzerland	1990–2002	46	No comparisons with non-SRI funds
Kreander et al. (2005)	Belgium, Germany, Netherlands, Norway, Sweden, Switzerland and UK	1996–1998 (weekly)	40	40 non-SRI funds, matched by fund size, age, country, and investment universe
Bauer et al. (2005)	Germany, UK and US	1990–2001	103	4384 non-SRI funds (Germany 114, UK 396, US 3874), including dead funds
Renneboog et al. (2005)	17 countries around the world	1992–2003	410	680 non-SRI funds (including dead funds) in the UK and US, matched by fund age, size, load fees and risk exposures
Geczy et al. (2006)	US	1963–2001	35	894 non-SRI funds, including dead funds
Bauer et al. (2006)	Australia	1992–2003	25	281 non-SRI funds including dead funds
Bauer et al. (2007)	Canada	1994–2002	8	267 non-SRI funds including dead funds
Barnett and Salomon (2006)	US	1995, 1997, 1999 (yearly)	67	No comparisons with non-SRI funds
Renneboog et al. (submitted for publication)	17 countries around the world	1991–2003	440	16036 non-SRI funds (including dead funds) in each of the 17 countries

Study	Country	Findings
Panel B: empirical findings of SRI studies		
Luther et al. (1992)	UK	The Jensen's alphas of ethical funds have mean of 0.03% per month (not significantly different from 0). Ethical funds have relatively high portfolio weights on small-cap companies
Luther and Matatko (1994)	UK	The Jensen's alphas of ethical funds are measured against the FT. All share index or against a small-cap index. *R*-squared is higher in the first regression than the second one, which implies that the SRI portfolio is biased towards small-caps. The average alphas measured in both ways are not significantly different from zero
Hamilton et al. (1993)	US	For 17 SRI funds established before 1985, the average alpha is −0.06% per month, which is higher than the average monthly alpha (−0.14%) of 170 non-SRI funds (the difference is not significant). Meanwhile for the 15 SRI funds with shorter history, i.e. established after 1985, the average alpha is −0.28% per month, which is worse than the average monthly alpha (−0.04%) of the corresponding 150 non-SRI funds
Mallin et al. (1995)	UK	The monthly alphas of ethical funds range from −0.28% to 1.21%, while 22 out of the 29 alphas are positive. Alphas of non-ethical funds, 23 of which being positive, range from −0.41% to 1.56% per month (difference is not statistically different)
Gregory et al. (1997)	UK	The alphas of ethical funds range from −0.71% to 0.24% per month (almost all are not significant). In a regression with both ethical and non-ethical funds, the ethical fund dummy does not have a significant impact on fund performance after controlling for fund age, size, and the market risk. Most of the ethical funds have a significant exposure to the small-cap factor
Goldreyer et al. (1999)	US	The average Jensen's alpha of 29 SRI equity funds is −0.49% per annum, whereas that of 20 non-SRI equity funds is 2.78%. The difference is not significant. SRI funds using positive screens outperform the SRI funds that do not (the average monthly alphas are −0.11% and −0.81%, respectively, and the difference between them is statistically significant)
Statman (2000)	US	The average monthly alpha is −0.42% for SRI funds and −0.62% for non-SRI funds; the difference is not significant (*t*-statistics = 1.84). The DSI 400 index has a higher Sharpe ratio than the S&P 500 index (0.97 vs. 0.92)
Schroder (2004)	Germany, Switzerland, and US	The monthly alphas range from −2.06% to 0.87%. 38 out of the 46 alphas are negative; only 4 of them are significant at 0.05 level. SRI funds do not significantly underperform the benchmark portfolio consisting of both large stocks and small stocks. Note that 11 out of the 16 German and Swiss funds have higher exposures to the small-cap index than to the large-cap index. Only 5 out of the 46 funds have positive timing ability, while 7 fund managers time the market in the wrong direction

Table 4 (*continued*)

Study	Country	Findings
Kreander et al. (2005)	Europe	The average Jensen's alphas of SRI and non-SRI funds are 0.20% and 0.12% per month, respectively (difference is statistically insignificant). In addition, the market timing coefficients are similar for the two types of funds (−0.29 vs. −0.28), and each of them is significant at the 95% level. However, the signs of the timing coefficients are negative, which implies that both SRI and non-SRI fund managers time the market in the wrong direction
Bauer et al. (2005)	Germany, UK, and US	Ethical funds have smaller size and higher expense ratio than conventional funds. The average monthly alphas of SRI funds are 0.29%, 0.09% and −0.05% for Germany, UK domestic and US domestic funds, respectively. The US domestic ethical funds significantly underperform conventional domestic funds, while for US international funds the difference in returns between ethical and conventional funds is insignificant. The UK ethical funds, both domestic and international funds, significantly outperform conventional funds. The difference in average alphas between German SRI and non-SRI funds is insignificant. Overall, there is little evidence of significant differences in risk-adjusted returns between SRI and non-SRI funds For German and US ethical funds: after significant underperformance in the early 1990s, they match conventional fund performance over 1998-2001. Older ethical funds (launched before 1998) outperform younger ethical funds. German and UK ethical funds are heavily exposed to small-cap stocks while US funds are less so. All SRI funds are more growth- than value-oriented
Renneboog et al. (2005)	World-wide	Ethical money chases past returns. In contrast to conventional funds' investors, SRI investors care less about the funds' risks and fees. Funds characterized by shareholder activism and by in-house SRI research attract more stable investors. Membership of a large SRI fund family creates higher flow volatility due to the lower fees to reallocate money within the fund family. SRI funds receiving most of the money-inflows perform worse in the future, which is consistent with theories of decreasing returns to scale in the mutual fund industry. Finally, the money-flows and the flow-past performance relationship crucially depend on the types and intensities of SRI screening activities
Geczy et al. (2006)	US	The average expense ratio of SRI funds is higher than that of non-SRI funds (1.33% vs. 1.10%), whereas the average annual turnover of SRI funds is much lower than that of non-SRI funds (81.5% vs. 175.4%). The SRI funds have much smaller size than non-SRI funds: the average asset under management (across time and across funds) is $149 million and $257 million, respectively The monthly alpha of the SRI portfolio is higher than that of the non-SRI portfolio (0.21% vs. 0.08%), but the difference is insignificant. Meanwhile, the risk exposure of the SRI portfolio to the size factor (SMB factor) is higher than that of the non-SRI portfolio (0.20 vs. 0.16) To a market index investor the financial cost of the SRI constraint is 5 basis points per month. The SRI constraint imposes large costs, more than 1.5% per month, on investors whose beliefs allow selection skill. Moreover, further restricting the SRI universe to the funds that screen out "sin" stocks (e.g. alcohol, tobacco or gambling) increases the monthly cost of the SRI constraint by 10 basis points or more
Bauer et al. (2006)	Australia	Domestic ethical funds underperform domestic conventional funds by −1.56% per year. International ethical funds outperform their conventional peers by 3.31% per year. None of these differences are significant
Bauer et al. (2007)	Canada	The difference in average alphas is insignificant between the SRI funds and non-SRI funds (−0.21% vs. −0.18% per month)
Barnett and Salomon (2006)	US	When the number of social screens used by an SRI fund increases, the fund's annual return declines at first, but rebounds as the number of screens reaches a maximum
Renneboog et al. (submitted for publication)	World-wide	Consistent with investors paying a price for ethics, SRI funds in many European and Asia-Pacific countries strongly underperform domestic benchmark portfolios. For instance, the risk-adjusted returns of the average SRI funds in Belgium, France, Ireland, Japan, Norway, Singapore, and Sweden are on average less than −5% per annum. SRI investors are unable to identify the funds that will outperform in the future, whereas they show some fund-selection ability in identifying ethical funds that will perform poorly in the future. Finally, the screening activities of SRI funds have a significant impact on funds' risk-adjusted returns and loadings on risk factors

This table summarizes the research methodologies (Panel A) and empirical findings (Panel B) of studies on socially responsible mutual funds.

The above-mentioned studies compare the performance of SRI funds with that of non-SRI ones, but do not distinguish between SRI funds applying different investment screens. However, investment screens may affect the risk-exposures and risk-adjusted returns of SRI funds. In the academic literature, hardly any attempts have been made to investigate the impact of investment screens on SRI fund performance. Goldreyer et al. (1999) study the performance of 49 SRI funds for the period of 1981–1997, which include 29 equity funds, 9 bond funds and 11 balanced funds. The average Jensen's alpha of the 29 SRI equity funds is −0.49% per annum, whereas that of 20 non-SRI equity funds is 2.78%, but the difference is statistically not dissimilar. The most interesting conclusion is that SRI funds with positive screens outperform SRI funds without. The average monthly alphas for equity SRI funds with and without positive screens are −0.11% and −0.81%, respectively (with a *t*-statistic of 3.36 for the difference). This finding, although based on a small sample of 29 funds, supports the hypothesis that investments screens affect the performance of SRI funds.

A recent study by Barnett and Salomon (2006) examines whether or not more stringent social screens lead to better financial returns of 67 SRI funds. The authors document a non-linear relationship between fund performance and investment screens. When the number of social screens (both positive and negative ones) increases, the fund's annual return declines at first, but then rebounds as the

number of screens reaches a maximum. This paper examines expected returns rather than risk-adjusted returns. Given that the expected returns consists of both risk-adjusted returns and loadings on risk premiums, it would be interesting to see how investment screens influence each of these two components separately.

4.2.2. Evidence from the UK

A few studies investigate the performance of ethical funds in the UK. Luther et al. (1992) study 15 ethical funds in the UK for the 1984–1990 period. The Jensen's alphas of the ethical funds have a mean of 0.03% per month, which is not significantly different from zero. This implies that ethical funds have a similar performance as the benchmark assets. The authors also document that ethical funds have relatively high portfolio weights on small-cap companies. Luther and Matatko (1994) find that SRI portfolios are biased towards small-caps.

Whereas the above studies may have a benchmark problem, Mallin et al. (1995) compare the Jensen's alphas of 29 ethical funds to those of 29 non-ethical funds with a similar fund size and age. The monthly alphas of ethical funds range from −0.28% to 1.21%, while 22 out of the 29 alphas are positive. The alphas of non-ethical funds, 23 of which being positive, range from −0.41% to 1.56% per month. There is no evidence that the two groups of funds have different risk-adjusted returns. Gregory et al. (1997) examine a subsample of 18 ethical funds for the 1986–1994 period. The reference group contains 18 non-ethical funds matched to the ethical funds by fund size, age, and investment area. To account for the small-cap bias, Jensen's alphas are calculated based on two factors, namely the FT All Shares Index and the Hoare Govett Small Cap Index. The alphas of ethical funds range from −0.71% to 0.24% per month, but most are not significant. The authors conclude that the difference in performance between SRI and non-SRI funds is not statistically significant.

4.2.3. International evidence

There are several recent studies also investigating the performance of SRI funds in countries other than the US and UK. For the short period of 1996–1998, Kreander et al. (2005) study the performance of 40 SRI funds in Europe using weekly data. The countries covered in the sample include Belgium (1 fund), Germany (4 funds), Netherlands (2 funds), Norway (2 funds), Sweden (11 funds), Switzerland (2 funds) and the UK (18 funds). The reference group to the SRI funds consists of 40 non-SRI funds from the same countries and with similar fund size, age, and investment universe as the SRI funds. The average Jensen's alpha of SRI funds and non-SRI ones are similar (0.20% vs. 0.12% per month, respectively). This finding is consistent with the results of previous studies for the US and the UK. In addition, the authors test the market timing ability of SRI and non-SRI fund managers, using the Henriksson and Merton (1981) model. The timing coefficients are also similar for the two types of funds (−0.29 vs. −0.28), and each of them is significant at the 95% level. Surprisingly, the signs of the timing coefficients are negative, which seems to signify that both SRI and non-SRI fund managers time the market in the wrong direction.

Large survivorship-free[15] samples of SRI funds (16 for Germany, 32 for the UK and 55 for the US) and of non-SRI funds (4384) are studied over the period 1990–2001 by Bauer et al. (2005). Fund performance is measured by the Carhart (1997) model. As documented in previous studies, ethical funds have a smaller size and charge higher management fees than conventional funds. The average monthly alphas of SRI funds are 0.29%, 0.09% and −0.05% for German, UK domestic and US domestic funds, respectively. The US domestic ethical funds significantly underperform conventional domestic funds, but the difference between the US international ethical funds and the US international conventional funds is insignificant. The UK ethical funds, both domestic and international funds, significantly outperform conventional funds, whereas the difference in average alphas between German SRI and non-SRI funds is insignificant. In summary, there is again little evidence that SRI funds significantly over- or underperform non-SRI funds.

Bauer et al. (2005) also document that German and US ethical funds passed through a learning phase: after significant underperformance in the beginning of the 1990s, they performed as well as matched conventional funds over the period 1998–2001. Furthermore, SRI funds have different risk exposures than non-SRI funds. German and UK ethical funds typically invest more in small-cap stocks while US funds do so to a lesser extent. All SRI funds are more growth – than value-oriented. Another interesting finding is that while the older ethical funds clearly deviated from conventional funds with respect to the exposures to the market risk, size and book-to-market factors, the younger funds follow less pronounced investment styles.

Another international SRI performance study is by Schroder (2004) who examines 30 US funds and 16 German and Swiss ones. He applies a two-factor model with both a blue-chip index and a small-cap index as benchmarks to estimate the alphas which range from −2.06% to 0.87%. Thirty-eight out of the 46 alphas are negative, but only 4 are significant at the 5% level. This confirms that SRI funds do not significantly underperform the benchmark portfolio consisting of both large stocks and small stocks.

Some of Schroder's results are consistent with those of Bauer et al. (2005): the European SRI funds are biased towards small stocks, while the US ones are biased towards large firms. The paper also tests the market timing ability of SRI fund managers by a conditional version of the Treynor and Mazuy (1966) model. The significance level of the timing coefficients suggests that only 5 out of the 46 funds

[15] Ignoring dead funds would overestimate the average returns of the non-SRI funds in by 0.01%, 0.02%, and 0.03% per month for, respectively, Germany, the UK and the US.

give evidence of positive timing ability, while 7 fund managers time the market in the wrong direction (6 of whom are German and Swiss fund managers).

There are two studies investigating the performance of SRI funds outside the US and Europe. Both studies measure the risk-adjusted returns by the conditional version of Carhart (1997) model. Bauer et al. (2006) find that, for the period of 1992–2003, Australian domestic ethical funds underperform their domestic conventional counterparts by −1.56% per year, while the Australian international ethical funds outperform their conventional peers by 3.31% per year. However, none of these differences are statistically significant. For Canadian SRI funds, Bauer et al. (2007) show that the difference in average alphas is insignificant between the 8 SRI funds and 267 non-SRI funds (−0.21% vs. −0.18% per month). Hence, their findings suggest that SRI and non-SRI funds do not outperform or underperform in Australia and Canada.

Using a database consisting of 440 SRI mutual funds in the US, UK, Continental Europe and Asia-Pacific, Renneboog et al. (submitted for publication) study the risk and return characteristics of SRI mutual funds around the world. They hypothesize that ethical, environmental and social considerations influence stocks prices and that investors are willing to pay a price for ethics due to aversion to corporate behavior not complying to CSR standards. The authors also provide evidence in support of this hypothesis. SRI funds in many European and Asia-Pacific countries strongly underperform domestic benchmark portfolios by about 5% per annum. SRI investors are unable to identify the funds that will outperform in the future, whereas they show some fund-selection ability in identifying ethical funds that will perform poorly in the future. Finally, the screening activities of SRI funds have a significant impact on funds' risk-adjusted returns and loadings on risk factors.

In addition to the above studies on SRI performance, there is another line of research that investigates the performance of SRI portfolios by constructing portfolios using firm-level information. For instance, Grossman and Sharpe (1986) compare the returns of a value-weighted South Africa-free portfolio to those of a comparable unscreened portfolio, and find that the difference in returns between these two portfolios is insignificant. Using KLD social data at the firm level, Guerard (1997) and Stone et al. (2001) document that there are no statistically significant differences in returns between SRI screened portfolios and unscreened portfolios. Furthermore, Hallerbach et al. (2004) present an interesting framework for managing an SRI portfolio based on firm-level CSR data.

It is worthwhile to mention that the methodology used to evaluate SRI fund performance has evolved over time. Early research measures the performance of an SRI portfolio using a single index model like the CAPM (Luther et al., 1992; Hamilton et al., 1993; Sauer, 1997). Recently, several studies applied multifactor models including the size, book-to-market and momentum factors (see Fama and French, 1993; Carhart, 1997) to evaluate SRI performance (Bauer et al., 2005; Geczy et al., 2006; Renneboog et al., submitted for publication).

To conclude, in this subsection we presented the empirical evidence of the performance. Although there is little evidence that the *average* performance of SRI in the US and UK is different from that of conventional funds (Bauer et al., 2005), restricting the investment universe to SRI can seriously limit the diversification possibilities and negatively influence the risk-return tradeoff (Geczy et al., 2006). Despite the underperformance of SRI in Continental Europe and Asia-Pacific (Renneboog et al., submitted for publication), SRI has experienced strong growth in these regions. This supports the hypothesis that investors are willing to accept suboptimal financial performance in order to satisfy their personal values related to social responsibility. When deriving non-financial utility from investing in firms meeting superior CSR standards, SRI investors may be content with a lower rate of return from ethical/socially responsible firms.

4.3. Money-flows of SRI

In spite of the fact that SRI funds experienced a tremendous growth in most developed economies around the world, little is known about how investors select funds with explicit non-financial attributes. The fact that SRI investors may have a different investment objective function is suggested by the SIF (2001) report: during the stock market downturn over the first 9 months of 2001, there was 94% drop in the money inflows into all US mutual funds, whereas the fall in net investments in socially screened funds amounted to merely 54%. The SIF (2003, p. 8) states "Typically, social investors' assets are "stickier" than those of investors concerned only with financial performance. That is, social investors have been less likely to move investments from one fund to another and more inclined to stay with funds than conventional investors".

The first study on the determinants of money-flows in the SRI fund industry was conducted by Bollen (2007) who concentrates on money-flows and past returns for US SRI funds. This study shows that the volatility of money-flows in the US is lower for SRI funds than for non-SRI funds. Furthermore, money-flows of socially responsible funds are less sensitive to lagged negative returns than flows in conventional funds, but more sensitive to lagged positive returns.

Using a database consisting of 410 SRI mutual funds in 17 countries around the world, Renneboog et al. (2005) study the money-flows into and out of the SRI fund industry. They find that SRI investors chase past returns, past return rankings, and persistence in past performance, as do investors in conventional mutual funds. Unless a fund persistently underperforms, SRI investors care more about past positive returns than about past negative returns. In addition, the authors find that smaller, younger or riskier SRI funds have higher money-flow volatility, partly result-

ing from the higher marketing efforts of these funds. Perhaps the most interesting finding of this study is that the money-flows and the flow-past performance relationship crucially depend on the types and intensities of SRI screening activities.

Taken together, the recent studies show that money-flows into and out of SRI are less sensitive to lagged negative returns than those of conventional funds (Bollen, 2007), and the flow-past performance sensitivity depends on the types and intensities of SRI screening activities (Renneboog et al., 2005). This is consistent with the view that investors care about non-financial attributes of their investments.

4.4. The impact of SRI on firm behavior

Given that SRI funds now represent a significant part of all investment funds, it is important to study whether or not SRI strategies achieve their goal of promoting social responsibility. In other words, we ask the question whether SRI influences corporate behavior, or whether SRI benefit is only a feel-good sentiment evoked by not being linked to corporate behavior not complying with CSR standards.

To answer this question, Heinkel et al. (2001) develop a theoretical model that captures the effects of negative SRI screening on a polluting firm's economic behavior. The assumptions of this model are: (i) investors are risk averse and consist of two types: green investors and neutral investors, and (ii) each firm has one of two technologies: a clean technology and a polluting one. The basic question is whether the presence of green investors can cause firms to alter their corporate behavior, i.e. to change from using a polluting technology to a clean one. The model shows that the question is answered affirmatively: if fund managers adopt negative screens, polluting firms are present in fewer investment portfolios, which reduces risk-sharing opportunities among investors (see Merton, 1987). Hence, the stock price of polluting firms falls, thus raising their cost of capital (expected return). When the increased cost of capital exceeds the cost of capital of socially responsible firms (in this case, the ones which transferred to a less polluting technology), polluting firms will tend to turn more environmentally friendly.

In a follow-up paper, Barnea et al. (2005) investigate the effects of negative pollution screening on the investment decisions of polluting firms. The issue is examined in an equilibrium setting with endogenous investment decisions, i.e. firms are allowed to choose their level of investment. The study concludes that negative screening reduces the incentives of polluting firms to invest, which lowers the total level of investment in the economy.

It is important to note that the models assume that there are limits to arbitrage in stock markets. That is, when the stock price of polluting firms falls, there are not enough arbitrageurs buying the polluting firms if they are underpriced. Given these assumptions, the models predict that if significant amounts of money divest from unethical /asocial firms, the cost of capital of these firm will rise due to reduced risk-sharing opportunities among investors. Consistent with this result, Hong and Kacperczyk (2005) find that 'sin' stocks in the US, i.e. companies involved in producing alcohol, tobacco and gambling, have historically outperformed the stock market, implying a higher cost of capital.[16]

However, there is currently no direct empirical evidence on whether firms meeting superior CSR standards have lower cost of capital due to the emergence of SRI. This is one of the interesting areas for future research.

5. Conclusions and future research agenda

SRI has experienced rapid growth around the world, reflecting the increasing awareness of investors to social, environmental, and governance issues. In recent years, issues like global warming, the Kyoto Protocol, corporate governance, and community investing have gained significant attention by governments and investors around the world. In addition, governments in western countries have taken many regulatory initiatives to stimulate SRI. Given the growing social awareness of investors and the increasingly positive regulatory environment, we expect that SRI will continue their growth and relative importance as an asset class.

This paper provides an overview of the state of the academic literature on SRI. The main conclusion of this survey is that while some research has been undertaken on SRI, there are still a great many issues and puzzles that remain to be resolved. The emergence of SRI, combined with the behavioral differences between SRI and conventional investors, raises interesting questions for research on corporate finance, asset pricing, and financial intermediation.

At the firm level, the question whether CSR is priced by capital markets is still an open one. Although CSR are found to be associated with higher shareholder value, there is no convincing evidence on the direction of causality. In addition, it would be a fruitful area of empirical research to investigate how CSR influences the cost of capital of firms and their investment decisions.

Furthermore, SRI may have important implications for asset pricing. For example, if investors exhibit preferences of 'aversion to unethical/asocial corporate behavior' in addition to the standard risk aversion, investors may require a lower rate of return from ethical firms than that suggested by the standard asset pricing models. However, the existing studies at the portfolio level hint but do not univocally demonstrate that SRI investment funds perform worse than conventional funds. In addition, it is a puzzle that investing in firms based on public information such as sound environmental performance or good corporate

[16] In support to this finding, the 'Vice Fund', a US mutual fund set up in 2002 and investing in tobacco, alcohol, defense and gambling industries, has produced favorable returns over the past years.

governance produces superior abnormal returns (as the CSR research shows). Further research remains to be conducted to investigate the anomaly.

Finally, the emergence of SRI also raises questions for financial intermediaries such as asset managers and banks. For example, SRI portfolio managers pursue both financial goals and social objectives. This multi-task nature of SRI managers may weaken fund managers' incentives to pursue economic efficiency, i.e. risk-adjusted returns, and increase the agency costs. It would be interesting to examine the incentive structures in the SRI industry. In recent years, many banks voluntarily apply CSR screens in their lending processes. For instance, more than 50 banks around the world have adopted the Equator Principles, a set of principles committing the signatory banks to finance only projects meeting social and environmental criteria. Additional research is required to understand the impact of SRI on financial institutions.

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