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The Effects of Corporate and Country Sustainability Characteristics on the Cost of Debt: An International Investigation

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The Effects of Corporate and Country Sustainability Characteristics on the Cost of Debt: An International Investigation

Abstract: We investigate the relationship between corporate and country sustainability on the cost of bank loans. We look into 470 loan agreements signed between 2005 and 2012 with borrowers based in 28 different countries across the world and operating in all major industries. Our principal findings reveal that country sustainability, relating to both social and environmental frameworks, has a statistically and economically impactful effect on direct financing of economic activity. An increase of one unit in a country's sustainability score is associated with an average decrease in the cost of debt by 64 basis points. Our international analysis shows that the environmental dimension of a country's institutional framework is approximately twice as impactful as the social dimension, when it comes to determining the cost of corporate loans. On the other hand, we find no conclusive evidence that firm-level sustainability

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influences the interest rates charged to borrowing firms by banks. Our main findings survive a battery of robustness tests and additional analyses concerning subsamples, alternative sustainability metrics, and the effects of financial crisis.

Keywords: corporate social responsibility; CSR; CSP; sustainability; banking; financial contracts; culture; loans; international

JEL Classification: G14, G32, M14

1. INTRODUCTION

Corporate social responsibility[1] (CSR) has firmly established itself as a crucial notion for modern business and society on an international level. Consumers, environmentalists, employees, activists, and concerned citizens have been pushing corporations for many years to go beyond their purely economic goals and attempt to improve their impact on society and the natural environment in broader ways. The latest Nielsen Global Survey on Corporate Social Responsibility[2] was conducted in 2013 with 29,000

[1] Concisely described by the European Commission as a concept whereby "companies are taking responsibility for their impact on society," http://europa.eu/rapid/press-release_MEMO-11-730_en.htm.

[2] http://www.nielsen.com/us/en/press-room/2013/nielsen-50-percent-of-global-consumers-surveyed-willing-to-pay-more-fo.html

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respondents from 58 countries and demonstrates that at least 50% of global consumers are willing to pay a premium for goods and services coming from socially responsible firms. The trend is for this percentage to keep rising as it has from the previous related survey conducted by Nielsen in 2011. Thus, societal pressure moves from the area of implicit reputational gains to explicit financial incentives for responsible producers and, vice versa, the lack of socially responsible practices (or even worse, the engagement in social/environmental controversies) constitutes a competitive disadvantage. This is also recognized by the European Commission's renewed strategy for CSR (2011—2014), according to which CSR "can bring benefits in terms of risk management, cost savings, access to capital, customer relationships, human resource management, and innovation capacity."[3]

The traditional view of CSR used to be that it constituted a misallocation and misappropriation of valuable resources in order for managers to promote their own ethical agenda (Friedman, 1970) or that, at best, it has an insignificant effect on a firm's financial performance, as there are too many confounding factors to observe a statistically strong direct impact (Ullmann, 1985). However this perception does not seem to be held as strongly in today's business world. According to the UN Global Compact–Accenture CEO Study on Sustainability[4], conducted in 2013 with the participation of more than 1,000 top executives from 27 industries and 103 countries, 93% of respondents saw sustainability issues as an important or very important factor for the future success of their business.

It is, therefore, unsurprising that considerable research efforts have been made to identify the details of the association between CSR and financial performance of individual firms, as well as portfolios of assets. The conceptual breadth and methodological diversity characterizing this extensive literature over a span

[3] http://europa.eu/rapid/press-release_MEMO-11-730_en.htm

[4] https://acnprod.accenture.com/~/media/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Strategy_5/Accenture-UN-Global-Compact-Acn-CEO-Study-Sustainability-2013.pdf

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of 40 years has led to contradictory evidence being brought forward by hundreds of empirical studies. Nevertheless, both qualitative reviews (Margolis and Walsh, 2003) and statistical meta-analyses (Orlitzky et al., 2003; Margolis et al., 2009) hint at a modest but statistically significant correlation between the two concepts.[5] The underlying arguments in favor of this positive link between CSR and firm performance can be broadly categorized in two groups. The first one draws from instrumental stakeholder theory (Freeman, 1984; Jones, 1995) and posits that the efficient implementation of CSR policies and practices can lead to effective stakeholder management on the part of the firm. Establishing mutually beneficial long-term relationships with key constituents can bring about the generation of multiple comparative advantages for the firm, both in terms of improved profitability (Clarkson, 1995; Hillman and Keim, 2001) and better risk management (Godfrey, 2005). In other words, building trusting relationships with primary stakeholders by addressing their legitimate needs and concerns (ideally on a proactive basis), through CSR, creates reputational wealth and relational capital for the firm and can ultimately lead to an improved corporate valuation or to the preservation of value during turbulent times.

A second line of reasoning commonly used to support a positive association between CSR and firm performance is often referred to as "the good management hypothesis" (Alexander and Buchholz, 1978; Waddock and Graves, 1997). This hypothesis suggests that high levels of sustainable business practices can be viewed as signaling supremely competent and trustworthy corporate managers. The effective application of CSR is a very complex task that requires the consideration of the relative importance of claims made by a plethora of different stakeholder groups (often contradicting each other) and the estimation of both explicit and implicit costs and benefits accruing from the related practices to

[5] However, when focusing either on fund performance (Kreander et al., 2005) or index performance (Schröder, 2007), there are usually no significant differences to be found between the performance of conventional and socially responsible investing (SRI) funds. And this is despite SRI funds being true to their name and investing in more sustainable firms compared to their conventional peers (Kempf and Osthoff, 2008).

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the firm. Consequently, executives who choose to use CSR for strategic purposes can be viewed as being highly skilled.

Interestingly, although the aforementioned arguments can be used to motivate research on the financial impacts of CSR on either the equity or debt valuation of the firm, the majority of relevant studies focus on identifying the influence of CSR on the cost of equity capital (Kempf and Osthoff, 2007; Galema et al., 2008; Hong and Kacperczyk, 2009; El Ghoul et al., 2011). It has only been in the last few years that some attention has been paid to the possibility of a linkage between CSR and cost of debt. The sheer size of the corporate debt market and its importance on a global scale merits such investigations. According to McKinsey, as of 2012, global equity is estimated to aggregate to $50 trillion, whereas total corporate debt amounts to $86 trillion.[6] An additional reason to motivate such research comes from the view that distinguishing good management via a firm's CSR levels is even more important in the debt markets due to the agency conflicts arising between shareholders and debt-holders (Ashbaugh-Skaife et al., 2006). Merton's (1973) seminal work has demonstrated that the payoffs accruing from a corporate bond (the extension to corporate loans is straightforward) are asymmetric and resemble that of a put position. This is because the potential benefits for the borrower are capped at the level of accruing interest payments, whereas the potential losses can be as much as the entirety of the borrowed capital. In contrast, for shareholders, the gains are potentially unlimited. This distinction makes the imperative to identify competent and responsible firm managers in order to reduce agency and monitoring costs more important for debt-holders than for equity-holders.

It should also be noted that from the $86 trillion of outstanding, global corporate debt, $75 trillion (or approximately 87%) relates to securitized or non-securitized bank loans, and $11 trillion is connected to outstanding corporate bonds. Bradley and Roberts (2004) also report that private debt, including bank

[6] McKinsey Global Institute analysis, available online at http://www.mckinsey.com/insights/global_capital_markets/financial_globalization.

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loans, tends to be at least two to three times the amount of public debt. Apart from their differences in order of magnitude, the role of banking institutions as "quasi insiders" (Goss and Roberts, 2011) provides a basis to assert that the loan market is more efficient than the bond market and, as such, the financial effects of CSR will be more prominently exhibited there. Banks have access to unique information related to a firm's operational and financial standing, a specialized skill set to appropriately assess this information in order to make a lending decision, and the privilege of being able to set the terms regarding the monitoring of the borrower during the duration of the loan. Therefore, it seems sensible to expect a greater degree of market efficiency in the corporate loans market. Altman et al. (2010) have in fact concluded that syndicated loan markets are more informationally efficient compared to bond markets, as they manage to reflect the probability of default more quickly.

Based on the above, it is surprising to find that more emphasis has not been given in the academic literature to the likely impact of CSR on the cost of internal debt financing, i.e., through bond issuance, compared to the effects of CSR on external debt financing, i.e., through bank lending. Not only is this part of the empirical literature scarce in terms of the overall number of studies, it is also underdeveloped in a variety of ways, as we will demonstrate in our perusal of related research in the next section of this paper. We posit that CSR leads to reduced corporate default risk − which is what lending institutions ultimately price − and, consequently, to lower cost of debt. We aim to extend previous work on the financial impacts of CSR by: (i) focusing on the link between CSR and cost of debt (which has not been extensively researched, unlike the cost of equity), and more specifically on the cost of bank loans (which have received less attention compared to financing through bond issuance), (ii) providing an international framework of analysis using a sample of borrowers from 28 countries around the globe, instead of focusing solely on US and European firms, (iii) linked to the previous point, connecting the cost of loans not just to CSR performance indicators at the firm level but also to country-related sustainability scores that assess the respective institutional frameworks, (iv) going beyond looking purely at aggregate CSR scores and identifying possible variability in the financial impacts of particular CSR dimensions and subdimensions, (v) chronologically extending previous analyses in order to include evidence from the

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years of the global credit crisis, which may have altered the nature or strength of the CSR–cost of debt link.

Our main results are indicative of the complexity and variability of the economic impacts of CSR on the cost of debt. We find that the sustainability framework of a borrower's country, and every dimension making up this framework, is significantly negatively related to corporate borrowing costs. An increase by one unit in the overall country sustainability metric that we utilize leads to a significant average decrease of 69 basis points in our sample (or 52% in average corporate loan spread over LIBOR). The intuitive explanation is that these institutional mechanisms act as a shield for the borrowing firm, protecting it from the operational and reputational hazards occurring from systemic social and environmental challenges and ultimately reducing its default risk. On the other hand, improved overall performance in CSR terms is not shown to be associated with the cost of bank loans, and particular elements of CSR even appear to be positively linked to credit costs. When extending our analysis to the various components of sustainability, we provide evidence that the environmental aspect of country sustainability is more financially impactful than the social. A unitary increase in the former leads to an average decrease in the corporate cost of debt by approximately 80 basis points compared with approximately 50 basis points for an equivalent decrease in the latter. These results are consistent when looking at various subcategories within each dimension of country sustainability. The model specifications we use to conduct our investigation include an extensive array of country, industry, borrower, lender, and facility characteristics, explain approximately 50% of corporate loan spread variability, and provide economically intuitive results with regard to the sign and value of known cost of debt determinants.

The remainder of the paper is structured as follows: Section 2 provides a summary of the extant literature and the conceptual basis guiding our empirical tests. Section 3 outlines the data sources that have been used and the methodology implemented, while Section 4 describes the results of our analyses. Section 5 discusses the practical importance of the inferences that can be drawn and makes suggestions for further research in this area.

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2. RELATED LITERATURE AND DEVELOPMENT OF HYPOTHESES

When assessing the credit quality of an institution seeking to borrow funds, the traditional approach of banks has been to base this assessment on reasonably objective data that is quantitative, easily verifiable by third parties, and which is usually financial in nature (e.g., profitability, current operational leverage, liquidity, market value, and credit ratings assigned by rating agencies). This emphasis on "hard information" is the defining characteristic of "transaction-based banking" (Gropp et al., 2013). In contrast, the lending decisions for "relationship banking" are based not only on the above, but also on "information which is harder to accurately summarize in a numeric score" (Petersen, 2004), and which is often collected in person, difficult to verify by third parties, and more subjective in nature (e.g., managerial competence, trustworthiness, and innovative thinking), or "soft information." As Goetzmann et al. (2007) note, there is no single, clear definition of what the term "soft information" precisely captures, so the distinction between hard and soft information is made by noting the above characteristics. This somewhat contrasts with the growing literature that shows that the use of non-financial factors (commonly captured by soft information) can lead to more accurate predictions of corporate credit quality, compared with the sole use of purely financial factors (Grunert et al., 2005).

We posit that a firm's CSR or sustainability performance falls under the umbrella of soft information that banks may consider when taking lending decisions.[7] We have already noted that stakeholder theory

[7] The development of multiple ratings and numeric scores that are used as proxies of CSR may seem to go against this statement. However, these are really what Petersen (2004) refers to as "hardened soft information" instead of hard information per se. Although they have been quantified, the nature of the related data collection process and score assignment makes them much more subjective compared with, for example, standard accounting ratios.

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(Freeman, 1984; Jones, 1995) suggests that improved corporate social performance can lead to better stakeholder management, which can, in turn, materialize into a more reliable and effective business model, thus creating strategic comparative advantages and positively influencing the firm's financial performance. In the case of the cost of bank loans in particular, a case can be made that CSR[8] will have a direct influence on a variety of factors which determine credit costs. In the following paragraphs, we analyze the link between sustainability and each of these factors, drawing from the arguments and conclusions of previous research.

CSR is a widely used but poorly defined concept. Carroll and Shabana (2010) provide an anthology about the notion of CSR and Dahlsrud (2008) analyses 37 definitions. The latter detects that five dimensions appear to play a role in most definitions, namely "environment," "economics," "social," "stakeholders," and "voluntary." Porter and Kramer (2006) try to substantiate the business case for CSR and illustrate various links between competitive advantages of firms and CSR. CSR is closely connected with the notion of sustainability or sustainable development (Simionescu, 2015). Sustainability is a concept that refers to the potential of societies to meet the needs of the present without compromising the ability of the next generations to meet their needs. This concept too has no clear definition (Lélé, 1991). It relates to the interaction between economic development, social development, environmental quality, and issues of fairness or equity. In general, sustainability and sustainable development connect with societal development, whereas CSR relates to development at the level of individual organizations. In order to come to grips with both concepts, ratings and rankings have been used, but there appear to be fundamental issues in adequately measuring them (see Chatterji et al., 2009, for CSR and Hanley et al., 1999, for sustainability).

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[8] For the sake of clarity, we would like to note that all subsequent references to CSR and sustainability in this paper refer specifically to CSR performance and not CSR disclosures. The development of hypotheses and empirical analyses are centered around what firms actually do instead of what they report they do in terms of CSR.

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Recent findings coming from the empirical CSR literature have demonstrated the existence of a link between improved CSR and reduced information asymmetry. Cui et al. (2012) take the view of Jo and Harjoto (2011, 2012), who posit that firms use CSR engagements as a mechanism to increase informational flow and improve communication to non-investing stakeholders, thereby enhancing conflict resolution and decreasing information asymmetries. Their study pays special attention to the possible endogeneity existing between CSR and information asymmetry and concludes that the causality of the relationship runs from the former to the latter. In a similar vein, Cho et al. (2013) present findings in favor of a negative association between CSR and information asymmetry (as shown in proxy by stock bid–ask spreads). They argue that this is due to the tendency of CSR to be connected with increased voluntary disclosures which reveal management's ethical concerns and improve the transparency and reliability of financial reporting. The conceptual link between information asymmetry and the cost of bank loans is somewhat more obvious. The higher and better quality the informational flow is between two contracting parties, the lower the monitoring, policing, and agency costs tend to be and thus the lower the overall cost of bank financing (Akerlof, 1970; Grossman and Stiglitz, 1980; Mankiw, 1986). In addition, the study of Dennis and Mullineaux (2000) clearly demonstrates that increased informational transparency leads to increased "saleability" of a debt contract.

CSR has also been connected with trustworthiness, integrity, non-opportunistic behavior, and an indication of the underlying moral character of a firm. Jones (1995, p.412) notes that "There is another way to reduce opportunistic behavior, however – the voluntary adoption of standards of behavior that limit or eliminate it" and discretionary CSR engagements certainly fit this description. Godfrey (2005) argues that certain aspects of CSR can be viewed as legitimate indications of corporate benevolence and can generate positive moral capital as stakeholders feel they can genuinely trust the corporation. Yoon et al. (2006) also show that CSR activities can improve a company's public image and make it seem more trustworthy to consumers, so long as it can convincingly demonstrate that it focuses on CSR per se and not on CSR advertising.

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Although trust is a central issue in the world of finance and banking, its effects on financial decision-making have not been researched extensively until recently (Sapienza, 2009). In the context of lending decisions made by banks, trust is mostly related to the "willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer et al., 1995, p.712). The trustor in this case is the bank and the expected action is the full and timely repayment of the loan subject to the terms of the contract. Indications of opportunistic behavior on the part of the borrower would lead to greater mistrust by the lender and, consequently, to a need for more stringent monitoring and higher screening and enforcement costs, which increase the effective cost of debt. Karlan (2007) shows that cultural similarity and geographic proximity have significant effects in group lending outcomes. He argues that socially connected individuals may trust and value their relationships more and that they share information more easily, thus lowering the respective costs. Most notably, Kim et al. (2014) also highlight the importance of trust in financial decisions, and lending in particular, and argue that it is dependent on two characteristics of the borrower, as perceived by the lender, namely integrity and benevolence (Howorth and Moro, 2012). They base their arguments and empirical investigation on the work of Mayer et al. (1995), who define benevolence as "the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive" (p.718) and integrity as a concept that "involves the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable" (p.719).

Ultimately, the overarching argument posits that the link between sustainability and the trustworthiness/integrity/non-opportunism of the borrowing firm influences the levels of default risk that the firm is subject to and, through this mechanism, also impacts the corporate cost of debt. One of the most important links connecting corporate sustainability (or responsibility as it is usually called at the micro level of the firm) with default risk is quality of management. In the words of Goss (2009): "Stakeholder theorists argue that firms that are able to negotiate the intricacies of competing economic, social and governance agendas are likely endowed with higher quality managers." Thus, firm managers

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that can consistently apply sustainable principles in corporate operations are viewed as both capable (due to the inherent complexity of this task) and trustworthy. And given that it is well established that a firm's distress and ultimate failure is predominantly a result of managerial incompetence (Altman and Hotchkiss, 2006), it stands to reason that higher levels of CSR will lead to lower risk of default. Oikonomou et al. (2014) provide support to this rationale by showing that for a cross-industrial sample of US firms, higher scores of aggregate measures of CSR strengths (concerns) lead to higher (lower) S&P bond ratings − a proxy for credit/default risk − as well as lower (higher) levels of credit spreads. Their findings remain qualitatively similar when they look at individual dimensions of CSR (environment, relationship with local communities, employee rights and others). Furthermore, Goss (2009) focuses exclusively on the link between CSR and default risk. His study finds a significant negative relationship between CSR scores (via the KLD STATS database) and financial distress, as measured by the probability of default from the Merton (1974) model. The result is robust to the endogeneity of CSR investments and firm profitability, with CSR remaining negatively associated to the probability of default in a system of simultaneous nonlinear equations.

The above arguments substantiating the linkages between sustainability and "soft characteristics" (trustworthiness, integrity, benevolence, non-opportunistic behavior) of the borrower and between these characteristics and loan terms have been analyzed mainly at the level of the firm. However, there is important scholarly work that extends the framework of analysis to the level of the country where the firm is based. In a very interesting study, Cai et al. (2014) find that differences in investments in CSR are associated with various aspects of country socio-economic development and culture including, among others, civil liberties, political rights, levels of autonomy and individualism, and levels of corruption. More recently, Breuer et al. (2015) find that the negative relationship between CSR and corporate cost of equity is stronger in those countries where legal protection of investors is high.

In addition, the relationship between culture and economic behavior has been established in regards to very different phenomena. Bottazzi et al. (2007) find the extent to which venture capitalists fund certain

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entrepreneurs, and the terms of this funding, is significantly dependent on how much they trust citizens of these countries according to their cultural traits. Licht et al. (2011) also look into the financial effects of cross-country cultural differences (with a focus on egalitarianism) and find it materially affects the international flows of equity and debt, as well as the mergers and acquisitions activity between countries. Furthermore, Giannetti and Yafeh (2012) show that when lead banks consider the borrower to be culturally distant from them, they apply higher interest rates on the loans and are more likely to demand third-party guarantees. The authors argue that culture plays an important role in the effectiveness of the communications between lender and borrower as well as the organizational structure of the latter, hence influencing the terms of the loan.

In summary, there are ample conceptual linkages, supported by empirical evidence, between CSR and country and/or borrower features and between these features and the cost of debt. CSR reduces informational asymmetries between the contracting parties, increases trust by increasing the perceived integrity, benevolence, and trustworthiness of the borrower, and reduces the expectations of opportunistic behavior taking place. By doing so, it leads to reductions in monitoring, policing, and bonding costs, an overall reduced default risk, and consequently a lower cost of debt. Thus, the principal hypotheses our study investigates are:

Hypothesis 1: The overall sustainability framework of a borrower's country is inversely associated with the borrower's cost of direct financing.

Hypothesis 2: The corporate sustainability characteristics of a borrowing firm are inversely associated with its direct cost of financing.

Going a step further, we attempt to look into the likely difference in the financial impact of separate dimensions of sustainability, namely the social and environmental dimensions. Godfrey et al. (2009) have argued that combining distinct features of sustainability to create *"a single, monolithic construct"* (Godfrey et. al, 2009, p.426) actually dilutes the observable financial effects of unidimensional CSR. While the

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environmental aspect of sustainability has frequently been studied separately and found to be positively related to different aspects of a firm's financial performance (Belkaoui, 1976; Blacconiere and Northcut, 1997; Sharfman and Fernando, 2008; Bauer and Hann, 2010), the social dimension is usually "hidden" by being a constituent of aggregated measures of sustainability (Waddock and Graves, 1997; Hillman and Keim, 2001; Nelling and Webb, 2009), while there are also occasions when it has been shown to exhibit a less significant and even negative influence on corporate financial performance (Ziegler et al., 2007). This may be connected to Clarkson's (1995) view that corporations attempting to deal with broad social issues instead of targeting concerns of primary stakeholder groups will not see any sizeable corresponding effect on their bottom line.

Furthermore, the environmental impacts of firm activities have been acknowledged as crucially important for many decades and efforts have been made to monitor and regulate firms in this regard. For example, the United States Environmental Protection Agency was created in 1970 with the purpose of writing regulation to protect the environment, enforcing this regulation via fines and sanctions to corporate transgressors, and promoting energy conservation efforts on the part of firms. In the same direction, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 is concerned with liability and compensation for hazardous substances released into the environment by corporations or individuals, and the associated clean-up and emergency response. Given such institutional/governmental recognition of the importance of the environmental outputs of firms, the existence of related regulatory frameworks and the subsequent penalization of lawbreaking entities, it would be reasonable to expect that firms with a better environmental performance have more effective business models, as they are able to avoid fines, sanctions, clean-up costs, lengthy judicial battles, as well as the effects of all the negativity publicity manifesting from such events and hurting their bottom line. Naturally, we expect that all of the above will lead to lower default risk and to banks lending to these firms at a lower rate.

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On the other hand, social aspects of CSR are much more diverse in nature, less integrated within national legal and regulatory systems, less easy to quantify and harder to demonstrate that they are consistently institutionally supported or violated by firms. Under the umbrella of the social impacts of firms can be found issues pertaining to staff safety; safeguarding of civil and political rights of employees, suppliers, and customers; product responsibility; and non-discrimination and equality in the workplace. While there are laws and initiatives about most of these aspects in most countries around the globe (for example, the Equal Pay Act in the USA and the Diversity Management Initiatives organized by the European Commission in the EU are related to equality in the workplace), it is harder for the underlying principles to be institutionalized and implemented by firms and equally hard for national and international organizations to verify adherence or violation of these rules. Because of this added degrees of ambiguity and fragmentation, banks may not be as likely to recognize corporate social risks being as important as corporate environmental risks. Overall, we expect that maintaining a high level of responsibility with regards to social issues will improve employee attraction and retention, increase customer loyalty levels, strengthen the links between the firm and local communities, and help avoid fines and sanctions related to violations of related regulations. However, we also expect that the impact on default risk and cost of debt will not be as noticeable as in the case of corporate environmental performance.

To wrap up, we anticipate that within the framework of this study:

Hypothesis 3: The impact of the environmental dimension of firm and country sustainability on the cost of borrowing will be stronger than the respective impact of the social dimension.

In spite of the substantial foundation provided by the aforementioned, the literature specifically concerned with the effects of CSR on the cost of bank loans is scarce. Goss and Roberts (2011) were among the first to explore this link. Their study focuses on the US bank loan market from 1991 to 2006, thus stopping before the start of the global financial crisis. They provide evidence that, overall, firms considered to be less responsible pay a modest premium ranging between 7 and 18 basis points over more responsible ones. However, the financial effects of discretionary CSR investments are more

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equivocal. When splitting their sample according to borrower quality, the authors show that low-quality borrowers engaging in discretionary CSR practices face higher loan spreads and shorter maturities, whereas lenders are unaffected in their decision regarding high-quality borrowers' engagements in discretionary CSR.

On the other hand, Nandy and Lodh (2012) solely examine the effects of the environmental dimension of sustainability on bank lending decisions. Their sample comprises US firms exclusively and covers loan facilities agreed between 1991 and 2006. They establish that more eco-friendly firms, on average, tend to agree less costly loans on more favorable contractual terms with banks. In addition, the total amount and duration of the loans seem to be positively associated with the borrower's environmental performance. The economic significance of their results concerning cost of debt is rather small, as a unitary increase in corporate environmental scores is associated with a drop of average spreads of merely 8 basis points.

Lastly, Kim et al. (2014) conduct an international analysis specifically aimed at revealing the impact of ethical behavior (and not sustainability or CSR more broadly) on the cost of syndicated loans. They use a sample covering loan agreements related to 19 different countries for the period 2003 to 2007. Their overarching results suggest a significant reduction of loan rates, approximately 25% in the mean spread, associated with increases of one standard deviation in the degree of borrower's ethical behavior. Furthermore, the authors provide indications that ethical compatibility between borrower and lender can lead to further reductions in bank loan rates. Their principal conclusions survive an array of robustness tests and alternative specifications.

As can be seen, previous studies on the effects of sustainability are restricted in terms of either geographic coverage (with Goss and Roberts, 2011, and Nandy and Lodh, 2012, focusing only in the US), or in the aspects of CSR they examine (Nandy and Lodh, 2012, on environment; Kim et al., 2014, on business ethics) or in the time frame of their dataset (none goes beyond 2007 and thus they do not account for the possible influences of the global credit crisis on the investigated phenomena). Our study aims to fill these

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gaps and is, to the best of our knowledge, the first to also look into the effects of country sustainability on the cost of indirect corporate financing.

3. DATA AND METHODOLOGY

Our measures of country and corporate sustainability are provided by Oekom research AG (simply referred to as Oekom hereafter). Oekom has established itself as one of the leading independent sustainability rating agencies globally, currently covering more than 3,400 corporations worldwide and acting as partner to a multitude of financial service providers and institutional investors. The agency's rating system is based on a comprehensive framework created through the dynamic assessment of more than 100 indicators, which are used to generate both country and company sustainability ratings. Ratings are produced for the overall country/company sustainability, as well as for the social and environmental performance dimensions separately. The ratings scale for overall sustainability ranges from D– (*poor performance*) to A+(*excellent performance*) but a more precise numeric scale is also produced and ranges from 1 (*poor performance*) to 4 (*excellent performance*) and from 0 to 4 for the various sustainability subcategories. In the evaluation process, Oekom uses information that has been created by the firm (i.e., corporate disclosures), as well as information that has been generated by external sources. Recognizing that different industries are sensitive to different key factors, can lead to the creation of diverse types of social and environmental externalities and thus can be more prone to be affiliated with dissimilar kinds of controversies, Oekom applies an industry-specific weighting scheme to the various indicators it uses. Thus, this approach effectively leads to the generation of best-in-class sustainability ratings and scores. Additional information about the subcategories of social and environmental indicators used by Oekom to rate companies and countries can be found in the Appendix of this paper.

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Oekom's international coverage of firms, along with its highly sophisticated rating methodology, lead to the creation of an extensive database that is characterized by reliable and replicable quantitative measures of firm and country sustainability. These characteristics are highly desirable for conducting empirical research in the area and thus increasingly more academics have decided to make use of Oekom instead of alternative CSR sources (Schreck, 2011; Sun et al., 2011). We follow this recent trend and use: (i) the annual numeric scores for the overall sustainability of countries and firms; (ii) the scores for the social and environmental sustainability dimensions; and (iii) the scores for the various subdimensions within them[9] as our key independent variables. Our Oekom dataset starts in 2005, ends in 2012 and comprises observations for 5,242 firm-years, for which we have numeric scores in each and every one of the aforementioned categories.

We use the Thomson Reuters DealScan database (referred to as DealScan hereafter) to draw information about the characteristics of the loan contracts, lenders, and borrowers. Our proxy for the cost of bank loans is the logarithm of the spread of the loan interest rate over LIBOR, adding any annual (or facility) fee paid to the lender (or lending group), and it is measured in basis points for each dollar drawn down. Based on related previous literature on the determinants of bank loans (Goss and Roberts, 2011; Fields et al., 2012; Giannetti and Yafeh, 2012; Nandy and Lodh, 2012; Kim et al., 2014), we draw a variety of information from DealScan concerning borrowing companies to construct our set of control variables: firm size (book value of total assets), ratio of market value of equity versus book value of equity, leverage (book value of total debt over book value of total equity), profitability (return on equity), interest coverage ratio (earnings before interest and taxes over interest expenses), firm liquidity (book value of current assets over book value of current liabilities), percentage of free floating shares, financial distress

[9] The social dimension is subdivided into "staff and suppliers," "society and product responsibility," and "corporate governance and business ethics," while the environmental dimension is subdivided into the "environmental management," "products and services," and "eco-efficiency."

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(Altman Z-score) and R&D intensity (Research & Development expenses over total sales). We additionally collect the book value of total assets as a proxy for lender size (or the average of total assets when there are multiple lenders in a syndicated loan) and the total loan maturity (in months) from DealScan.

We also make use of the information provided by Thomson Reuters Datastream and Bloomberg to add borrower and lender credit ratings to our model specification. We use credit ratings provided by Standard and Poor's or Moody's, if the former is not available, and translate them to a numeric scale following a rationale similar to that applied by Ashbaugh-Skaife et al. (2006) and Oikonomou et al. (2014). To account for the possibility that rating agencies already include an assessment of sustainability among the extensive array of factors they consider when assigning corporate credit ratings, we regress credit scores on the respective Oekom scores and use the residuals of these regressions in our main model specifications. We also calculate firm betas using stock returns and corresponding MSCI country index returns from Datastream. We use monthly data for a five year period to conduct the calculations. Lastly, in order to account for the most important economic characteristics of borrower countries,[10] we include real GDP growth in the years the loan facility was signed, provided by Datastream, and a binary variable taking a value of 0 when a country is classified as "Developed" by FTSE and 1 otherwise. Table 1 contains brief descriptions of all the above variables.

INSERT TABLE 1 ABOUT HERE

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[10] We elect to follow this process instead of using a series of binary variables for every country where a borrower is located in order to keep the model as parsimonious as possible and so that the importance of the country sustainability scores is not artificially subverted.

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We follow Francis et al. (2012) and use loan facilities as the level of analysis thus creating a cross-section of loan-year observations.[11] After matching Oekom with DealScan using ISINs and manual comparison of names, add credit rating information from Datastream and Bloomberg by conducting a thorough manual search, deleting double entries and excluding data points due to missing observations, we reach a final sample comprising 470 loan-year observations in our complete model specification. This is a sample rich in the diversity of regional characteristics, as it includes borrowing firms from 28 different countries from every continent except Africa. Furthermore, all major industries are represented. Table 2 provides additional details on sample characteristics by breaking down the number of observations per borrower country, region, and industry and by year that the loan agreement was signed.

INSERT TABLE 2 ABOUT HERE

It is worth comparing generic data coverage of this paper with those of the few previous relevant studies. In terms of corporate sustainability databases, both Goss and Roberts (2011) and Nandy and Lodh (2012) make use of KLD thus only studying the US market between 1990 and 2006. KLD is one of the most established sources of CSR data employed in empirical research, though it has some important limitations: the indicators for assessing sustainability dimensions are binary (thus only indicative of presence or absence and not degree of certain characteristics) and the produced scores are not industry adjusted to reflect the key importance of different sustainability dimensions for different lines of business. Kim et al. (2014) on the other hand use Sustainalytics which allows them to create a sample covering 19 countries but for a shorter time period, namely between 2003 and 2007. Nandy and Lodh (2012) only

[11] We make this choice in order to retain a sizeable sample. This disallows us from using panel estimation techniques but as Kim et al. (2014) demonstrate, it should not make a difference to our core results regarding the effects of sustainability on cost of debt.

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look at the environmental component of sustainability and Kim et al. (2014) limit the analysis to business ethics. Due to the databases used, none of these studies has access to country-level sustainability scores to include in their analysis concerning likely impact on cost of bank loans. In contrast, our study uses the international Oekom sustainability database thus incorporating loan observations from 28 different countries across the world between 2005 and 2012 (hence also including years into the financial crisis). It looks into both the social and environmental dimensions of CSR and their components, and is also the first to include country sustainability metrics within this research framework.

More quantitative information about the identity of the borrowers, lenders and loans is contained in Table 3. Mean and median scores for borrowers' overall CSR scores as well as for the respective environmental and social dimensions are close to 2.1 to 2.2 with modest, but not trivial, standard deviations of approximately 0.4 to 0.5. It is worth noting that in the only other relevant international study (Kim et al., 2014), the variability of the sustainability (ethics) variable was low, as the mean score was 70.55 and the standard deviation merely 3.65. Consequently, we believe that despite the smaller sample size, our study makes use of a rich and variable international data pool.

INSERT TABLE 3 ABOUT HERE

While there are firm-year observations for which CSR scores take the absolute minimum possible value (1), there is no single observation in the sample of a firm scoring perfectly (4) in the overall CSR, the social dimension or the environmental dimension at any point in time. When looking at the various corporate sustainability subcategories (a1 to b3 – as described in the Appendix), it is evident that they are more widely dispersed around their corresponding mean score values as they are characterized by higher standard deviations and more extreme minima and maxima. On the other hand, borrower country sustainability scores are, on average, higher compared to firm sustainability scores, ranging between 2.547

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(country environmental performance) and 3.169 (country social performance), and low respective standard deviations of 0.243 and 0.298. This is unsurprising as we would expect that these sociocultural and institutional sustainability frameworks change only very slowly at the country level and thus the dynamic variability of these variables in the sample by definition is low.

In terms of financial characteristics, what stands out is that the average borrower is a profitable firm with a return on equity exceeding 24% per annum and looks to be in a good position to repay a loan as it has a relatively low leverage ratio (<0.3) and a high interest coverage ratio (median value of 5.08). As expected for a sample of this size and variability, the average beta is very close to unity, but the standard deviation of this variable exceeds 0.5, providing an array of firm-year observations with very different levels of systematic risk. The average free floating percentage is quite high (>76%). This is a desirable characteristic for our analysis, as it allows for market forces to have the defining role in determining corporate valuation through the analysis of financial and non-financial (including sustainability) information. Naturally, this valuation will also influence the terms of the loan agreement between lender and borrower, either through directly influencing the valuation of the collateral or by impacting the bank's opinion of the borrowing firm's financial potential. Lastly, it is worth noting that the mean value for the loan spread over LIBOR is approximately 125 basis points (1.25%)[12] and that the median loan maturity is 60 months (5 years).

We run all regressions at the level of loan facilities and average the values of lender-related variables[13] in the cases of syndicated loans. We winsorize all financial variables at the 1% level in order to avoid inferences being driven by extreme outliers and apply heteroskedasticity robust estimators. The full

[12] This spread is significantly higher than Goss and Roberts (2011), Nandy and Lodh (2012) and Kim et al. (2014) where it is, respectively, 101.5, 86.5 and 79 basis points. This comes as a direct consequence of our study making use of a sample that includes years of the global financial crisis where the cost of borrowing was higher.

[13] Unfortunately, we do not have access to the details of the contribution of each lender towards the agreed loan amounts in order to value-weight variables according to the respective percentages. Hence we use arithmetic averages instead.

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specification of our model makes use of all the variables we have previously mentioned, and in its generic form can be written as:

$$Log(Spread)_{i,t} = f(Borrower_Sustainability_{i,t-1}, Borrower_Country_Sustainability_{i,t-1}, Borrower_Characteristics_{i,t-1}, Lender_Characteristics_{i,t-1}, Loan_Characteristics_{i,t-1}, Borrower_Country_Characteristics_{i,t-1}, Industry_Effects_i, Time_Effects_t) \quad (1)$$

It must be noted that to conduct all our analyses, we use different versions of firm and country sustainability metrics, starting from the overall scores, moving to the separate scores for the social and environmental aspects of sustainability and further down to the specific components of each of these. Thus we have multiple similar, but distinct, variants of the model described in equation 1.

4. RESULTS

Table 4 depicts the influence of overall country and company sustainability scores on bank loan credit spreads. In order to demonstrate the incremental explanatory power that different sets of variables have on loan spread variation, we start from a specification including solely sustainability factors and progressively move towards the full model specification. As can be seen in the first column of the table, sustainability scores can explain approximately 3% of the firm-year variation in the cost of bank loans, a small yet certainly not trivial part of the puzzle. Adding borrower characteristics increases adjusted R-squared by nearly 10%, while adding lender and loan characteristics and the GDP growth rate of the borrower's country leads to a further increase of 22%. Lastly, including a series of binary variables that

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capture country, industry and time effects leads to a model specification that can explain almost half (48.3%) of the variation in loan spreads in our sample.[14]

INSERT TABLE 4 ABOUT HERE

The most important finding manifesting from this set of results is that country sustainability is clearly shown to have a negative impact on the cost of bank loans, statistically significant at the 1% level, regardless of the set of control variables used. The sign, size, and significance of the respective slope coefficients are remarkably stable. Hence, Hypothesis 1 receives strong support. On the other hand, Hypothesis 2 is not supported, as corporate sustainability appears to be positively connected to credit spreads, but this result becomes insignificant when including the full set of control variables in the model. In addition, the overall firm sustainability slope coefficient is consistently lower than that for country sustainability. In a nutshell, in the fully specified model, the overall country sustainability framework appears to have a significant cost-reducing effect when it comes to direct financing. More specifically, an increase in Oekom country scores by one unit leads to an average decrease in bank loans spreads by 0.642% in our sample.[15] In contrast, the impact of a multidimensional CSR metric is not evident in our

[14] As an aside, when we remove from our full model (Model 4 on Table 4) the corporate and country sustainability metrics but keep all the other independent variables, the adjusted R-squared drops from 48.32% to 47.11%, indicating a marginal explanatory power of the sustainability variables of 1.21%. This may seem small but it is actually a very powerful result. For comparison, when we remove the borrower's Z-score from the model instead (a standard financial distress variable that intuitively should be strongly related to credit spreads and, indeed, is found to be highly significant in our models), the adjusted R-squared falls to 47.91%, indicating a marginal explanatory power for score of just 0.41% − about one-third of the incremental explanatory power that the sustainability scores have.

[15] Because the dependent variable is log transformed, the economic significance of the slope coefficients is not immediately evident. We can easily calculate that a unit increase in country sustainability scores

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analysis. The relevant coefficient is not significant at standard confidence intervals and it is less than one third of the size of the country sustainability slope coefficient.

It is also reassuring that from the extensive array of control variables used, those that are shown to have a statistically significant impact on corporate loan spreads do so in the manner we would anticipate according to basic financial theory and common sense. Firms with strong fundamentals, lower leverage, higher profitability, fewer indications of financial distress, and higher credit ratings, and which borrow for shorter periods of time manage to gain access to cheaper bank loans compared to their peers with the opposite characteristics.

Table 5 focuses on the nature of the effects of sustainability on credit costs by separately looking at the social and environmental components for both borrowing corporations and their countries. We also provide the model specifications that include only borrower characteristics to examine whether the previously noted increase in explanatory power is maintained when moving to the full specifications. Indeed, this increase is approximately 13% with an overall R-squared being in the vicinity of 50% in the case of both the social and environmental dimensions. The interest-lowering effects of country sustainability are verified and appear to be coming from both dimensions. The respective coefficients are negative and significant at the 1% level, although the economic magnitude of a change in the country environmental scores on loan spread is much larger than the impact of an equal change in the country social scores: a unit increase in the environmental dimension leads to an average decrease of the cost of loan by approximately 73 basis points compared to 48 for the same increase in the social dimension. These findings are in line with our a priori expectations that led to the formation of Hypothesis 3. Also, similar to previous indications is that firm-level environmental sustainability appears to be unrelated to

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(which is a very significant change) leads to a reduction of loan spreads by 52% from their previous levels or approximately 64 basis points for the mean loan spread in the sample (which stands at 125 basis points over LIBOR).

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the cost of bank loans, whereas social scores at the firm level are seemingly positively connected to credit spreads. Although the relevant coefficient is much lower in absolute terms compared to the ones related to country sustainability (a unit increase in the social part of firm sustainability leads to an average increase in loan rates of 0.38%) and is only significant at the 10% level, the finding is still contrary to our original hypothesis. One possible interpretation comes from the works of Clarkson (1995) and especially Hillman and Keim (2001). Clarkson (1995) makes the distinction between primary and secondary stakeholders stating that it is maintaining solid strategic relationships with the former group that is crucial to ensure the financial well-being of the firm. Hence, investments targeting secondary stakeholders may be deemed to be a misappropriation of scarce corporate funds. Hillman and Keim's (2001) analysis empirically tests this conjecture as it pertains to CSR and concludes that "using corporate resources for social issues not related to primary stakeholders may not create value for shareholders" (p.125). This may explain why we find a modest positive association between the social dimension of corporate sustainability and cost of debt.

INSERT TABLE 5 ABOUT HERE

In order to further explore the key characteristics of the links between sustainability and cost of bank loans we have already identified, we make our analysis more fine-grained and use the three Oekom subdimensions as our key independent variables. For the social dimension, at the corporate level, these correspond to "staff and suppliers," "society and product responsibility," and "corporate governance and business ethics," while at the country level they refer to "political system and governance," "human rights and fundamental freedoms," and "social conditions." For the environmental dimension, the corporate-level subcategories are "environmental management," "products and services," and "eco-efficiency," whereas the country subcategories fall under "natural resources," "climate change and energy," and "production and consumption." The results produced by these three analyses are captured in Table 6 and

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provide us with a very clear picture. Every subdimension of country sustainability is shown to be associated with lower costs of bank loans (significant at the 1% level in every case), while all aspects of corporate sustainability are found to be insignificant determinants of credit spreads – hence the findings concerning the macro-sustainability effects on loans are corroborated while the indications of a positive link between the social part of CSR and loan interest rates can only lead to tentative conclusions. What is more, the economic importance of the environmental country sustainability factors is significantly greater than that of the respective social ones, judging from the size of the related coefficients. A unit increase in any of the components of social country sustainability leads to a reduction of the average credit spreads in the sample ranging between 46 and 50 basis points. The equivalent effect of environmental subdimensions amounts to approximately 76 or 77 basis points. Hence this segment of our investigation provides additional support for Hypotheses 1 and 3 but not for Hypothesis 2.

INSERT TABLE 6 ABOUT HERE

As an additional set of analyses, we investigate the possible moderating role of the collapse of Lehman Brothers in the link between sustainability and loan spreads. Lehman's bankruptcy was one of the most crucial events within the recent global financial crisis and shifted the focus of the market "from estimates of write-downs, capital needs and merger and acquisition scenarios, to concerns about counterparty exposures and default risks."[16] Becchetti et al. (2010) outline the magnitude of the financial impact of the Lehman Brothers event and document that, after it occurred, investors better recognized the additional

[16] Sandy Chen, analyst of Panmure Gordon and Co on Reuters: http://www.reuters.com/article/2008/09/15/lehmanimpact-research-oppenheimer-idusbng21779220080915

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informational importance of CSR with regard to the moral character of the firm and its trustworthiness. Hence, it is possible that in the post-Lehman era, the influence of sustainability on financial contracting may have been strengthened. On the other hand, Lins et al. (2015) also investigate (in the US stock market setting) whether the financial crisis changed the market impact of CSR and find that high-CSR firms have crisis period returns significantly higher than those of low-CSR firms, but no similar return differential is detected before or after the crisis. To conduct a similar examination, we include an additional binary control variable taking the value of 1 for loan facilities starting after Lehman's filing for Chapter 11 bankruptcy on September 15, 2008 and 0 otherwise, and interaction terms between this binary variable and Oekom firm scores. Although the binary variable is highly statistically significant and shows an increase in the level of corporate spreads after the event, the economic and statistical strength of the results concerning the impact of corporate sustainability on loans is extremely similar to that of our main results.[17]

We also make an effort to check the sensitivity of the analysis to the use of the Oekom sustainability database. Unfortunately, we do not have another international CSR dataset at our disposal that we can use in order to see how the respective results would compare. Instead, we make use of the MSCI KLD STATS dataset. This is one of the most frequently used CSR sources in empirical research (as noted by Wood and Jones, 1995, and Waddock, 2003) but unfortunately covers only US firms. As in previous studies (e.g., Hillman and Keim, 2001; Kim et al., 2014; Oikonomou et al., 2014), we focus on the qualitative issue areas of interest covered by the KLD database. These are: relations with local

[17] Alternatively, we also follow Lins et al. (2015) who define the financial crisis as the period between the Lehman Brothers bankruptcy (September 2008) and the point at which the S&P 500 reached its lowest point (March 2009 − after which it started recovering) and split our sample to pre-crisis and post-crisis accordingly. We find no moderating effect of the crisis on the link between CSR and cost of loans at the firm level. Interestingly, though, the effect of country sustainability in decreasing the cost of debt is more pronounced from the point of the crisis and afterwards, i.e., the financial impact of country sustainability has strengthened. For the sake of parsimony, we do not include the relevant results in the paper.

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communities, diversity in the workplace, employee issues, environmental considerations, and product safety. Each of these areas is assigned separate scores for indicators of strengths and concerns for each firm and each year. As is usual practice, we average the strengths indicators and detract the respective average of the concerns indicators for each issue area in order to produce scores for each. To make the analysis as analogous to when Oekom was used, we create an aggregate measure of firm CSR that is the average score across all five issue areas for a particular firm on a given year (Borrower_KLD_total). In addition, as no clear "social" score exists within KLD, we elect to create one by including employee issues, diversity, and relations with local communities under this umbrella term and averaging the respective scores (Borrower_KLD_soc). As mentioned, environment is separately considered within KLD so we have separate firm-year scores for this (Borrower_KLD_env). Our sample is, expectedly, smaller than before as it is geographically restricted solely to the US (N = 164). We repeat the previous analysis using the exact same set of control variables, with the exception of the "developing country" binary variable, which is of no use in this case. The results are depicted in Table 7. As can be seen, though the explanatory power of the model is even more significant than before (with adjusted R-squared in excess of 70%), the key independent variables that capture corporate sustainability are statistically insignificant. This corroborates the findings from the results produced when Oekom data were used to capture corporate sustainability.

INSERT TABLE 7 ABOUT HERE

In our results so far, we have failed to find support for Hypothesis 2 about the link between sustainability and cost of debt at the firm level. One possible explanation for this is that for a firm that is truly financially robust, CSR many not be a crucially impactful factor, whereas for companies facing significant financial distress, the difference between poor and good CSR performance can have a significant

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influence on their viability, default risk, and hence cost of debt.[18] To investigate this possibility, we use Z-score as the basic criterion to distinguish financially "solid" firms from "marginal" ones. Using the empirical distribution of Z-scores, we create two subsamples: one comprising observations in the lowest quartile (25%) of the distribution, with a Z-score value less than 1.16 (the relevant empirical in-sample threshold), which are facing high financial distress, and one subsample of observations in the top quartile, with a Z-score value more than 2.85, which are in high financial distress. We then repeat our core analysis on both of these subsamples and compare the results, which are shown in Table 8. Although we use the same set of control variables as in our main analysis, we do not report the respective coefficients for the sake of parsimony and in order for the reader to concentrate on the comparison of the coefficients of the treatment variables between the two subsamples. The results do not generally provide support to Hypothesis 2 as all but one of the coefficients in the subsample of firms in high distress are statistically insignificant. The exception to this is the a1 Oekom social subdimension, which is about corporate relationships to staff and suppliers. For this issue, there appears to be a robust negative link between CSR and cost of debt, at least for companies of precarious financial standing.[19]

INSERT TABLE 8 ABOUT HERE

[18] We would like to thank an anonymous reviewer for this suggestion.

[19] As an alternative robustness check, we also conduct quantile regressions of CSR on the cost of bank loans on different percentiles of the distribution of the bank loan spread. If the CSR-default risk link is mainly located on firms in financial distress, the coefficients of the treatment variables should be statistically significant at higher percentiles. We run the regressions conditioned on the 90th percentile of the dependent variable. Once more, all estimates are statistically insignificant and we fail to find support for Hypothesis 2. In addition, we plot the quantile regression processes in order for us to see how the estimates for the coefficients of corporate sustainability change when regressions are conditioned on different levels of the cost of debt. We would expect that the value of the coefficients algebraically decreases for higher percentiles. However this is generally not the case and, in addition, the confidence intervals widen (i.e., estimates are less statistically significant) at the higher percentiles. For the sake of parsimony, we do not report these results, but they are available upon request.

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Finally, based on a recent study on the link between CSR and credit risk in the Eurozone corporate bond market (Stellner et al., 2015), we conduct additional exploratory analysis to investigate whether country characteristics or country sustainability play a moderating role on the effects of CSR on the cost of bank loans. We construct interaction terms by multiplying Oekom corporate scores (total scores, dimensional scores, and subdimensional scores separately) either with the binary variable distinguishing whether a borrower's country is developed or developing, or with the Oekom country sustainability scores. We fail to identify any such relationship, as all relevant regression coefficients are statistically insignificant.

It should be noted that the results of our study are directly comparable only to those of Kim et al. (2014) who also perform an international examination of the impact of sustainability on the cost of bank loans. Unlike them, we do not find evidence suggesting that higher firm-level sustainability reduces the cost of debt. However, we have clarified that there are two crucial differences between the two studies: (i) Kim et al. (2014) focus solely on the business ethics component of sustainability, whereas we look into overall sustainability as well as its various components and (ii) their sample stops in 2007, right before the start of the global credit crisis, which is reasonable to assume made lending institutions reconsider their policies and may have changed the corporate loan market framework. In contrast, our sample starts before the crisis, covers the entirety of its duration and finishes in 2012. In addition, both Goss and Roberts (2011) and Nandy and Lodh (2012) find that increases in overall CSR and firm environmental performance, respectively, can lead to average loan spread reductions of 7 to 20 basis points, at least in the US. Once more, the sample differences we have outlined between these studies and ours should be sufficient to reconciliate the equivalent results. The fact that our study is the first to include country-level sustainability scores as possible determinants of corporate loan spreads in direct financing makes these results impossible to compare with those manifesting from previous scholarly work. The same is true for the conclusions concerning the greater strength of the financial impact of the environmental dimension compared with that of the social dimension: Goss and Roberts (2011) use a multidimensional CSR

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construct whereas Nandy and Lodh (2012) focus solely on the environment and Kim et al. (2014) on ethics.

5. CONCLUSIONS

We conduct an international investigation on the effects of corporate and country sustainability on corporate spreads of bank loans. We look into 470 loan agreements signed between 2005 and 2012 with borrowers based in 28 different countries across the world and operating in all major industries. Our principal findings reveal that country sustainability relating to both social and environmental frameworks has a statistically and economically impactful effect on direct financing. Higher country sustainability is associated with lower costs of bank loans. This conclusion is in line with the growing trend that recognizes the importance of environmental, social, and governance (ESG) macro-themes in the valuation of every asset class and type of financial contract.[20] Issues such as climate change, resource scarcity, and rising and aging populations are tremendously impactful evolutions and their economic significance cannot be understated. Our analysis shows that the environmental dimension of a country's institutional framework is approximately twice as impactful as the social dimension when it comes to determining the cost of corporate loans. The various subcategories of each dimension corroborate these findings with the environmental ones creating larger cost reductions in bank loans compared with the

[20] Local Government Superannuation Scheme (LGS Super) in Australia has been innovative in considering these themes and creating asset allocation strategies that incorporate them. http://www.lgsuper.com.au/documents/Sustainability/L0126%20Global%20Sustainable%20Bonds%20v4.pdf

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social ones. On the other hand, we find no conclusive evidence that firm-level sustainability influences the interest rates charged to borrowing firms by banks.

These results extend the academic literatures exploring (i) the determinants of bank loans, (ii) the empirical link between sustainability and financial performance, and (iii) the relationship between culture and economic behavior. It appears that, at least in the international bank loan market, country-level sustainability is priced while firm-level sustainability is not, or perhaps the latter is priced only through the former (which would lead to a reinterpretation of previous empirical findings). The role of trust and culture in economic decisions in agreements between contracting parties from different countries has been well documented (Botazzi et al., 2007; Licht et al., 2011; Giannetti and Yafeh, 2012) and it provides another possible way to interpret the findings of this study. The practical importance of these findings is especially significant for regulators and sovereign governments. It is these groups that have the power to transform the entirety of the sustainability framework in their countries, thus leading to lower costs of debt for corporations, cheaper undertaking of positive net present value projects, and, consequently, to higher rates of economic growth, increased employment, and prosperity.

In spite of the contributions our study makes, it is characterized by several limitations, which provide opportunities for future research in this area. Firstly, the process by which Oekom assesses firm and country sustainability characteristics leads to the creation of a single rating and corresponding score. Although this is highly useful for empiricists, there have been voices that strongly suggest that sustainability (or CSR) issues should always distinguish between those that are related to positive and those that are related to negative social/environmental performance, as these are conceptually and practically different and so are their financial outcomes (Mattingly and Berman, 2006; Lankoski, 2009). Using alternative measures for firm and country sustainability that allow for this distinction to be made may shed additional light into what exact part of sustainability is priced in the international loan markets. Secondly, the main treatment variable in this study is CSR performance, but a case can be made that there

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are similar links between CSR disclosures and default risk/cost of debt. This is another avenue worth exploring in the future.

Thirdly, our study focuses solely on the impact of sustainability on the cost of bank loans. Although this ultimately is the most important part of the loan agreement between the two parties, there may be additional loan covenants that are associated with sustainability, and future research can investigate this possibility. Fourthly, though our study is international, it still draws data mostly from developed countries in North America and Europe. Given the increasing importance of developing countries, both from an economic and a global sustainability perspective, we feel that an analysis containing more data points from this part of the world would significantly enrich our understanding of the issue at hand.

Lastly, it must be recognized that the inability to detect any significant link between corporate sustainability and cost of debt in our study may to some extent be attributed to our sample being restricted to mostly financially robust firms. If that is the case, then CSR may be viewed as only a peripheral issue by the lender(s) in respect to such healthy borrowers and not priced in the loan agreement (whereas the same lenders may otherwise seriously consider CSR as a risk factor for the more "marginal" potential borrowers and penalize them via higher loan rates). Future studies with access to both CSR ratings and loan term agreements for a broader set of borrowers (in terms of their generic credit ability) would help alleviate this concern.

Appendix: Oekom Corporate and Country Rating Criteria

Oekom Corporate Rating Criteria

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Oekom uses over 100 social and environmental criteria, selected specifically for each industry, and covering six areas, to assess the social and environmental performance of a company and produce the relevant corporate ratings. The six areas of assessment are:

Social Rating

- Staff and Supplier
- Society and Product Responsibility
- Corporate Governance and Business Ethics

Environmental Rating

- Environmental Management
- Products and Services
- Eco-Efficiency

Due to the different social and environmental challenges its industry is faced with, Oekom makes around one-third of these criteria industry specific. All criteria are individually weighted and evaluated according to their importance before they are finally aggregated into a single score.

For more information: http://www.oekom-research.com/index_en.php?content=corporate-rating.

Oekom Country Rating Criteria

Oekom uses over 100 indicators to assess the institutional framework and the performance of a country across environmental and social dimensions.

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Social Rating

Political System and Governance

- Political System
- Governance
- Corruption and Money Laundering
- Political Stability

Human Rights and Fundamental Freedoms

- Safeguarding of Civil and Political Rights
- Non-Discrimination
- Gender Equality

Social Conditions

- Health
- Education and Communication
- Labor
- Social Cohesion

Environmental Rating

Natural Resources

- Land Use
- Biodiversity
- Water

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Climate Change and Energy

- Climate Change
- Energy

Production and Consumption

- Agriculture
- Industry
- Transport
- Private Consumption

For more information: http://www.oekom-research.com/index_en.php?content=country-rating.

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Table 1: Definition of Variables

Borrower Oekom corp	The aggregated Oekom CSR score for the borrowing firm
Borrower Oekom social	The Oekom corporate score for the social performance of the borrowing firm
Borrower Oekom env	The Oekom corporate score for the environmental performance of the borrowing firm
Borrower Oekom a1	The Oekom corporate score for the "staff and suppliers" subdimension of the borrowing firm
Borrower Oekom a2	The Oekom corporate score for the "society and product responsibility" subdimension of the borrowing firm
Borrower Oekom a3	The Oekom corporate score for the "corporate governance and business ethics" subdimension of the borrowing firm
Borrower Oekom b1	The Oekom corporate score for the "environmental management" subdimension of the borrowing firm

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Borrower Oekom b2	The Oekom corporate score for the "products and services" subdimension of the borrowing firm
Borrower Oekom b3	The Oekom corporate score for the "eco-efficiency" subdimension of the borrowing firm
Borrower countryOekom	The overall Oekom sustainability score for the country of the borrowing firm
Borrower countryOekom a	The Oekom score for the social performance of the country of the borrowing firm
Borrower countryOekom b	The Oekom score for the environmental performance of the country of the borrowing firm
Borrower rating	Numerical value of the borrowing firm's Standard & Poor's credit rating orthogonalized by the respective Oekom score. When Standard and Poor's rating is not available, Moody's is used instead.
Borrower beta	Systematic risk of the borrowing firm. The respective major local stock index is used as a proxy for the market.
Borrower freefloat	Borrowing firm's percentage of free floating shares
Borrower intercover	Borrowing firm's interest coverage ratio calculated as earnings before interests and taxes over interest expenses
Borrower mtb	Borrowing firm's ratio of market to book value
Borrower r&d	Borrowing firm's R&D intensity calculated as Research & Development expenses over total sales
Borrower roe	Borrowing firm's return on equity calculated as a proxy of earnings before interests and taxes over book value of equity
Borrower ta	Borrowing firm's book value of total assets
Borrower tdte	Borrower'ing firm's leverage calculated as total debt over book value of total equity
Borrower zscore	Borrowing firm's Z-score according to Altman's original measure of financial distress
Current ratio	Borrowing firm's liquidity calculated as book value of current assets over book value of current liabilities
Developing country	Dummy variable taking a value of 0 when a country is classified as "developed" by FTSE and 1 otherwise
GDP growth	Borrowing firm's country GDP growth rate in the year the loan facility was signed

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Lender rating	Numerical value of the lending firm's Standard & Poor's credit rating orthogonalized by the respective Oekom score. When Standard and Poor's rating is not available, Moody's is used instead
Lender ta	Lending firm's book value of total assets
Loan maturity	A calculation of how long (in months) the facility will be active from signing date to expiration date
Loan spread	Describes the amount the borrowing firm pays in basis points over LIBOR for each dollar drawn down. It is the logarithm of the sum of the spread of the loan plus any annual (or facility) fee paid to the bank group.

Table 2: Borrower Sample Characteristics

Country	Obs.	Region	Obs.
Australia	24	America (ex. USA)	15
Austria	3	Asia-Pacific	56
Bermuda	1	Europe	195
Brazil	2	USA	204
Canada	11	Total	470
China	3		
Finland	7		
France	78	**Industrial Classification**	**Obs.**
Germany	30	sic2	13
Greece	1	sic3	7
Hungary	1	sic4	195
India	4	sic5	130
Indonesia	1	sic6	36
Italy	7	sic7	38
Japan	16	sic8	10

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Mexico	1	sic9	41
Netherlands	7	Total	470
Norway	2		
Poland	2		
Portugal	2		
Romania	2	**Loan Start Year**	**Obs.**
Russia	2	2006	38
South Korea	8	2007	110
Spain	13	2008	49
Sweden	5	2009	60
Switzerland	18	2010	63
UK	15	2011	110
USA	204	2012	40
Total	470	Total	470

Table 3: Descriptive Statistics of Key Variables

	Mean	**Median**	**Maximum**	**Minimum**	**Std. Dev.**
Borrower Oekom corp	2.180	2.228	3.091	1	0.363
Borrower Oekom social	2.258	2.228	3.191	1	0.395
Borrower Oekom env	2.093	2.139	3.378	1	0.471
Borrower Oekom a1	1.803	2.081	3.750	0	1.112
Borrower Oekom a2	1.720	2.065	3.270	0	1.056
Borrower Oekom a3	1.947	2.151	3.905	0	1.222
Borrower Oekom b1	2.039	2.572	3.692	0	1.241

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Borrower Oekom b2	1.462	1.733	3.675	0	0.908
Borrower Oekom b3	1.575	1.600	4.000	0	1.173
Borrower countryOekom	2.858	2.950	3.379	2.518	0.243
Borrower countryOekom a	3.169	3.254	3.678	2.571	0.298
Borrower countryOekom b	2.547	2.571	3.123	2.193	0.211
Borrower ta	72908073	33331764	795000000	1491483	114000000
Borrower mtb	1.865	2.105	21.190	–126.050	7.951
Borrower tdte	0.288	0.694	5.359	–154.813	8.375
Borrower beta	0.980	0.944	3.533	–0.697	0.508
Current ratio	1.215	1.121	6.134	0.298	0.595
Borrower roe	0.245	0.256	23.098	–19.346	1.503
Borrower freefloat	76.706	85	100	10	22.563
Borrower intercover	39.322	5.085	12739.370	–27.579	589.712
Borrower r&d	0.025	0.005	0.307	0	0.0490
Borrower zscore	4.689	1.742	197.601	–5.640	17.872
Loan maturity	48.953	60	342	2	33.451
GDP growth	0.017	0.024	0.245	–0.060	0.028
Loan spread	124.987	87.500	750	2	111.861
Observations	470	470	470	470	470

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Table 4: Effect of Corporate Social Responsibility on the Cost of Bank Loans

Table contains pooled OLS regression coefficients with t-statistics in parentheses. The logarithm of the 1% winsorized value of bank loan spread over the basis rate is the regressand. Key independent variable is total Oekom CSR score. Regressions are at the level of lender group for each loan facility and use different sets of control variables. Heteroskedasticity consistent estimators are applied. *, **, *** denote statistical significance at the 1%, 5% and 10% level, respectively.

	Model1	**Model2**	**Model3**	**Model4**
C	5.8924	4.7280	4.6964	5.2348
	(12.617)***	(8.867)***	(6.871)***	(7.362)***
Borrower Oekom	0.2498	0.4844	0.4829	0.2051
	(2.540)**	(3.829)***	(3.307)***	(1.327)
Borrower c.Oekom	–0.6808	–0.6278	–0.6306	–0.7221
	(–4.373)***	(–3.497)***	(–3.041)***	(–3.619)***
Borrower ta	-	0.0000	0.0000	0.0000
		(4.931)***	(3.440)***	(0.953)
Borrower mtb	-	–0.0162	–0.0096	–0.0067
		(–3.137)***	(–2.358)**	(–2.049)**
Borrower tdte	-	0.0137	0.0079	0.0077
		(3.068)***	(1.980)**	(2.139)**
Borrower beta	-	0.0609	0.0312	0.0738
		(0.642)	(0.311)	(0.693)
Current ratio	-	–0.1680	–0.1660	–0.1237

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		(–1.831)*	(–1.722)*	(–1.305)
Borrower roe	-	–0.0221	–0.0091	–0.0252
		(–1.303)	(–0.538)	(–1.908)*
Borrower freefloat	-	0.0050	0.0036	0.0017
		(2.618)***	(1.745)*	(0.978)
Borrower intercover	-	0.0000	0.0001	0.0000
		(1.413)	(1.701)*	(0.038)
Borrower r&d	-	–0.6795	–1.2479	0.0632
		(–0.618)	(–1.161)	(0.057)
Borrower zscore	-	0.0047	0.0071	0.0051
		(1.741)*	(3.137)***	(2.179)**
Borrower rating	-	–0.1784	–0.1380	–0.1208
		(–8.954)***	(–7.415)***	(–6.588)***
Lender ta	-	-	0.0000	0.0000
			(1.677)*	(0.452)
Lender rating	-	-	–0.0675	–0.0096
			(–1.526)	(–0.205)
Loan maturity	-	-	0.0027	0.0038
			(2.362)**	(3.173)***
GDP growth	-	-	–4.8681	–1.8180
			(–3.230)***	(–0.562)
Developing country	-	-	-	0.2803
				(1.290)
Industry effects	-	-	-	YES
Time effects	-	-	-	YES
Adjusted R-squared	2.95%	12.66%	34.71%	48.32%

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Observations	1007	787	478	470

Table 5: Effect of Corporate Social Responsibility Dimensions on the Cost of Bank Loans

Table contains pooled OLS regression coefficients with t-statistics in parentheses. The logarithm of the 1% winsorized value of bank loan spread over the basis rate is the regressand. Key independent variable is social or environmental Oekom score. Regressions are at the level of lender group for each loan facility and use different sets of control variables. Heteroskedasticity consistent estimators are applied. *, **, *** denote statistical significance at the 1%, 5% and 10% level, respectively.

Oekom score	**Social(1)**	**Social(2)**	**Env.(1)**	**Env.(2)**
C	3.5358	4.6936	6.3466	6.0654
	(7.894)***	(7.080)***	(11.347)***	(7.829)***
Borrower Oekom	0.4278	0.2680	0.1674	–0.0318
	(4.565)***	(1.905)*	(2.276)**	(–0.316)
Borrower c.Oekom	–0.2397	–0.4888	–1.0104	–0.8842
	(–1.944)*	(–3.224)***	(–5.401)***	(–3.596)***
Borrower ta	0.0000	0.0000	0.0000	0.0000
	(4.604)***	(0.779)	(4.591)***	(1.003)
Borrower mtb	–0.0178	–0.0069	–0.0174	–0.0080
	(–2.635)***	(–2.134)**	(–2.569)**	(–2.599)***
Borrower tdte	0.0134	0.0075	0.0154	0.0084
	(1.974)**	(2.133)**	(2.279)**	(2.423)**
Borrower beta	0.0552	0.0611	0.0180	0.0404
	(0.716)	(0.614)	(0.235)	(0.393)
Current ratio	–0.0765	–0.0843	–0.1756	–0.1040

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	(–1.048)	(–0.963)	(–2.340)**	(–1.144)
Borrower roe	–0.0172	–0.0229	–0.0256	–0.0260
	(–0.596)	(–1.730)*	(–0.894)	(–1.941)*
Borrower freefloat	0.0070	0.0024	0.0038	0.0014
	(4.674)***	(1.345)	(2.416)**	(0.805)
Borrower intercover	0.0000	0.0000	0.0000	0.0000
	(0.175)	(–0.106)	(0.481)	(–0.326)
Borrower r&d	–0.8141	–0.2454	–0.3168	0.0958
	(–0.935)	(–0.228)	(–0.369)	(0.087)
Borrower zscore	0.0047	0.0054	0.0043	0.0045
	(2.362)**	(2.349)**	(2.207)**	(2.021)**
Borrower rating	–0.1830	–0.1206	–0.1842	–0.1275
	(–12.083)***	(–6.703)***	(–12.318)***	(–7.425)***
Lender ta	-	0.0000	-	0.0000
		(0.810)		(0.202)
Lender rating	-	–0.0619	-	–0.0358
		(–1.329)		(–0.790)
Loan maturity	-	0.0035	-	0.0035
		(3.082)***		(2.948)***
GDP growth	-	–2.3513	-	–1.7231
		(–0.734)		(–0.544)
Developing country	-	0.2829	-	0.2766
		(1.316)		(1.289)
Industry effects	-	YES	-	YES
Time effects	-	YES	-	YES

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Adjusted R-squared	35.68%	49.19%	36.67%	49.46%
Observations	588	470	588	470

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Table 6: Effect of Corporate Social Responsibility Subdimensions on the Cost of Bank Loans

Table contains pooled OLS regression coefficients with t-statistics in parentheses. The logarithm of the 1% winsorized value of bank loan spread over the basis rate is the regressand. Independent variables are defined in Table 1. Regressions are at the level of lender group for each loan facility. Heteroskedasticity consistent estimators are applied. *, **, *** denote statistical significance at the 1%, 5% and 10% level, respectively.

Key Oekom variable	A1	A2	A3	B1	B2	B3
C	4.7775	4.8317	4.7239	6.0968	6.0682	6.0849
	(7.931)***	(8.093)***	(7.629)***	(7.839)***	(7.736)***	(7.776)***
Borrower Oekom	–0.0119	0.0643	0.0368	0.0034	–0.0222	–0.0069
	(–0.286)	(1.321)	(1.062)	(0.095)	(–0.470)	(–0.180)
Borrower c.Oekom	–0.4537	–0.5094	–0.4604	–0.9525	–0.9307	–0.9413
	(–2.946)***	(–	(–	(–4.094)***	(–	(–
Borrower ta	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.717)	(0.293)	(0.503)	(0.250)	(0.369)	(0.316)
Borrower mtb	–0.0072	–0.0076	–0.0076	–0.0091	–0.0093	–0.0091
	(–2.421)**	(–2.420)**	(–2.439)**	(–3.033)***	(–	(–
Borrower tdte	0.0055	0.0055	0.0058	0.0072	0.0073	0.0072
	(1.685)*	(1.653)*	(1.735)*	(2.122)**	(2.165)**	(2.095)**
Borrower beta	0.0660	0.0770	0.0777	0.0575	0.0523	0.0528
	(0.626)	(0.739)	(0.745)	(0.549)	(0.509)	(0.495)
Current ratio	–0.0664	–0.0650	–0.0701	–0.0976	–0.0956	–0.0972
	(–0.731)	(–0.727)	(–0.768)	(–1.076)	(–1.053)	(–1.074)
Borrower roe	–0.0157	–0.0131	–0.0151	–0.0190	–0.0193	–0.0190
	(–1.250)	(–1.045)	(–1.214)	(–1.496)	(–1.521)	(–1.496)
Borrower freefloat	0.0031	0.0031	0.0030	0.0021	0.0022	0.0021
	(1.802)*	(1.781)*	(1.709)*	(1.230)	(1.265)	(1.222)
Borrower intercover	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(–0.864)	(–0.664)	(–0.748)	(–0.278)	(–0.349)	(–0.320)
Borrower r&d	–0.4624	–0.9729	–0.7559	–0.5646	–0.4643	–0.5018
	(–0.406)	(–0.870)	(–0.691)	(–0.513)	(–0.414)	(–0.455)
Borrower zscore	0.0051	0.0048	0.0049	0.0046	0.0046	0.0047
	(2.244)**	(2.075)**	(2.154)**	(2.084)**	(2.093)**	(2.128)**
Borrower rating	–0.1195	–0.1116	–0.1144	–0.1151	–0.1171	–0.1162
	(–6.751)***	(–	(–	(–6.789)***	(–6.96)***	(–
Lender ta	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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	(0.943)	(0.977)	(0.998)	(0.427)	(0.405)	(0.428)
Lender rating	–0.0736	–0.0760	–0.0739	–0.0612	–0.0605	–0.0612
	(–1.502)	(–1.544)	(–1.504)	(–1.292)	(–1.286)	(–1.293)
Loan maturity	0.0036	0.0036	0.0036	0.0036	0.0035	0.0035
	(2.981)***	(3.007)***	(3.008)***	(2.967)***	(2.958)***	(2.953)***
GDP growth	–1.88898	–2.09101	–2.22206	–1.81393	–1.72023	–1.83518
	(–0.589)	(–0.652)	(–0.694)	(–0.572)	(–0.54)	(–0.579)
Developing country	0.2122	0.2446	0.2473	0.2607	0.2514	0.2564
	(0.94)	(1.065)	(1.091)	(1.139)	(1.103)	(1.122)
Industry effects	YES	YES	YES	YES	YES	YES
Time effects	YES	YES	YES	YES	YES	YES
Adjusted R-squared	47.45%	47.78%	47.61%	48.48%	48.51%	48.48%
Observations	470	470	470	470	470	470

Table 7: Effect of MSCI KLD CSR Scores on the Cost of Bank Loans

Table contains pooled OLS regression coefficients with t-statistics in parentheses. The logarithm of the 1% winsorized value of bank loan spread over the basis rate is the regressand. Independent variables are defined in Table 1. Regressions are at the level of lender group for each loan facility. Heteroskedasticity consistent estimators are applied. *, **, *** denote statistical significance at the 1%, 5% and 10% level, respectively.

Key KLD variable	**Total**	**Social/Environmental**
C	4.7817	7.0841
	(8.013)***	(9.013)***
Borrower_KLD_total	–0.3755	–
	(–1.151)	
Borrower_KLD_soc	-	–0.3328
		(–1.373)
Borrower_KLD_env	-	–0.0418
		(–0.179)
Borrower ta	0.0000	0.0000
	(1.380)	(1.458)
Borrower mtb	–0.0091	–0.0089
	(–0.617)	(–0.601)
Borrower tdte	0.0076	0.0078
	(1.163)	(1.186)
Borrower beta	–0.1934	–0.1892
	(–1.503)	(–1.438)
Current ratio	0.0295	0.0261
	(0.210)	(0.182)
Borrower roe	–0.2028	–0.2078
	(–1.614)	(–1.619)
Borrower freefloat	0.0030	0.0029
	(1.055)	(1.029)

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Borrower intercover	–0.0011	–0.0011
	(–2.902)***	(–
Borrower r&d	–0.5881	–0.6096
	(–0.617)	(–0.645)
Borrower zscore	0.0614	0.0581
	(0.732)	(0.711)
Borrower rating	–0.1433	–0.1432
	(–4.306)***	(–
Lender ta	0.0000	0.0000
	(–1.017)	(–1.005)
Lender rating	0.0467	0.0478
	(0.726)	(0.741)
Loan maturity	0.0002	0.0003
	(0.082)	(0.114)
GDP growth	–19.4721	–18.5870
	(–1.119)	(–1.072)
Industry effects	YES	YES
Time effects	YES	YES
Adjusted R-squared	71.62%	71.48%
Observations	164	164

Table 8: Effects of Corporate Social Responsibility on the Cost of Bank Loans when Sampling by Financial Distress

Table contains pooled OLS regression coefficients with t-statistics in parentheses. The logarithm of the 1% winsorized value of bank loan spread over the basis rate is the regressand. Key independent variables are oekom CSR scores. Regressions are at the level of lender group for each loan facility and use the same set of controls variables as in Table 6 but their coefficients are not reported for the sake of parsimony. Heteroskedasticity consistent estimators are applied. "Low z" samples contain observations in the bottom 25% of the pooled sample according to Z-score and "High z" samples contain observations in the top 25% of the pooled sample according to Z-score. *, **, *** denote statistical significance at the 1%, 5% and 10% level, respectively.

Key Oekom variable	**Total**	**Total**	**Soc/Env**	**Soc/Env**	**A1–B3**	**A1–B3**
Sampling by z-score	**Low z**	**High z**	**Low z**	**High z**	**Low z**	**High z**
Borrower Oekom corp	0.4165	–0.2805	-	-	-	-
	(1.438)	(–0.659)				
Borrower Oekom social	-	-	0.2396	–0.3908	-	-
			(0.877)	(–1.268)		
Borrower Oekom env	-	-	–0.0144	0.1249	-	-
			(–0.055)	(0.265)		
Borrower Oekom a1	-	-	-	-	0.0580	–0.5796
					(0.145)	(–1.960)*
Borrower Oekom a2	-	-	-	-	0.1710	0.3060
					(0.643)	(0.584)
Borrower Oekom a3	-	-	-	-	–0.2606	0.0686
					(–1.654)	(0.2764)
Borrower Oekom b1	-	-	-	-	0.0621	–0.0121

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					(0.197)	(–0.0342)
Borrower Oekom b2	-	-	-	-	0.0803	0.024
					(0.319)	(0.055)
Borrower Oekom b3	-	-	-	-	–0.0224	0.1832
					(–0.176)	(1.287)
Adjusted R-squared	55.11%	52.99%	56.57%	55.88%	56.02%	57.05%
Observations	118	119	118	119	118	119

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