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Financialisation and Corporate Social Responsibility  
in the EU non-financial sector

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# Financialisation and Corporate Social Responsibility in the EU non-financial sector

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## **Abstract:**

The process of financialisation has enhanced the tendency through short-term behavior both among investors and non financial companies.

At firm level, such a myopic focus has implications for cost-of-capital issues in terms of corporate incentive for the development of management policies and attitudes aimed at procuring greater near-future financial returns at the expense of even better long-term results. In this framework, CSR can play an important role, as a positive relation between CSR and corporate financial performance, together with a business model characterized by a lower level of financialisation, can represent a vehicle to increase the demand of a stock characterized by high socially responsible standard, which, in turns, would sustain its value, therefore providing incentives to managers to further strengthen socially responsible behavior of corporations, inducing a virtuous circle which may have a growingly positive effect on the sustainability of firms and of the economy as a whole.

The paper addresses the abovementioned issues and presents an empirical analysis of the the impact of CSR on firms' financial structure, as financial leverage is unanimously considered among the features mostly affected by the growing weight of finance in the economy. Considering a sample of European non financial companies included in the Dow Jones Sustainability Stock Index in the period 2001-2013, our results show a negative relationship between CSR and firm's leverage, supporting the idea that higher CSR standards might contribute in reducing financial riskiness.

**Key words:** Corporate Social Responsibility, Social Responsible Investment, Financialization, Corporate Financial Structure, Firm Leverage.

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## 1. Introduction

One of the main consequences of the process of financialization has enhanced the tendency through short-term behavior both among investors and non financial companies.

Although it has no one single definition, short-termism is generally taken to refer to the tendency of agents in the financial intermediation chain to weight too heavily near-term outcomes at the expense of longer-term opportunities (Haldane, 2011). Coates et al. (1995) describe stock market short-termism as a situation where the (financial) investing community has a systematic preference for near-future cash flows at the expense of those resulting at longer horizons. At firm level such a myopic focus has implications for cost-of-capital issues in terms of corporate incentive for the development of management policies and attitudes aimed at procuring greater near-future financial returns at the expense of even better long-term results. In aggregate, such behavior would lead to a sub-optimal level of long-term real investment in the national economy.

Short-termism is difficult to measure, nevertheless there is an evidence supporting the existence of this phenomenon. According to Stein (1989) its effect is most pronounced when managers are most concerned with their stock prices or labor market reputations, implying that underinvestment will be most pronounced when firms are threatened with takeovers or are preparing to issue new equity. Other empirical papers are less supportive. Muelbroek et al. (1990) examine the investment in R&D by firms in states which adopt anti-takeover amendments. They show there is a little evidence that these firms increase their spending once the threat of takeover is reduced, as the Stein (1989) model might suggest. Derrien, Kecskes and Thesmar (2013) analyze the issue of myopia from the investor's perspective. They argue that the investment horizon of the investor, short-term versus long-term, is relevant when evaluating corporate behavior: when a firm is undervalued, the presence of short-term investors is associated with less investment and less R&D spending. By contrast, when a firm has more long-term shareholders, they will be better able to resist underinvestment during times of undervaluation (namely, investment increases as long-term investor ownership increases).

While the debate concerning the relationship between investor behavior and investment horizon is not new and it is recognized that short-term investors play an important role in capital markets by providing liquidity and ensuring short-term accountability, recent studies

suggest that there is a growing global need for long-term capital in both private and public markets. Estimates of global infrastructure needs are about 3 trillion of USD per annum, with public finances increasingly unable to meet these needs (World Economic Forum, 2010). Furthermore, an average annual investment in clean energy of 500 billion of USD is required by 2020 (World Economic Forum, 2009). Moreover, the financial crisis has highlighted the important role that long-term investors can potentially play in stabilizing the markets at a time of distress and enabling corporations to focus on long-term strategic decisions. Long-term investors can not only improve long term value of individual companies, but also provide a social good by helping global financial markets to function more efficiently and promoting sustainable global economic growth and creating wider social benefits.

## **2. Social Responsible Investment as a driver of CSR and sustainable development**

The term 'investment' intuitively suggests a forward-looking orientation of the economic entity involved. The aim of this financial topic is to increase the value of a certain portfolio in order to fulfill future possible needs. A similar long-run perspective feeds the mainstream support towards a deeper Corporate Social Responsibility (CSR) engagement, seen as imperative tool in granting social well-being, quality and a fair development. Socially responsible investing then represents a consequential answer to both economic and social requirements adopting a strategic approach that considers ESG factors in portfolio selection and management. According GSIA (2014), “[...] *The growing visibility of sustainable investing produces a virtuous cycle, in which institutional and retail clients feel empowered to ask money managers for SRI options, and more traditional investment firms are motivated to develop products and services to serve a market that no longer can be characterized as niche. The growth in global SRI reflects the consensus among investors that accurate valuations and proper risk management require greater disclosure and consideration of ESG issues such as climate change, human rights, consumer protection and health and safety. Increasingly, managers are using ESG criteria to identify risks that are not adequately addressed by traditional investment analysis and to better predict financial performance. Managers are also using ESG criteria to identify opportunities to invest in sustainable businesses that are involved in energy efficiency, green infrastructure, clean fuels and other sectors that provide adaptive solutions to some of the most challenging issues of our time [...]*” (GSIA report 2014, p. 26).

The cultural influence on the investment attitudes represents a well acknowledged dynamic. A previous report of the Global Sustainable Investment Alliance (GSIA, 2014) confirms growth of mutual funds made up following precise ESG standards (see Table 1).

[Table 1 about here]

Such heterogeneous proportions underline the high context and cultural dependence of the CSR argument. Its modern diffusion owns deep cultural roots; the founder of Methodism, John Wesley, argued that the religious principles extrapolated from the New Testament had to inspire a correct use of money.

For years both methodists and quakers avoided investing in enterprises that profit from enslavement, killing of human beings, guns, liquor and tobacco.

The modern renaissance of SRI follows the post WWII world's commercial globalization when, for the first time in history, customers were able to give a face to the goods they were buying. New mass media (e.g. how TV influenced the human conception of the war) underlined the social contradictions affecting in particular less developed countries causing public protests and boycotts. Well known examples are the concerns regarding Vietnam war, civil rights, equality for women and anti-nuclear convictions, apartheid in South Africa or, for instance, the tragic disasters of Chernobyl and Bhopal. Public opinion played a central role in addressing governmental and social attitudes.

With regards to sustainable investing strategies, the GSIA (2014) reports a definite preference for the 'exclusionary' and 'norm based screening', jointly with the explicit integration of ESG factors into the stock selection process (see Figure 1).

[Figure 1 about here]

As the previous Figure 1 shows it is interesting to analyze that the European attitude has been symmetrically adopted by Canada. USA, conversely, showed a preference for 'best in class screening' instead of the norm-based one, probably because it allows to managers the inclusion of more profitable risk options. As Table 2 below shows Kinder (2005) in his official KLD report provides an alternative SRI categorization following similar adaptive reasons.

[Table 2 about here]

Renneboog et al. (2008) admits that the interest surrounding SRI simply reflects a growing awareness of the investors into social and environmental issues; such rising dynamic will naturally follow the focus given to societal issues (e.g. climate changes, poverty, inequality) by Governments and supranational institutions.

Nevertheless there is a continual debate on the current profitability of a similar investing approach. The prevailing mood surrounding the institutional investment industry argues the impracticability of adopting a sustainable-lead stock selection without renouncing to higher return. Sauer (1997) quotes among the most recurrent concerns a potential increase in volatility (hence riskiness), lower returns, additional screening and agency related costs and a reduced diversification possibility. The results is a shift from Markowitz's efficient investment frontier (Renneboog et al, 2008).

However, the diversification argument doesn't appear strong enough, since the benefit from adding different typologies of stock fades away beyond a certain level (Aslaksen and Synnesvedt, 2003). At the same time, the supremacy of the traditional investing over a more responsible one results to be linked to a conventional view instead of an objective one. Knoepfel (2001), in portraying the modern investing attitudes, offers an intuitive comparison between the Dow Jones Sustainability Group Index (DJSGI) performance and the one achieved by the Dow Jones Global Index (DJGI) in the period 1995-2000 (see Figure 2).

[Figure 2 about here]

DJSGI shows higher volatility but, looking at the components, there is an overall superior output in terms of ROE, ROA and ROI (Knoepfel, 2001).

SRI supporters justify their position considering the stricter criteria imposed as a natural proxy of the firm's health. A sound social and environmental performance mixed with higher disclosure and accountability signal a responsible and accurate managerial approach suggesting a positive financial performance. Moreover, social and environmental screening lowers the risk of facing unpredictable high costs due to social crises or environmental disasters (Renneboog et al, 2008).

Diltz (1995) and Guerard (1997) performed different levels of screening in order to appreciate concrete results. Diltz (1995) reported a slightly superior performance of environmentally and militarily screened stocks, whereas Guerard (1997) admitted a substantial indifference between screened and unscreened portfolios.

Kempf and Osthoff (2007) recognizes that a prominent role is played by the screening strategy adopted, since e.g. positive and best in class screening allow the inclusion of a wider set of profitable stocks. The authors then tries to explore the effective predominance and validity of the arguments surrounding different strategies discovering that high-rated portfolios achieve higher returns than the low-rated. The maximum 'alpha' (see Sharpe, 1964) is obtained applying the best-in-class screening approach and choosing uniquely the highest SRI ranked (Kempf and Osthoff, 2007).

Bhattacharya et al. (2011) found that a good CR performance can involve a positive impact on ROI (return on investments) justifying further CR-related expenses (e.g. R&D) but this relation is highly dependent upon stakeholder's attitudes which indeed drive manager's discretion. Nevertheless, the impact of a certain activity is consistently context dependent. Sometimes ROI could be negatively affected by a given initiative and, consequently, the solution is a co-creation of CR values able to ingenerate higher customer engagement (Bhattacharya et al., 2011). Hill et al. (2007) indeed, in comparing SRI portfolios selected from different geopolitical area, found that the impact of CSR values on financial performance is stronger in Europe and USA than in Asia.

Schröder (2004) and Volk (2003) among the others focused their attention towards SRI index performance instead of proper SRI funds in order to catch the 'pure' stock dynamic avoiding considerations upon agency costs. They reached rather mixed results. Schröder (2004) concluded that there were no remarkable differences between the risk-adjusted performances of SRI and benchmark indexes. Consolandi et al. (2008) adopted a similar reasoning comparing the DJSSI (Sustainability Stock Index) performance with the one achieved by the Dow Jones 600 (its benchmark) and by a Surrogate Complementary Index (SCI) which is composed by stocks included into the Dow Jones 600 Index but ousted from the DJSSI. The results produced by Consolandi et al. (2008) seem to slightly support the positive SRI argument. The paper additionally inspects the effects of a firm's inclusion/exclusion from a given index showing that the market reaction to an exclusion is stronger than in case of exclusion. This evidence perfectly matches the *Kahnemann and Tversky's Prospect Theory* (Consolandi et al., 2008).

Lopez et al. (2007) argue that the profitability testing of a SRI approach with respect to the DJSI has indeed lead to controversial results. In particular, Lopez et al. (2007) compare the performance of firms included into the DJSI with the one observed form DJGI members. The results suggest that the impact of CSR inclusion involves a negative impact on financial performance, at least in the short-term. In this case, it seems that the investments done for



being sustainable could represent a competitive disadvantage for the firm. The observed negative effect, however, seems to fade gradually away suggesting that a diffused CSR engagement could be encouraged through financial and legal incentives (Lopez et al., 2007). Fund managers can only show numbers. Numbers represent their business card and, consequently, every potential gains reduction is in antithesis with the aim of the company itself.

Furthermore, several empirical analysis have shown that socially controversial stocks have earned anomalously positive returns (Derwall et al., 2011) and that totally excluding 'sin industries' can lead to underperformance (Hong and Kacperczyk, 2009). From there follows that adopting a 'best in class screening' approach in stock selection could ingenerate benefits without renouncing to wider earning possibilities.

Derwall et al. (2011) offer one of the most interesting SRI-related contribution trying to reach the basement of the motivations inspiring SRI. According Derwall et al. (2011) the differences in performance between screened and unscreened stocks shouldn't simply be explained assuming the predominance of a single theoretical attitude towards CSR but accepting the participation of a wider set of factors in determining stock prices. Derwall et al. (2011) argue that the motivations to choose a certain stock and the choice itself affect the market equilibrium determining movements into the relative stock prices. In particular, Derwall et al. (2011) consider that could be two different following motivation on the basis of SRI:

1. Shunned-stock hypothesis – investors are 'values driven', they choose assets independently from profit motivations but are instead concerned about non-pecuniary motivations of their investments. An approach of this kind could ingenerate a demand shortage for 'sin assets' impacting the relative prices.
2. Errors-in-expectations hypothesis – investors justify their CSR approval with unexpected effects on future cash flows since 'SRI produces a superior risk-adjusted return when investors underestimate the degree to which CSR enhances future expected cash flows, or overestimate associated costs'.

Both hypothesis own a very interesting theoretical base in Merton's 'incomplete information model' (1987). Merton (1987) speculated on market segmentation explaining that it is a consequence of informative asymmetries. Neglecting a stock lowers its traded price since there's a smaller investor base and consequently a limited risk-sharing.

Hong and Kacperczyk (2009), beside admitting the role of market segmentation and its function in balancing demand-offer, recognize that the price advantage of 'sin stocks' could

be balanced by the cost of facing legal struggles. An elemental compliance with CSR-related regulation is not enough to determine a competitive advantages to the firm because the effect is exacerbated by industry-peers. CSR has to be shaped making it an exclusive valuable asset not easily mimicked and adopting a pro-active management style (Derwall et al., 2011).

By the way Klassen and McLaughlin (1996) and Krüger (2009) among the others documented a tangible effect on stock prices due to positive/negative CSR-related issues feeding the research in this sector. Interestingly the price reaction is stronger for negative events, again underlining Kahnemann's '*loss aversion*'.

Hong and Kacperczyk (2009) observed that the adoption of SRI screened portfolios it's a more popular choice among investors such as pension funds because they are more prone to public scrutiny than mutual or edge funds which resulted to be still highly engaged into '*sin stocks*'. The idea that '*sin-stocks*' portfolios are able to offer higher returns it's a widely accepted concept. Both Statman and Glushkof (2008) and Salaber (2007) found that, since the end of the 1970s, '*controversial stocks*' have outperformed '*accepted stocks*' in terms of risk-adjusted performance. Kempf and Osthoff (2007), nevertheless, remarks that a SRI selection made up according precise CSR features (e.g. environment, product quality, diversity) is able to invert the judgment.

Galema et al. (2008) and Edmans (2009) instead tested the frequency of abnormal earnings with respect to the typology of stock selected, finding that the most pro-active firms outperform laggards achieving considerable values of alpha. A part of the abnormal performance could be justified by changes in ownership (Edmans, 2009).

Hamilton et al. (1993) extended the research area to proper SRI mutual funds inspecting the performance of socially responsible screened funds. Examining 32 mutual funds in the period 1981-1990 he found no statistically significant excess returns of SRI portfolios with respect to conventional funds. Similar results are observed in Kempf and Osthoff (2008) and Derwall et al. (2005) supporting the belief that a CSR involvement doesn't pay in the short-run (Derwall et al., 2011). Scholars such as Rudd (1981) or Sauer (1997) impute the inconsistent difference in portfolio performance to a reduction in terms of diversification possibilities due to the ESG selection; the argued negative impact directly follows from the *Modern Portfolio Theory*.

However, several studies have shown that such partial and simplistic acceptance shouldn't stand in a modern and well developed economic context since its complexity is susceptible

of multi-level influences: Market globalization, full information, a responsible shareholder are factors able to affect financial sector itself.

Unsurprisingly, the results that stocks with a high ESG rating show *ceteris paribus* a lower total risk than identical stocks with the same systematic risk but a lower ESG rating (Bauer et al., 2009) (Boutin-Dufresne and Savaria, 2004). This is due to a second level of diversification attaining to the risk specificity argument that, contemporaneously, lowers stocks correlation as well negatively impacting the relative asset volatility (Hoepner et al., 2010).

Indeed, Bello (2005) concludes that there is not a significant difference in terms of degree of portfolio diversification between US responsible funds and conventional funds. Lee and Faff (2009) reported a consistently lower specific risk into DJSI members than counterparts into the DJGI leading the conclusion that a SRI approach is compatible with the aim of the *Modern Portfolio Theory* since the reduced diversification argument shortage allows a responsible investing approach, in particular adopting a best-in-class selection strategy (Hoepner et al., 2010).

Kinder (2005) underlines the risk reduction argument assigning to it the deserved position of primary investment determinant; a similar speculation finds its roots into the concept of 'prudent investor rule'. Such rule its part of the educational heritage coming from the Great Depression period and refers to a statement from the Supreme Judicial Court of Massachusetts that addressed the Trustees functioning according: 'how men of prudence, discretion and intelligence manage their own affairs, not in regard to speculation but in regard to the permanent disposition of their funds, considering the probable income, as well as the probable safety of the capital to be invested' (SJCM 1940). The principle has been then formalized into the Uniform Prudent Investor Act (UPIA)<sup>1</sup>.

Within the European context, data provided by Vigeo shows that in 2013-2014 SRI retail fund market grew noticeably, reaching a level of asset under management of 127 billions of Euro, compared to the 108 billions of 2013. The five largest increased have been recorded in France, UK, Spain, Switzerland and Sweden. Moreover, the market share of SRI funds increased in all markets, recording remarkable increases in the Netherlands, Belgium, France, Switzerland and Germany.

Concluding this section, the current debate about SRI seems not being inclined towards a univocal position. The controversy between SRI followers and detractors reflects a lack in

objectivity and rationality since both sides offered logic arguments and tangible data. Generally it seems that on average the penalties for social irresponsibility are stronger than the reward for social responsibilities. However, considering that in literature there isn't agreement on this theme, it needs future deeper researches in order to clarify main related issues.

### 3. Socially responsible investments and CSR: main issues

Responsible investing is a complex matter. In literature it's easy to find many papers that have been devoted to study its functioning in order to appreciate eventual benefits and gain viable investing strategies to support sustainable development. The core of a similar tricky disputing lies in the fact that multiple corporate features are able to affect a firm's functioning and their influence as well strictly depends upon the corporate strategy.

Debt position, stakeholder management attitude, reputation, customer loyalty, access to capital among the others represent acknowledged factor affecting firm's return.

Luo and Bhattacharya (2006) guessed a significant impact of customer's satisfaction on firm's market value in identifying possible factors determining an impact of the financial performance. Luo and Bhattacharya (2006) argue that a quantitative test is essential in assuring the suitability of a certain intervention. The authors questioned the previously achieved results about CSP-CFP puzzle criticizing both procedures and datasets implemented and based their speculation upon proactive measures of profitability (e.g. stock based Tobin's q) observed among FAMA (Fortune's American Most Admired Corporations) members. The results achieved by Luo and Batthacharya (2006) seem to corroborate previous similar studies (Anderson and Landau, 2002) enhancing the role of customer satisfaction in addressing long-term financial performance.

Hillman and Keim (2001, p. 131) tried to address academic focus on often neglected factors such as stakeholder management, intended as the creation of "[...] *positive relationships with stakeholders through the appropriate management of their expectations and agreed objectives* [...]". Hillman and Keim (2001) assumed a positive impact on financial performance from an improved allocation and management of the resources following the same path of reasoning suggested by Preston and Sapienza (1990). The assumptions defined by Hillman and Keim (2001) were supported by previous researches where emerged a superior performance in US companies explicitly engaged in upgraded stakeholder practices (Ernst & Young, 2002).

Scholars such as Neville et al. (2005), however, evoked the summarizing role exerted by firm's reputation in leading stakeholder's attention. Deephouse (2000, p. 1093) defined reputation as "[...] *the evaluation of a firm by its stakeholders in terms of their affect, esteem and knowledge* [...]". The stakeholders impact on firm's performance has been extensively explored by Brammer and Millington (2005) and Roberts and Dowling (2002) among the others. These studies agree on the positive reputation-performance relation. In particular, with respect to the modern competitive and globalised market even if, as pointed out by Wang et al. (2008), the effects of negative CSR news produce deeper detrimental consequences. In this context it looks almost redundant to quote Nike's 90's reputational slump since socially responsible consumers take into account the public consequences of their private consumption (Webster, 1975). Furthermore McWilliams and Siegel (2001) underlines that there's a general presumption of worthiness regarding CSR engaged and reputationally solid institutions because it seems to be enough to grant product quality and reliability. Sadly, behavioral biases affecting customers cause an asymmetric judgment about positive and negative events and then the propensity of being concerned ousts the impact of positive initiatives (Bhattacharya and Sen, 2003).

The virtuous reputational cycle, apart from providing a direct positive impact on firm's value, engenders the attraction of motivated employees as well. Hopkins (2003) highlights the cruciality of attracting motivated and talented people into the company. This point of view is supported by Bhattacharya et al. (2008, p. 38) who stressed that "[...] *companies do not fully understand the psychological mechanisms that link their CSR programs to anticipated positive returns from their employees (for example, pro-company behaviors, higher productivity, longer tenures and so on)* [...]". In this sense, attracting worthwhile people could represent a proper investment.

An additional extensively explored relation attains to the CSR role in reducing specific costs, positively affecting financial performance. Brown (1995 and 1998) and Hart (1997) have shown that a strong environmental engagement measured on a well defined sample resulted in decreased costs and increased profitability also in terms of loan costs and insurance premiums reductions (Jayne and Skerratt, 2003). Similar expenses have to be added to other irresponsibility-related costs (boycott, legal penalties, litigations, unfavorable credit conditions) offering further support towards CSR engagement.

The bulk of the discussion regarding firm's costs assumes a very educational trait especially in inspecting the credit sector because bank lenders are able to partly overcome informational asymmetries adopting extensive monitoring systems (Goss, 2009). Similar

reasoning is supported by Altman (1998) who argues that the loan market is a better predictor of the probability of default than the bond market.

Examining the link between ESG corporate performance and the cost of capital. Sharfman and Fernando (2008) find that firms with positive environmental performance are characterized by higher bond yields but also show higher leverage, suggesting an easier access to debt financing. Moreover, the authors argue that similar results could be achieved by a company using the loan spread over LIBOR as parameter catching financing costs. The study developed by Sharfman and Fernando (2008), even being coherent under a pure theoretical perspective, does not show a consistent statistical significance suggesting a shared influence of additional factor (e.g. financial leverage, tax shield).

Goss (2009) uncovers current differences in loan spreads among differently reputed firms, but he concludes that CSR engagement represents a mere second-order criteria in affecting such spreads.

Nevertheless in literature it is recognized the ESG risk mitigating role since improved environmental risk management lowers the market risk perception of the firm (Heinkel et al., 2001) and reducing systematic risk also reduces equity beta, cutting down the cost equity financing (Feldman et al., 1997). El Ghouli et al. (2011) tries to overcome some of the inconsistencies surrounding the WACC argument completing Sharfman and Fernando (2008). El Ghouli et al. (2011) start from the assumption that the CSP-CFP puzzle is strongly tied to the reciprocal influence between social performance and cost of capital. However, the majority of the academic works WACC-related have been focused towards the credit system even if an higher focus to the cost of equity financing is widely justified. The cost of equity capital represents the internal rate of return that the market applies to a firm's future cash flows in order to determine its current market value signaling the required rate of return given the market's perception of a firm's riskiness. It means that, if a consistent relation between CSR and firm's perceived riskiness is confirmed, its cost of equity is supposed to be negatively affected as well. Additionally, a great number of researches point out that a profitable way of reducing costs is represented by the ability of managing informational asymmetries. The introduction of ESG in financial analysis seems to sort a positive impact on similar market failures though the provision of stricter disclosure standards and a sounder corporate governance (Chen et al. 2009).

Last point in supporting a WACC-related interest depends on the link between cost of equity and stakeholder's investments since it represents their expected return. It suggests that a superior corporate management allows to strategic investment planning producing a more

efficient usage of the resources. Differently from Sharfman and Fernando (2008) whose speculation was focused exclusively on the environmental dimension of CSR, El Ghoul et al. (2011) evaluates the CSR impact exploring six dimensions of the theme. Inspecting a sample of US firms between 1992-2007, El Ghoul et al. (2011) reveal that firms with an higher CSR score exhibit a lower cost of equity capital after controlling for other firm specific determinants. El Ghoul et al. (2011) show that CSR strategies and/or investments (e.g. improving responsible employee relations, the implementation of environmental policies and customer care) substantially contribute to reducing firms' cost of equity. Otherwise, firms traditionally related to 'sin' business sectors, such as tobacco and nuclear power, appear expose higher equity financing costs.

In general, though, apart from the directly reflected effects of CSR on firm's accounts, an extremely relevant result is represented by an improved access to financing. Smoothed costs allow managers to undertake profitable projects benefitting from a healthier economic context. Prior studies indeed showed that capital constraints play a leading role in strategic decision-making by directly affecting the firm's ability to undertake major investment decisions (Stein, 2003). Cheng et al. (2014) argue that firms with a superior CSR performance face lower capital constraints as a consequence of multilevel factors. A consistent CSR engagement is related to an higher stakeholder affection. This assumption could reduces contracting costs and creates a positive feedback loop improving transparency around the social and environmental impact of companies and their governance structure. Jones (1995) argued that "*[...] because ethical solutions to commitment problems are more efficient than mechanisms designed to curb opportunism, it follows that firms that contract with their stakeholders on the basis of mutual trust and cooperation [...] will experience reduced agency costs, transaction costs and costs associated with team production [...]*". Cheng's (2014) results seem to corroborate the theoretical assumptions holding after several checking procedures as well.

Institutional investors increasingly evaluate similar cost-investment aspects in a CSR framework and translate their focus into deeper SRI (Waddock and Graves, 1997), whereas also banks address their investment policies towards area less likely to potentially affect their own reputation (Balabanis et al., 1998). To be clear, the goal of similar institutions is to persuade stakeholders of the merit brought by their initiatives since the immediate CSR results are, because of the complexity of the argument, hardly noticeable (Mc Williams and Siegel, 2000). According Wilmot (2001) "*[...] companies have already gained a competitive advantage by building brands which embrace and encourage core values that have a*

*citizenship component [...]*” even if the mainstream attitude is to basically join philanthropic initiatives. It is not enough to assure an advantage because “[...] *this is why a transparent performance system for measuring CSR activity is crucial to ensure the credibility of corporate responsible brands. In this field, it is vital to prove what has been claimed [...]*” (Ogrizek, 2002, p. 222). Once a serious CSR involvement is confirmed, it’s not hard to appreciate a public recognition as well. Attig et al. (2013) addressed such point arguing that CSR performance intrinsically expresses very important non-financial information that credit rating agencies are gradually starting to look at in evaluating firm’s creditworthiness. A similar reasoning is corroborated by Menz (2010) and Chava (2010) who discovered that the ESG corporate performance are related to the level of bond spreads and that socially irresponsible firms seems to face higher interest rates on their loans. Following Weber et al. (2010), who assessed the relevance of ESG components in evaluating credit riskiness, Attig et al. (2013) argues that CSR-related advantages mainly express themselves in the form of intangible assets such as reputation and efficient stakeholders management, neglecting immediate effect on short-term accounting profitability. Moreover, such link is weakened by the direct monetary impact of coping with CSR stressing the urgency of improving long-term oriented researches.

Independently from the theoretical orientation, however, strong evidences support a public adaptation to similar mainstream concern. Standards and Poor, for instance, currently incorporates CSR-related criteria into their rating assessments. This is an extremely relevant point since achieving a good ESG score positively impacts on the cost of capital, representing a good news for firms constantly recurring to external financing (e.g. debt, equity) (Attig et al., 2013). The results achieved by Attig et al. (2013) show a significant positive impact of CSR on firm credit ratings suggesting that by increasing a firm’s creditworthiness is possible to decrease the firm’s financing costs, positively affecting shareholders’ value. The most relevant ESG dimensions able to sort a statistically significant effect on credit merit are employee relations, diversity, product issues, community, and environmental issues. According Attig et al., (2013) “[...] *these results suggest that the CSR investments that matter most for firm’s credit ratings are those that are socially desired and that are directly related to a firm’s primary stakeholders [...]*” (Attig et al., 2013, p.690). Attig’s (2013) study invokes a joint institutional and managerial focus in strategically improving CSR practices to the aim of achieving multifaceted benefits.

A neglected benefit in supporting SRI attitudes is often represented by the reduction of firm’s perceived risk. Albuquerque (2013) analyzes CSR-related effects on firms’ systematic risk



and market value. Following Luo and Bhattacharya (2006), investment in CSR is intended as a mechanism to gain customer loyalty which is pivotal in smoothing out the effects economic fluctuations. Achieving a more loyal demand involves profits that are relatively less sensitive to aggregate economic conditions than a firm with a less loyal one, reducing in the meanwhile systematic risk as well. However, since a ESG adaptation could be consistently expensive, because this could lead some firms to increase their financial exposition, increasing systematic risk as collateral effect. Albuquerque (2013) argues that the level of systematic risk is statistically and economically significantly lower for firms with a higher CSR score and that such high CSR score has a positive impact on Tobin's Q as well. According the author, the risk smoothing function played by ESG adaptation gains significance also in the context of SRI since CSR stocks would have the effect of lowering the overall riskiness of the portfolio.

Mishra and Modi (2013) in particular inspect the magnitude of CSR initiatives on firm's idiosyncratic risk that is extremely relevant since it accounts for "[...] 80 % of total stock risk and security price fluctuations [...]" (Bansal and Clelland, 2004, p. 94). The idiosyncratic risk represents the riskiness unrelated to the market and, consequently, diversifiable allowing managers to pursue variegated strategies of risk management. Testing a sample of multiple industries over the years 2000-2009, Mishra and Modi (2013) found that CSR determines a significant effect on idiosyncratic risk of firms over time. A positive CSR helps in reducing idiosyncratic risk, whereas negative CSR increases it. Mishra and Modi (2013) point out that the effect of positive CSR on idiosyncratic risk is not guaranteed but it's stronger (and more evident) for firms showing lower levels of financial leverage. Such leverage effect disappears looking at negative CSR practices and idiosyncratic risk (Mishra and Modi 2011). Further Mishra's (2011) findings suggest that investors penalize those firms that engage in positive CSR, while they are over-leveraged financially, remarking that the market takes into consideration socially responsible actions only if firms have good financial health.

Analysts then do not show a blind consideration for ESG scores achieved by firms since their impact has to be related to their own internal context. Harjoto and Jo (2012) configures the advantage coming from CSR engagement through the earning forecast dispersion and the stock's volatility, finding that such 'earnings surprises' are closely related to the voluntary adoption of a set of initiatives. In particular, the legal provision depicts a level playing field lacking of offering a competitive advantage.

An often quoted concern attaining to the realization of similar earnings and then susceptible of influencing SRI performance is represented by the 'egoistic' earning management. A

sound financial reporting is the keystone of a trust relationship between economic entity and stakeholders. This way to transfer information between company and stakeholders depicts firm's health, intentions and perspectives, allowing the whole society to understand the past and foresee the future (Prior et al., 2008).

Watts and Zimmermann (1978) define 'earning management' the degree of discretion exercised by managers in providing (and managing) accounting numbers. The eventuality of earning management, however, is strictly linked to existence of personal benefits (loss postponement, profit-related bonuses, shadow finance) or to a short-term firm's orientation. Similar behaviors, apart from distorting objective assessments upon the activities undertaken by the company, represent a failure of the CSR aims. This nullifies the benefits coming from a sounder accountability system.

Nevertheless, since CSR engagement involves a positive impact at least on firm's public image and endorsement, it is susceptible of being adopted as a channel to condone any eventual negative acceptance of manager's strategies (Prior et al., 2008). After all, there's no reason of being concerned if SR ratings attests firm's goodness. Prior et al. (2008) discovers a strong support to similar hypothesis showing a direct correlation between earning management and CSR expenses. The author argues that a 'earning management strategy' covered by deeper CSR expenses has the effect of mining long-term firm's wealth, like hiding the dust under the carpet. Barnea and Rubin (2006) as well questioned the socio-economic opportunities of over-investing in CSR. They stressed that a firm's insiders (corporate managers, directors, and large blockholders) may push towards higher CSR expenditures, even if it doesn't involve firm's value maximization, simply because similar initiatives result in a mirror personal benefit. A positive ESG rating raises firm's reputation on a primary level and, contemporaneously, strengthens insiders social consensus depicting individuals respectful of their investors, employees, communities, and the environment. However, according to Barnea and Rubin (2006), a wide portion of the stakeholders may result totally indifferent to similar reputational targets to the extent that a superior engagement, more or less authentic, affects firm's economic value. Barnea and Rubin (2006) postulate the existence of conflicts between shareholders linking their magnitude to the degree of insider ownership. Similar studies in literature have shown that the modern corporate attitude is characterized by a modest level of insider ownership (Morck et al., 1988) even though is extensively reported the institutional impact in moderating same practices (Bhojraj and Sengupta, 2003). Moreover, an excessive CSR investment is

hindered by an over-leveraged capital structure with related high debt payments (Jensen and Meckling, 1976; Diamond, 1991).

After controlling for industry and firm characteristics, Barnea and Rubin (2006) point out a negative relation between insider ownership and CSR ratings. In particular, Barnea and Rubin (2006) argue that “[...] *At high levels of ownership, insiders are more aligned with firm value maximization and thus they bear more of the costs involved in CSR [...]*” (Barnea and Rubin 2006, p. 4).

## **4 The effect of CSR on firm's financial structure:**

### *4.1 CSR and Firm Leverage*

The link between CSR and firm leverage, is still highly debated by researchers since both the components of the equation are strongly context-dependent and their evolution follows the specific characteristics of the observed firm. For instance, highly levered firms do not necessarily present a higher level of financialisation or are riskier than firms with a lighter debt position. Indeed, the effects of different financial structures have to be measured with respect to the investment decisions undertaken jointly with the relative market characteristics (Damodaran, 2006).

According to Kumar (2008), efficiently managing leverage represents a profitable way to get rid of an uncontrolled WACC, allowing an increase in the net economic return and, consequently, into the firm value itself. In order to organically inspect the debated interrelation between CSR and financial leverage it's vital to assume, as a preliminary step, a process of identification of the relevant variables able to define the boundary conditions linking CSR and financial performance (Luo and Bhattacharya, 2009).

A remarkable theme to point out is that, very often, scholars sustain the thesis according to the main driving aspect observed by investors and shareholders in assuming financial decisions is the firm leverage itself. Generally, the firm leverage is considered as a factor able to offer a concrete data in evaluating the financial implications of the firm's strategies and initiatives (Jensen and Meckling, 1976). However, consistent financial considerations cannot be assumed thinking about the relation among CSR and firm performance as a static one. Several studies argue the dynamicity of the virtuous cycle triggered by responsible practices, able to sustain the firm performance and to be fed by it (McGuire, 1988). McWilliams and Siegel (2000) showed that the multiple studies performed during the last

decades about the corporate effects of a CSR implementation have not reached a univocal result, underlining the trouble in identifying the appropriate variables to point out in order to organically comprehend the financial effects of a sustainable commitment. As a consequence, in the literature it is possible to find several mis-specified models (Margolis et al., 2009).

The CSR long-term effects are supposed to be positive (Freeman, 1984) since firms achieve a market advantage with respect to the competitors (Ogrizek, 2002), signaling an higher level of consciousness and responsibility (Diamond, 1991; Spence, 1999). Consequently, in these latest years higher common sensibility started to affect investors as well, because these are attracted about sustainable development benefits engaging in responsible firms. many investors indeed showed the willingness to sacrifice returns in exchange of non-pecuniary utilities (Derwall et al., 2011).

Nevertheless, the resulting economic payoff of a company's CSR engagement depends upon the level and the quality of the initiatives implemented (McGuire, 1988).

Firm leverage, seen as a fundamental variable in understanding financial decisions and strategies, has been widely exploited in the academia. For this reason it is very interesting fully understand relationship between 'new' corporate practices (such us CSR strategies) and the firm leverage. According to Shiller (1995), positive CSR seems to mitigate the systematic risk, seen as the greater component of riskiness in portfolio selection, even if such relation isn't constantly assured. However, firms with lower financial leverages are in a favorable position to gather the risk-reduction benefits of positive a CSR. Shiller (1995) underlines that investors penalize over-leveraged firms even if highly CSR-committed. This point suggests that the market pays off socially responsible actions only if firms have a good financial health (Mishra and Modi, 2013). Kisgen (2009) submits a very interesting leverage-related argument inspecting its relation with respect to the publicly diffused credit ratings. The author finds out that firms constantly reduce their leverage levels following credit rating downgrades. A rating downgrade predicts capital structure behaviors better than changes in leverage, profitability, or bankruptcy probability. Maintaining a particular rating level, in fact, provides multilevel benefits to a firm such as commercial paper access or access to a broader bond investor pool. Attempting to recover from a rating downgrade is consistent with firm value maximization. Rating upgrades do not seem to affect subsequent capital structure activity, suggesting that firms basically target minimum rating levels showing 'loss aversion' concerns. Since firm's leverage affects its rating, the consideration for the achievable benefits is needed in order to determine a firm's optimal level of leverage. A firm

whose credit rating is downgraded subsequently reduces leverage whereas a firm that is upgraded subsequently increases leverage. This behavior is consistent with credit rating targeting or leverage level targeting, since changes in leverage and ratings are correlated (Kisgen, 2009). For this reason it's crucial to recognize the existence of a strong evidence arguing that socially involved firms present a low credit risk. Rating agencies award relatively high ratings to firms with a good social performance (Attig et al., 2013). Furthermore has been empirically demonstrated that social commitment reduces firm leverage weakly but significantly (Girerd-Potin et al., 2011).

Moreover, the link between leverage and CSR has been explored observing the effect of CSR on the cost of equity, defined as the required rate of return given the market's perception of a firm's riskiness (EL Ghouli et al., 2011). McGuire (1988) shows that CSR is negatively associated with risk, measured through the ratio of debt to assets, equity beta, and the standard deviation of total return. On the other hand McGuire (1988) realizes that CSR effects have a positive interaction with operating leverage. These results suggest that low-risk firms and firms with a high return on assets will later have an image of high social responsibility. Interestingly firms with good environmental performance face higher bond yields and, in the majority of the cases, have higher leverage levels as well. Firms which have produced high level of CSR performance probably they could easily access to the debt market (Sharfman and Fernando, 2008).

Furthermore, on average, internal ownership and leverage are negatively related to the firm's social rating (Barnea and Rubin, 2006), even if high leveraged firm are more likely to choose for a CSR engagement (Harjoto and Jo, 2012).

Finally, firms showing high debt ratios are less capable of obtaining more debt financing because their probability of default is already high and, as a result, the cost of financing is high as well (Baker and Wurgler, 2002). Nevertheless the CSR engagement implies, as previously reported, agency costs that carry out the effect of increasing the operating leverage affecting also the observed idiosyncratic risk (Albuquerque, 2013).

Among the previously quoted contributions emerges a lack of a definite focus towards the role of firm leverage in influencing CSR attitudes and judgments. Looking the literature, stands out a huge support on evaluating ESG practices according an investment perspective. The academia is busy in solving the eternal puzzle surrounding the CSP-CFP relation and a similar behavior has been exacerbated by the assertion of SRI. It sounds quite comprehensible looking at the billions of dollars strategically addressed by investors towards similar financial opportunities.

Such mainstream attention is very likely to fade away as soon as SRI will represent the normality (some experts argue that within 20 years the viable investments will almost entirely be of SRI type given the rushing corporate standardization); scholar's trial, then, is to win the race in offering a consistent SRI justification able to dissipate the recurring concerns.

#### *4.2 Contributions from previous studies on the relationship between CSR and the firm leverage*

This part of the report is focused upon the causal relation linking CSR engaging (and reporting) and firm's financial structure. Since the CSR performance of a firm has an influence on cost of equity and on the level of information asymmetry, it would impact its capital structure (Pijourlet, 2015).

Therefore, exploring a similar argument represents a useful step in achieving a comprehensive understanding of the modern corporate strategies. Indeed, ESG initiatives have subverted the consolidated managerial practices implying a deep reconsideration of the prior capital theories.

Optimal past strategies in facing investments and planning financing decisions have been shaken by the assertion of concepts such as the *Shareholder Theory* (Friedman, 1962 and 1970), modifying debt attitudes as well. In the past, adopting higher debt ratios was a mainstream strategy instrumental to the achievement of particular financial advantages such as the 'tax shield' effect. CSR involvement, however, resulted in a reconsideration of the pros/cons of a similar approach, empirically showing profitable alternatives and remarking the preference for 'safer' firms instead of 'strategically active' firms.

Furthermore, to a 'poorly informed' eye all of the information provided by financial ratios assume a stronger dimension since the strategic aims and goals of a company cannot be understood in absence of an integral (and multi-period) framework.

A firm's competitive (strategic) advantage subsists until it is not publicly known. This point justifies the evidence remarking investor's preference for less levered firms even if a similar attitude doesn't stand upon solid theoretical foundations; lower debt ratios inspire firm's reliability even if (statistically speaking) a concrete advantage is not assured.

Our intention, through this report, is to offer a further support to the academic efforts devoted to profile an inclusive CSR framework, unrelated from materialistic aims (pure investment opportunities) but strongly focused on defining an 'enlightened' sustainable corporate doctrine. Debated contributions such as the detection of an 'optimal capital structure'

(Bradley et al., 1983; Chung et al., 2013) appear pivotal to us, because able to relax the rigidity of some consolidated business practices. If an economically relevant optimal capital structure exists, firms deviating from its natural average levels will face competitive disadvantage. On this point Chung et al. (2013) argue that “[...] *Those that operate close to their optimums should be able to generate more net cash flow and be better able to take on new investment opportunities, including by acquisition of firms that operate away from their optimums or that fail because of having chosen an inappropriate capital structure [...]*” (Chung et al. 2013, p. 84 ).

Supporting a stakeholder approach (Freeman, 1984) rather than shareholder or societal one sounds quite irrelevant to us since corporate and ethic global standards will, sooner or later, force a natural polarization towards highly virtuous levels of responsibilities. After all, the benefits from a competitive advantage (Porter and Kramer, 2006) are justified by a constant improving process. Furthermore, seems extensively accepted the idea that the penalties for social irresponsibility could be stronger than the benefits from a positive social engagement, boosting in this way ESG practices. Keeping in mind Tversky and Kahneman's (1972) 'loss aversion' it is not hard to understand why.

Several papers have then tried to offer a consistent justification to the wide spreading of SRI besides a mere mainstream fashion, reaching however rather mixed or (in the majority of cases) inconsistent conclusions (Kempf and Osthoff, 2007; Lopez and Rodriguez, 2007; Consolandi et al., 2008; Derwall et al., 2011).

Nevertheless there is a fundamental topic that deserves to be pointed out since it could, on itself, represent an extremely valid argument supporting SRI reasons. Rudd's (1981) 'inescapable conclusion' about the diversification penalties deriving from a SRI stock selection does not provide so strong foundations to blindly reject any kind of objections. Hoepner et al. (2010) depicted a meaningful model of portfolio diversification built on the idea that the penalties from 'less variegated' diversification could be widely compensated by the reduction in single stock's specific risk. The point is to understand if a similar argument is empirically justified; in our opinion, looking at firm's financial structure represents a useful tool in addressing the problem.

Concerning the risk topic, Albuquerque (2013) made up a CSR model where responsible initiatives are identified through an investment in customer loyalty similarly to Luo and Batthacharya (2009). A greater customer loyalty carries on the effect of reducing the price elasticity of demand feeding in an increase in firm's value as well.

From theory we know that higher expenses (CSR expenses in our case) could, if financed through debt, increase firm leverage and systematic risk. Albuquerque (2013), however, tested similar hypothesis finding that, in case of a limited consumer expenditure share in CSR goods, the systematic risk is indeed reduced for firms with higher CSR scores. From study developed by Albuquerque (2013) it is interestingly also that operating leverage of responsible firms results to be lower according a univariate regression model, even if a multivariate approach does not provide statistically consistent results.

Financial theory suggests that a full comprehension of the leverage topic is hindered by the structural essence of debt itself. Moreover, it depends upon both 'price-terms' and 'non-price terms'. The first category encases objective financing factor whereas non-price terms attain to unpredictable qualitative aspects of borrower and loan (e.g. debt cost and maturity). Similar considerations help us to understand the emphasis we put on debt structure. Benlemlih (2014) tested two opposite theories surrounding the topic: supply side view and demand side view. According the first approach, CSR positively affects firms' debt maturity since an high CSR performance suggests firm's stability, while a poor CSR performance instead codifies an higher credit risk leading to an exclusion from the long-term debt market. Conversely, the demand side view argues that CSR has a negative impact on firms' usage of long-term debt because high quality firms might require more short-term debt to signal their high quality to the market and profit from a more advantageous credit rating (Kisgen, 2009; Attig et al., 2013). Benlemlih (2014) provides a strong support to the demand-side view showing a marked tendency in preferring short-term debt. Furthermore the author reports a growing managerial attitude in replacing debt with equity and internal resources, signaling proximity to the pecking order theory in choosing firm's financial structure. Strictly looking at firm leverage, a positive relation between debt maturity and leverage is verified with highly reputed firms show lower debt ratios. This honestly makes sense because firms having an high debt exposure prefer to delay their financial obligations (Benlemlih, 2013). Verwijmeren and Derwall (2010) codify CSR engagement through an higher employees well being. Employees are concerned about the negative consequences of a bankruptcy since it would be costly to them in terms of social and pecuniary rights. The authors then show that firms having a greater consideration for employees well being try to minimize risk operating with lower levels of debt ratio.

Bigger firms, firms with an higher level of tangible assets or simply more profitable are characterized by higher leverage as well, coherently with previous studies (Rajan and Zingales (1995) among the others).



A further interesting point evidences that firms showing superior well being track records also display better credit ratings (a risk mitigating factor on his own) (Verwijmeren and Derwall, 2010; Attig et al., 2013). Attig et al. (2013) start from the assumption that “[...] *credit ratings reflect the quality of firms’ information disclosure and thus play a key role in corporate financing and investment decisions* [...]” (Attig et al., 2013, p. 690); determining a positive CSR influence on credit rating would represent a further justification to SRI. Indeed, they report a significant positive impact of CSR scores on rating both in aggregate terms than according single ESG components. In particular concerning socially desired issues or primary-stakeholder related problems. As Attig et al. (2013) point out, the logical (and practical) conclusion is that “[...] *CSR performance conveys important non-financial information that rating agencies are likely to use in their evaluation of firms’ creditworthiness, and that CSR investments - particularly those that extend beyond compliance behavior to reflect what is desired by society - can lead to lower financing costs resulting from higher credit ratings* [...]” (Attig et al. 2013, p. 679).

Recalling what we said about Kisgen (2009), in particular that firms take into account credit rating variations to calibrate their leverage levels. This would be possible to infer a positive relation between debt ratios and CSR score. Nevertheless, it could also support the point that simply bigger firms (usually characterized by better ratings given their economic role) show higher leverage and superior CSR scores (Rajan and Zingales, 1995; Verwijmeren and Derwall, 2010). The issue is supported by a wide academic effort in determining the effect of responsible practices on firm’s access to finance. Cheng et al. (2014) translate a superior ESG performance through benefits in terms of reduced agency costs (superior stakeholder engagement) and improved transparency. They report consistent improvements in terms of access to finance thank to a reduction of opportunistic behavior, lower agency costs and higher profits from stakeholder’s affection; the opportunity of recurring to debt financing (enhanced by higher CSR merit) doesn’t imply its consequential usage. The point is, once again, firm’s strategy.

It is indeed influenced by, for instance, the cost of equity capital (El Ghouli et al., 2011) that results reduced according a CSR upgrade. According to El Ghouli et al. (2011) “[...] *investment in improving responsible employee relations, environmental policies, and product strategies contributes substantially to reducing firms’ cost of equity* [...]” supporting the idea that an improved CSR engagement provides benefits in terms of increased firm’s value and reduced risk. Similarly to Cheng et al. (2014) the effect on leverage depends upon manager’s strategic attitude. In normal conditions the impact is meant to be positive.

Goss and Roberts (2011) tried to capture the influence channeled by social responsibility scores on bank loans dynamics. They recognize the superior informative ability allowed to similar financial institutions suggesting that bank's activities should be monitored in order to catch future market evolutions. Bank are considered 'quasi-insiders' of the firm. "[...] *Because bank lenders are able to engage in more detailed monitoring as well as to tailor loan terms, they may be more finely tuned to any impact of CSR than are public lenders [...]*" (Goss and Roberts, 2011, p. 5). Using KLD scores as socially responsible data, Goss and Roberts (2011) showed that banks, on average, charge from 5 to 11 basis points more for less reputed firms. Moreover there's not a consistently equal result for maximally reputed firms. The results achieved by Goss and Roberts (2011) have been subjected to robustness checks and suggest that banks adopt CSR data, at best, as a second-order importance factor in determining loan spreads.

About the risk we want to quote an very interesting perspective provided by Mishra and Modi (2013) having as core argument the effect of both positive and negative CSR initiatives on firm's idiosyncratic risk and leverage. It seems doubly intriguing since scholars such as Jensen and Meckling (1976) or Titman (1984) suggest that stakeholders take into consideration the informative value offered by firm leverage in evaluating the financial implications of adopting strategic initiatives (hence CSR too).

From the empirical analysis the authors report a positive impact of CSR on firm's risk, whereas detrimental initiatives impact negatively it. Moreover, in terms of leverage these two previous studies discover that such positive impact is not guaranteed but is indeed linked to the actual debt level itself. According to Mishra and Modi (2013) benefits for highly levered firms are diluted.

Wood and Jones (2005) inspect the CSR-leverage link according an 'agency costs' perspective stressing the idea that, if an ESG engagement is a valid tool to mitigate agency costs , it would positively impact the cost of debt financing (e.g. thanks to higher transparency) and consequently the leverage levels as well. Wood and Jones (1995) observe a dataset of more than 3000 firms deriving that a superior CSR performance Granger causes' increase in firm leverage "[...] *Scores on employee concerns appear to be related to leverage, but when analyzed with control variables present in the model, the relationship is diluted. Community issues do not appear to be related to leverage [...]*" (Wood and Jones, 1995, p. 9).

Girerd-Potin et al. (2011) were focused on evaluating CSR implications on firm's financial structure, developing a financial management model the where the optimal capital structure

springs out by the trade-off between bankruptcy costs and benefits of the debt on the one hand, and the costs and benefits of equity on the other. The authors assume that positive CSR activities lower the cost of equity (El Ghouli et al., 2011), that companies have different levels of socially responsible engagement, that banks are not sensitive to CSR performance, and finally that investors are utility maximizers (Girerd-Potin et al., 2011). The main conclusion of this model is that CSR performance determines to some extent the financial structure of firms. Socially responsible companies will try to collect benefits from a lower cost of equity issuing more equity than debt. These results support Hong and Kacperczyk's (2009) analysis on the leverage levels characterizing 'sin' companies in which sin stocks' underpricing is configured as having the effect of increasing debt ratios. Similar conclusions appear to be coherent with Maksimovic and Titman's (1991) model where they argued that firms with high quality products are prone to exhibit low debt ratios to signal to their customers their ability to provide a resilient service. On this point Bae et al. (2011) and Pijourlet (2015) argue that this model can be extended to other non-financial stakeholders, like employees. In order to preserve their reputational capital, firms that implement employee-friendly policies have low debt ratios to signal to their employees the firm's ability to treat them fairly.

There is, hence, an extensive impact of public relation on company's activities and codes. Hemingway and Maclagan (2004) highlighted the role of stakeholder's values in boosting CSR initiatives, remarking the context dependence of similar practices also in shaping firm's financial structure. In this regards, Barnea and Rubin (2006) theorized that exists an optimal level of CSR engagement able to mediate additional costs and concrete benefits. In particular, further expenses (overcoming the optimal level) are uniquely justified by the aim of providing personal advantages (reputation, social acceptance) to the internal ownership. Indeed, from the empirical analysis developed by Barnea and Rubin (2006) emerges a negative relation between social rating and internal ownership.

An additional interesting point inferable from Barnea and Rubin (2006) supports the argument of a financial-structure influence upon CSR strategies. A firm characterized by high debt payments offers limited possibilities to a CSR over-investment also because stakeholders are likely to adopt stronger monitoring initiatives (Diamond 1991). Barnea and Rubin (2006) then, discover that "[...] a one-standard deviation increase in the leverage of a firm decreases the probability that it will be defined as SR by 2.2% [...]" (Barnea and Rubin, 2006, p. 4).

Similarly social responsible initiatives result to be negatively related to leverage, equity beta and standard deviation of total returns, suggesting that low-risk firms and firms with higher return on assets are likely to show an image of high social responsibility (McGuire, 1988). Deng et al. (2013) unveiled analogous findings with respect to merged firms and stressed that positive CSR scores amplify the benefits coming from a merging strategy. Moussu and Ohana (2014), by their side, offered an intriguing contribution supporting strategic inconsistencies in coping with CSR investments. They configured H&S programs, commonly recognized as able to reduce health related costs, as CSR investments and observed that highly levered firms under-invest in similar practices despite the note benefits. The authors explained a similar trend arguing that the role of debt in reducing overinvestment in CSR (an then controlling managers discretion) exacerbates valuable investment opportunities. The epilogue suggests that rigidly approaching a similar topic prevents the adoption of worthy activities.

## **5. CSR and firm's financial structure: an empirical analysis**

As we have considered in the previous section on the theoretical point of view in this part of report we present an empirical analysis which aims to explain the possible relationship between CSR performance and the financial structure of firm.

### *5.1 Data*

The statistical sample we adopted in this work is made up by 1123 European firm-specific data included into the Dow Jones Sustainability Stoxx Index (DJSSI) over the period 2001-2013. DJSSI identifies a family of indexes evaluating the sustainability performance of the largest 2500 companies listed on the Dow Jones Global Stock Market Index. Founded in 1999, it merged with S&P indexes in 2012 originating the largest system of global sustainability benchmarks worldwide. Sustainability scores are provided by RobecoSAM. Firms whose sales are attributable for more than 5% to unethical activities (Adult Entertainment, Alcohol, Armaments, Cluster Bombs, Firearms, Gambling, Landmines, Nuclear and Tobacco) are ousted from listing.

Adopting a 'best-in-class approach', the DJSI results to rate the top 20% of companies in terms of sustainability performance relatively to each industry group (there are 59 industry

groups), considering an overall score which is an aggregate proxy of corporate ESG performance achieved by each company that RobecoSAM evaluated.

The RobecoSAM assessment is based on a self-evaluation process based on surveys, which aims to examine the level of sustainability of each company relating to three corporate dimensions (economic-governance, social and environmental) applying specific criteria. Of course each criteria is evaluated according sector specificity since, for instance, the environmental inspecting cannot be standardized. In this case, the environmental impact of an oil company is calculated with different criteria from a food company and so on. The following Table 3 summarizes the main RobecoSAM assessment criteria useful to define the DJSI overall sustainability score and their classification.

[Table 3 about here]

The DJSI overall sustainability score is the sum of the three macro weighted scores: economic-governance (27%), environmental (38%) and social (35%). The overall score can range from 0% to 100%.

This assessment structure is designed in order to consider the industry specific criteria and the general ones. Each score dimension has 6 - 10 criteria and each criterion contains 2 - 10 questions. The general criteria weight is 40 - 50% of the assessment. Following Figure 3 shows how the RobecoSAM assessment is generally structured.

[Figure 3 about here]

Next Figure 4 shows the geographical distribution of our sample. In the specific, our sample is geographically spread as follows.

[Figure 4 about here]

As we can see analyzing Figure 5, the Great Britain accounts for almost a third of the whole sample, France and German firms represent respectively the 13% and the 10% of the population, while other countries are evenly distribute. The Figure 5 below shows the sample distribution per economic sector, where "Industrial Goods and Services" is the largest subset of our analysis.

[Figure 5 about here]

The following Table 4 summarizes the average CSR annual scores (DJSI rating) per economic sector during the period 2001-2013.

[Table 4 about here]

Analyzing Table 4 we could deduct some interesting observations. In terms of yearly evolution of the average scores we note a constant meaningful growth; it is coherent with an updating logic of the CSR practices. In terms of sectors, instead, we can see an high industry heterogeneity. Among the top performers we highlight 'automobiles and parts', 'chemicals' and 'telecommunications' and it makes sense if we think about the sector-specific 'sensitiveness'. Chemicals and automotive sectors have a direct link with the environmental dimension whose effects are indeed the easiest to appreciate. Among the worst performers we note 'real estate' sector. About the first category we have to remark the extremely poor performance in 2001 which is able to consistently affect the average value. In addition we must consider the role played by the housing bubble begun during the 90s in Japan and then moved to Europe (especially in the UK) and USA.

A similar point of view involves the 'financial services' and the recent financial crisis.

## *5.2 CSR and firm's financial structure: a regression approach*

In this section, we try to unveil to what extent the financial structure of a firm is susceptible of being affected by its inclusion into a Socially Responsible Index.

Our empirical analysis takes inspiration from a discrete number of previous studies surrounding the topic; in particular we structurally mimic Webb (2005). As previously mentioned in the literature review, the author tries to corroborate the 'Agency Costs Theory' about firm's financial structure. In essence Webb's guessing aims to show a positive relation between CSR and financial leverage; the idea is that, relaxing agency cost constraints through a sounder and reliable corporate context, an increase in debt levels is expected as a consequence of a lower cost of debt among the other factors (monitoring initiatives costs are transferred from investors to firms, paid back by enhanced trustability).

Indeed our intentions are considerably less ambitious; looking at the European sample, we are interested in understanding if a similar relation holds as well or, otherwise, if there are

evidences suggesting a closer proximity to the alternative mainstream view, namely the *Pecking Order Theory*. Next Table 5 describes the variables used to develop the econometric analysis.

[Table 5 about here]

In order to avert series non-stationarity and autocorrelation we decided to build up our model focusing our attention upon variables' first-order differences D(LEV), D(SCORE), D(PTB) and, additionally, imposing 'fixed effects' into the regressions (taking inspiration from Webb, 2005, p. 7).

*'To address the link between CSR and leverage, a Granger causality approach is utilized' .*

$$SCORE_t = a_0 + a_1 SCORE_{t-1} + a_2 SCORE_{t-2} + a_3 LEV_t + a_4 LEV_{t-1} + a_5 LEV_{t-2} + e_t$$

$$LEV_t = a_0 + a_1 LEV_{t-1} + a_2 LEV_{t-2} + a_3 SCORE_t + a_4 SCORE_{t-1} + a_5 SCORE_{t-2} + e_t$$

Source: Webb (2005, p. 6).

As we can see, a Granger-causality model considers variable's lagged values. If the model's coefficients result significantly different from zero, we infer that there is a causal-determinant link between LEV and CSR as following Table 6 shows.

[Table 6 about here]

As we can see the R-squared is consistently low even if we are honestly not surprised from it since the explanatory ability of the model cannot fully cover the width of the leverage topic. Secondly, the lagged CONSTITUENTS show p-values higher than 5% (indeed CONST (-2) is significant at 10%) whereas CONST(t) is significantly different from zero. On the other side the SCORES, both in current time than in lagged values, are significant at the 1% percent level as well.

In order to give a meaningful interpretation of the output we need to recall results coming from previous contributions, keeping a flexible point of view and recognizing the idea that, being the CSR a human-related argument, a strict mathematical approach does not necessarily offer the expected payoff.

Having significant negative coefficients linking LEV to CSR-SCORES seems to corroborate preceding papers arguing a negative relation between the two variables; an high debt

exposure is commonly perceived as a financial risk-factor (McGuire, 1988; Mishra and Modi, 2013; Albuquerque, 2013).

Intriguing is the strong positive significativity of CONST(t). It is, in our opinion, the most remarkable point simply because, looking uniquely at the SCORE, underestimates issues such as the 'Greenwashing' (BP, EXXON, Nike). Showing a CSR top-score is certainly important but it should be contextualized since it also depends upon the rating methodology implemented and the CSR investing-strategy.

A significant positive LEV-CONST link might suggest a mixture between Pecking Order and Agency Cost theories; the past informational background built up adopting lower leverage levels inspire a public positive judgment and vice-versa, confirming Pecking Order. Firms show a reliable image preferring self-financing resources (equity rather than debt for instance). CONST(t) suggests us that, eventually, a stronger past reputation could relax the bindings posed upon firm's financing discretions; higher observed trustability involves, for instance, a current lower cost of debt, allowing firms to undertake (e.g.) debt-financed investment projects supporting *Agency Cost Theory*.

The idea seems to be confirmed looking at the results produced by the analysis developed using the parallel model which presents SCORE as dependent variable (see Table 7).

[Table 7 about here]

The interesting data in this case is LEV(t), confirming its role in the SCORE equation; in this case we are not concerned about the negative sign of the coefficient simply because we genuinely still expect a negative judgment in terms of SCORES for high-levered firms.

Such line of reasoning is confirmed taking out SCORE from the regression and adopting uniquely COST as dependent variable; in this way the link with respect to leverage is furtherly softened.

D(LEV)	-0.000210	7.76E-05	-2.700259	0.0069
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We ultimately integrate our analysis evaluating the inspected model including some control variables (see results in Table 8a and 8b).

[Table 8a about here]



Interestingly, looking at the geographic dummies (MEDIT, NORTH) we find out a significant positive impact on leverage with respect to the Mediterranean area (Italy, Spain, Portugal, Greece). This is a quite predictable result (European austerity) confirming the meaningfulness of the model.

[Table 8b about here]

Predictably both MID (Switzerland, Austria, Germany, France, Luxemburg) and NORTH (Iceland, Ireland, Great Britain, Belgium, Netherland, Denmark, Sweden, Norway, Finland) tend to be significantly less levered.

Concluding, the significant negative relation observed looking at the sector dummies might be interpreted assuming a strategic point of view; the adjusting-debt levels approach observed into the previous regressions, if proved of being an efficient way in dealing with the credit market, would generate a strategic benchmark. All the clues seem to point in that way.

## **6. Concluding remarks**

In recent years, the global financial and economic crisis are rewriting the relationship between business and society.

The current debate is centered on the role played by the process of financialisation not only in the economy as a whole, but also and within non financial companies.

Shareholder value maximization, together with the commoditization of business has led to a general short term approach, under which managers are tempted focus on the upside potential of short-term success, and undervalue the downside risk of excessive risk-taking and strategic failure.

As a response, a significant amount of theory and practice in business ethics and corporate social responsibility has been produced, often focusing on the concept of Corporate Social Responsibility, together with a growing interest on the relevance of long-term time horizon in investment decision.

Socially responsible behavior, on one hand, and financial innovation on the other, has led to an increased importance of a socially responsible concept of investment activities and, consequently, to an increased demand of incorporation of environmental, social and governance factors in asset allocation decisions. The increased demand of a stock

characterized by excellent CSR standards would sustain its value and this would provide incentives to managers to strengthen further its SR standards. This virtuous circle may have a growingly positive effect on the sustainability of firms and of the entire economy. From an investors' perspective, this leads to an increased scrutiny regarding the non-financial aspects of corporate performance, placing portfolio managers in the position of having to weight the benefits of "holding the market" against the cost of having positions in companies that could be subsequently found to have questionable business practices.

In this work, we highlighted how socially responsible investing is a complex matter.

Not only ESG factors, but also debt position, stakeholder management attitude, reputation, customer loyalty, access to capital represent acknowledged factor affecting firm's return affecting such spreads.

Nevertheless in literature it is recognized the ESG factors' role in mitigating risk, since improved environmental risk management lowers the market risk perception of the firm and reducing systematic risk also reduces equity beta, cutting down the cost equity financing.

In our empirical analysis, we tried to verify if there is a correlation between ESG factors and the level of financialisation of companies. As the increased shareholder value orientation increased the gap between the cost of debt and the cost of equity, we focused our empirical analysis on the relationship between firm leverage and firm CSR level.

Considering a sample of European non financial companies included in the Dow Jones Sustainability Stock Index in the period 2001-2013, we obtained results which are in line with previous literature.

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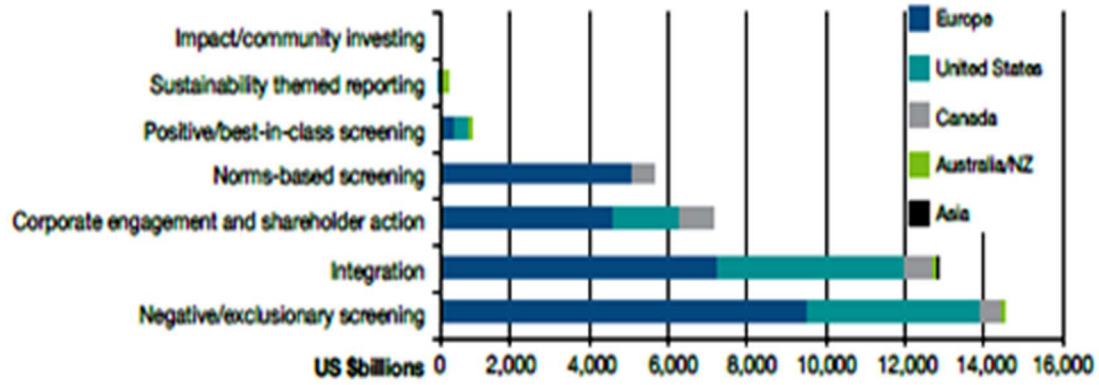
## Tables and Figures

**Tab. 1 – ESG screened mutual funds**

Region	2012	2014
<b>Europe</b>	49.0%	58.8%
<b>Canada</b>	20.2%	31.3%
<b>USA</b>	11.2%	17.9%
<b>Australia</b>	12.5%	16.6%
<b>Asia</b>	0.6%	0.8%
<b>Global</b>	21.5%	30.2%

*Source: GSIA (2014)*

**Fig. 1 – SRI Asset strategy by region**



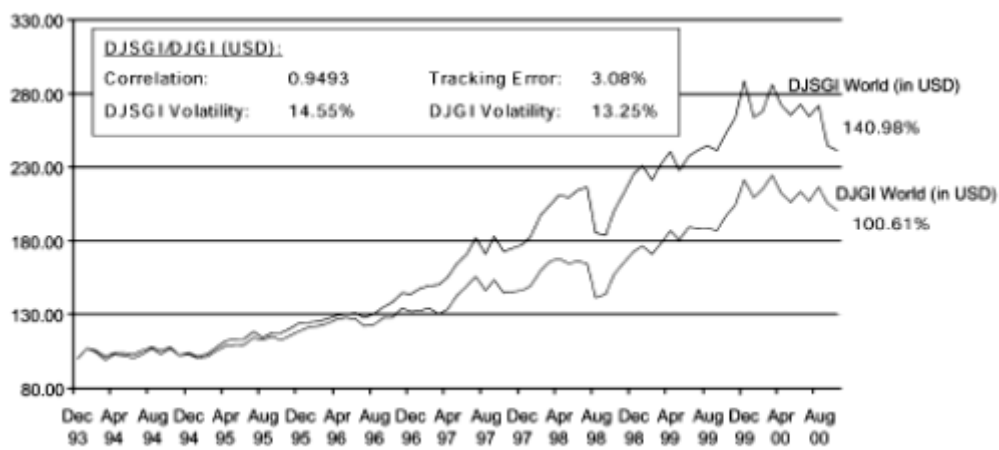
Source: GSIA (2014)

Tab. 2 – Kinder’s SRI categorization

Approach	Descriptors	Social/Governance Screen – Purpose	Criteria of Success	Primary Investor Types	Usual Vehicles/Mean
Values-Based	1. Mission-based 2. First generation 3. Sustainable	1. Consistency with own values 2. Social change	1. Return adjusted for risk tolerance 2. “Triple Bottom Line”	1. Individual investors 2. Faith-based and social-cause institutions	1. Mutual funds 2. Separately-managed accounts 3. Indirect engagement
Value-Seeking	1. Second generation 2. Sustainable	1. Spot investment prospects 2. Corporate change	Market return on investment	1. Foundations & endowments 2. Fund managers 3. Pensions	1. Separately-managed accounts 2. Pooled vehicles 3. Direct & indirect engagement
Value-Enhancing	1. Shareholder activist 2. Engagement	1. Identify under-performing companies 2. Corporate Change	Market return on investment	Public pensions	Direct engagement

Source: Kinder (2005), p. 22.

Fig. 2 – DJSI World vs DJGI World



Source: Knoepfel (2001), p. 7.

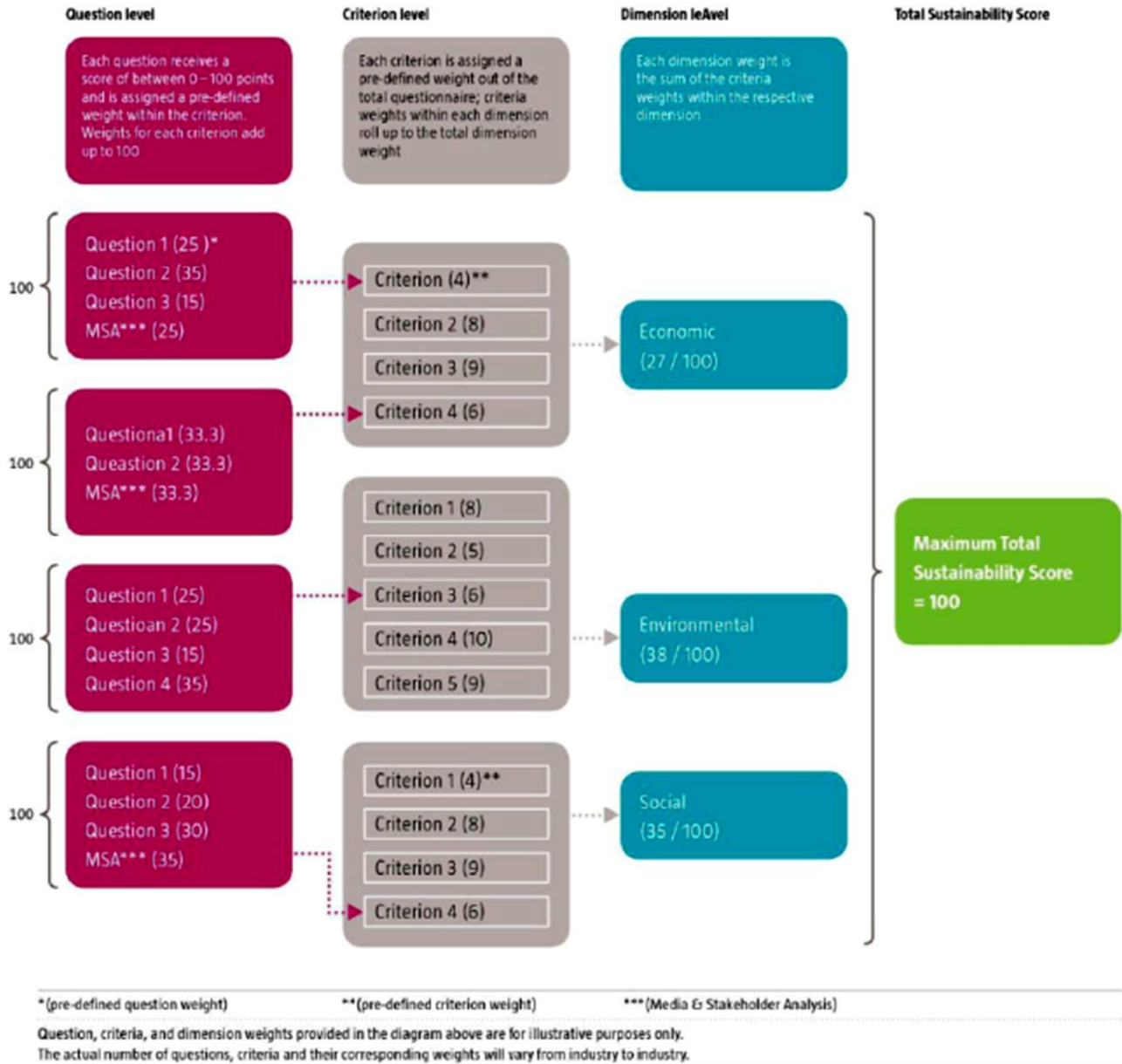


Tab. 3 – RobecoSAM assessment criteria

	Opportunities (50% weight)	Risks (50% weight)
<b>Economic (33% weight)</b>		
<i>Strategic</i>	Strategic planning Organisational development	Corporate governance
<i>Management</i>	Intellectual capital management IT management Quality management	Risk and crisis management Corporate codes of conduct
<i>Industry Specific (for example)</i>	R&D spending	Internet security
<b>Environmental (33% weight)</b>		
<i>Strategic</i>	Environmental charters	Environmental policy Responsibility for environmental issues
<i>Management</i>	Environmental reporting Environmental profit and loss accounting	Environmental audits and management systems Environmental performance
<i>Industry Specific (for example)</i>	Eco-design of products Innovative services	Product labelling Environmental liabilities
<b>Social (33% weight)</b>		
<i>Strategic</i>	Stakeholder involvement	Social policy Responsibility for social issues Child labour
<i>Management</i>	Social reporting Employee benefits Employee satisfaction Remuneration	Conflict resolution Equal rights and non-discrimination Occupational Health and Safety Layoffs/freedom of association Standards for suppliers
<i>Industry Specific (for example)</i>	Community programs	Resettlements

Source: Ivo (2001), p. 13.

Fig. 3 – RobecoSAM assessment



Source: Dow Jones Sustainability Europe Index guide (2013), p. 8.

Fig. 4 – Geographic distribution of sample

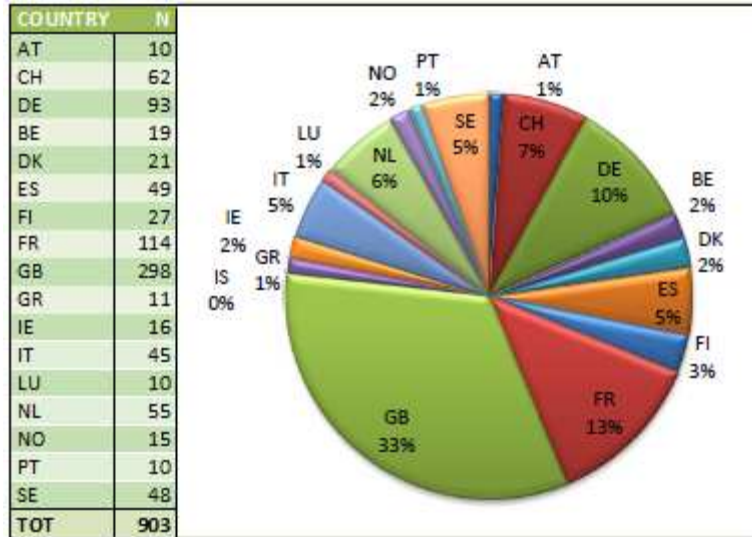
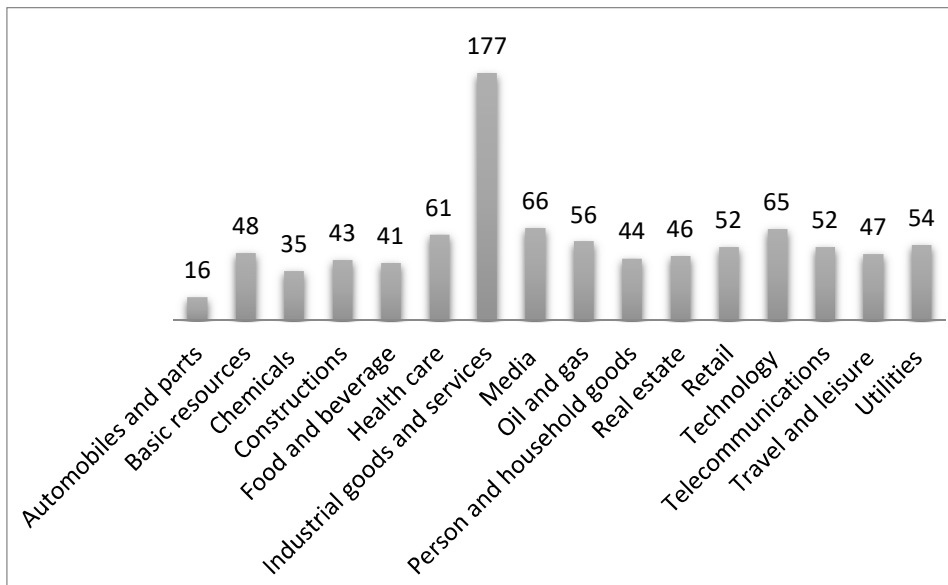


Fig. 5 – Sector distribution



Tab. 4 – Average sample's scores

SECTOR	AVG. SCORE.01	.02	.03	.04	.05	.06	.07	.08	.09	.10	.11	.12	.13	AVG. SCORE PER SECTOR
Automobiles and parts	67,16	61,03	55,27	58,10	74,46	71,05	75,38	78,45	77,47	84,40	91,36	87,83	86,26	74,48
Basic resources	55,43	55,87	68,11	68,98	74,83	76,00	75,48	74,31	74,12	74,10	74,98	78,38	78,14	71,44
Chemicals	58,99	69,48	66,39	74,36	77,79	78,47	77,70	82,39	84,24	84,33	86,39	86,89	85,55	77,92
Constructions	43,16	52,45	60,33	66,05	68,33	64,63	68,72	72,32	72,32	76,12	80,33	79,42	80,30	68,04
Food and beverage	52,82	59,43	64,22	68,36	75,08	71,87	75,08	73,99	73,99	78,42	81,25	82,47	83,27	72,33
Health care	64,89	64,79	71,07	73,78	72,95	75,02	70,31	76,73	76,73	73,42	76,96	74,63	78,51	73,06
Ind. goods & services	49,71	49,63	54,82	59,00	66,87	68,25	71,54	68,38	68,33	74,64	75,78	74,62	74,91	65,88
Media	45,58	55,17	62,48	65,81	69,19	65,36	70,23	71,55	71,26	74,62	75,58	71,43	77,17	67,34
Oil and gas	50,22	56,71	64,31	63,43	67,38	68,18	72,22	69,31	69,32	74,08	77,85	73,99	75,94	67,92
Person & house. goods	54,43	60,92	61,18	63,07	69,17	72,72	77,49	77,30	76,81	74,00	80,26	77,90	77,75	71,00
Real estate	29,70	55,61	58,25	53,80	61,12	58,51	62,24	62,25	64,94	68,00	71,74	68,33	68,84	60,26
Retail	33,64	50,70	57,90	66,35	71,25	69,61	72,49	73,04	73,00	72,28	69,51	72,37	71,74	65,68
Technology	40,96	53,16	62,10	57,85	66,80	61,02	63,81	67,89	74,00	69,00	79,83	87,39	78,58	66,34
Telecommunications	58,09	69,40	70,81	72,97	76,90	72,32	75,05	74,57	74,57	78,66	80,53	80,54	83,55	74,46
Travel and leisure	43,96	55,61	58,59	64,79	72,43	66,08	69,31	71,79	70,10	77,60	78,23	78,13	81,02	68,28
Utilities	51,23	56,21	61,03	63,43	69,38	69,28	71,61	75,71	75,82	75,60	77,17	81,93	82,63	70,08
<b>AVG. SCORE PER YEAR</b>	<b>50,17</b>	<b>57,87</b>	<b>61,91</b>	<b>63,53</b>	<b>70,15</b>	<b>68,69</b>	<b>71,10</b>	<b>72,46</b>	<b>73,03</b>	<b>75,29</b>	<b>77,46</b>	<b>77,89</b>	<b>79,11</b>	

Tab. 5 – Variables description

Variable	Description
LEV	Financial leverage, computed as Debt/Equity
CONST	DJSSI Constituent

SCORE	DJSSI ESG Score
SIZE	Firm size, computed as log(total assets)
TREND	Eviews embodied function configuring 1-period increase in cross sections
AUTO	Automobiles and parts
BASIC	Basic resources
CHEM	Chemicals
CONSTRUC	Constructions and materials
FOOD	Food and beverages
HEALTH	Healthcare
INDGOODS	Industrial good and services
MEDIA	Media
OIL	Oil and Gas
PERSHOUSE	Personal and household goods
REALESTATE	Real estate
RETAIL	Retail
TECH	Technology
TELEC	Telecommunications
TRAV	Travel and leisure
UTIL	Utilities
NORTH	Geografic dummy Northern European Area
MID	Geografic dummy Mittleeuropean Area
MEDIT	Geografic dummy Mediterrean Area

**Tab. 6 – Model 1, LEV as dependent variable**

Dependent Variable: D(LEV)  
 Method: Panel Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.320192	0.487196	-0.657214	0.5111
D(LEV(-1))	-0.001347	0.003599	-0.374329	0.7082
D(LEV(-2))	-0.000861	0.002193	-0.392768	0.6945
CONST	23.77570	7.203045	3.300785	0.0010
CONST(-1)	-7.568397	7.740575	-0.977757	0.3282
CONST(-2)	-11.15067	6.680675	-1.669094	0.0951
D(SCORE)	-0.407385	0.101506	-4.013412	0.0001
D(SCORE(-1))	-0.271975	0.099809	-2.724946	0.0064
D(SCORE(-2))	-0.072472	0.026510	-2.733827	0.0063

**Effects Specification**

Cross-section fixed (dummy variables)			
R-squared	0.085146	Mean dependent var	0.180894
Adjusted R-squared	-0.039308	S.D. dependent var	29.40545
S.E. of regression	29.97782	Akaike info criterion	9.750830
Sum squared resid	6757995.	Schwarz criterion	10.59613
Log likelihood	-40631.54	F-statistic	0.684157
Durbin-Watson stat	1.764326	Prob(F-statistic)	1.000000

Source: Authors' elaboration.

**Tab. 7 – Model 2, SCORE as dependent variable**

Dependent Variable: D(SCORE)

Method: Panel Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.047917	0.055288	-0.866674	0.3861
D(SCORE(-1))	-0.366618	0.010514	-34.86876	0.0000
D(SCORE(-2))	-0.000981	0.003010	-0.325876	0.7445
CONST	68.90453	0.194422	354.4063	0.0000
CONST(-1)	-42.18172	0.731527	-57.66257	0.0000
CONST(-2)	-24.00263	0.705969	-33.99956	0.0000
D(LEV)	-0.005247	0.001307	-4.013412	0.0001
D(LEV(-1))	-4.52E-05	0.000408	-0.110673	0.9119
D(LEV(-2))	-2.51E-05	0.000249	-0.100820	0.9197

**Effects Specification**

Cross-section fixed (dummy variables)			
R-squared	0.960719	Mean dependent var	0.482855
Adjusted R-squared	0.955375	S.D. dependent var	16.10443
S.E. of regression	3.402004	Akaike info criterion	5.398644
Sum squared resid	87033.70	Schwarz criterion	6.243945
Log likelihood	-22039.01	F-statistic	179.7844
Durbin-Watson stat	2.144050	Prob(F-statistic)	0.000000

Source: Authors' elaboration.

**Tab. 8a – 2-years lagged Model**

Dependent Variable: D(LEV)  
Method: Panel Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.876637	3.567953	1.927334	0.0540
D(LEV(-1))	-0.007817	0.002753	-2.839359	0.0045
D(LEV(-2))	-0.003979	0.001869	-2.128293	0.0333
CONST	22.43989	6.785370	3.307099	0.0009
CONST(-1)	-9.330482	7.469502	-1.249144	0.2116
CONST(-2)	-10.22791	6.290521	-1.625924	0.1040
D(SCORE)	-0.387656	0.096522	-4.016258	0.0001
D(SCORE(-1))	-0.224393	0.093910	-2.389447	0.0169
D(SCORE(-2))	-0.046139	0.023426	-1.969587	0.0489
AUTO	-5.670061	2.936682	-1.930771	0.0535
BASIC	-6.036829	2.159685	-2.795235	0.0052
CHEM	-5.767212	2.367758	-2.435727	0.0149
CONSTRUC	-6.522282	2.227167	-2.928510	0.0034
HEALTH	-6.910114	2.045088	-3.378884	0.0007
INDGOODS	-6.050504	1.696293	-3.566898	0.0004
MEDIA	-6.543448	1.968750	-3.323655	0.0009
OIL	-6.220240	2.042471	-3.045448	0.0023
PERSHOUSE	-6.378415	2.151382	-2.964798	0.0030
RETAIL	-5.766582	2.126612	-2.711628	0.0067
TECH	-6.150802	2.016905	-3.049624	0.0023
TELEC	-6.697152	2.208394	-3.032589	0.0024
TRAV	-6.394724	2.167377	-2.950444	0.0032
UTIL	-6.200061	2.107999	-2.941207	0.0033
FOOD	-6.300373	2.185884	-2.882300	0.0040
SIZE	-0.343068	0.488081	-0.702891	0.4821
MEDIT	2.712197	0.940892	2.882581	0.0040
@TREND	0.145497	0.111603	1.303706	0.1924
R-squared	0.008053	Mean dependent var	0.180905	
Adjusted R-squared	0.004674	S.D. dependent var	29.40717	
S.E. of regression	29.33837	Akaike info criterion	9.599175	
Sum squared resid	7327479.	Schwarz criterion	9.623942	
Log likelihood	-40972.88	F-statistic	2.383189	
Durbin-Watson stat	1.617725	Prob(F-statistic)	0.000042	

Tab. 8b – 2-years lagged Model

Dependent Variable: D(LEV)  
Method: Panel Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.590639	3.763786	2.548136	0.0108
D(LEV(-1))	-0.007817	0.002754	-2.838725	0.0045
D(LEV(-2))	-0.003979	0.001870	-2.127997	0.0334
CONST	22.44017	6.786207	3.306732	0.0009
CONST(-1)	-9.330521	7.469949	-1.249074	0.2117
CONST(-2)	-10.22783	6.290932	-1.625805	0.1040
D(SCORE)	-0.387659	0.096530	-4.015926	0.0001
D(SCORE(-1))	-0.224394	0.093916	-2.389304	0.0169
D(SCORE(-2))	-0.046140	0.023431	-1.969216	0.0490
AUTO	-5.670462	2.939034	-1.929363	0.0537
BASIC	-6.036488	2.161966	-2.792128	0.0052
CHEM	-5.767711	2.372095	-2.431484	0.0151
CONSTRUC	-6.522485	2.228036	-2.927459	0.0034
HEALTH	-6.910145	2.045226	-3.378670	0.0007
INDGOODS	-6.050420	1.696560	-3.566287	0.0004
MEDIA	-6.543428	1.968874	-3.323436	0.0009
OIL	-6.219843	2.045664	-3.040501	0.0024
PERSHOUSE	-6.378509	2.151674	-2.964440	0.0030
RETAIL	-5.766362	2.127646	-2.710208	0.0067
TECH	-6.151075	2.018498	-3.047353	0.0023
TELEC	-6.696916	2.209527	-3.030927	0.0024
TRAV	-6.394569	2.167948	-2.949596	0.0032
UTIL	-6.199927	2.108466	-2.940492	0.0033
FOOD	-6.300338	2.186034	-2.882086	0.0040
SIZE	-0.343342	0.494212	-0.694726	0.4872
MID	-2.710703	1.031264	-2.628526	0.0086
NORTH	-2.713266	0.988257	-2.745506	0.0061
@TREND	0.145495	0.111611	1.303594	0.1924
R-squared	0.008053	Mean dependent var	0.180905	
Adjusted R-squared	0.004557	S.D. dependent var	29.40717	
S.E. of regression	29.34009	Akaike info criterion	9.599409	
Sum squared resid	7327478.	Schwarz criterion	9.625002	
Log likelihood	-40972.88	F-statistic	2.303479	
Durbin-Watson stat	1.617725	Prob(F-statistic)	0.000067	