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Do CSR performance and reporting facilitate access to debt financing in emerging markets? The role of asset structure and firm performance

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Do CSR performance and reporting facilitate access to debt financing in emerging markets? The role of asset structure and firm performance

Abstract

Purpose – Our aim in this study is to guide firms in emerging markets on whether corporate social responsibility (CSR) engagement facilitates their access to debt with the moderation of asset structure and firm performance. Considering our moderating effect analysis, we explore the substitutive or complementary effect of these two contingencies on CSR-oriented firms in accessing debt financing.

Design/methodology/approach – Drawing on data collected for 16 emerging markets between 2008 and 2019, we run country-industry-year fixed effects regression.

Findings – We find that CSR performance and reporting facilitate access to debt in emerging markets. However, CSR performance does not have an inverted U-shaped influence on firms' access to debt financing. Our moderation analysis shows that asset tangibility has a negative moderating effect on the link between CSR engagements (i.e., both CSR performance and reporting) and access to debt, confirming a substitutive relationship between asset tangibility and CSR engagements in accessing debt. In contrast, firm performance positively moderates the nexus between CSR engagement proxies and access to debt, which confirms a complementary type of relationship between firm performance and CSR engagement in accessing debt.

Originality – Emerging countries are a different set of countries than developed ones; they have high growth rates and hence need financing, have a weaker institutional environment, and have weaker stakeholder power. These particularities motivated us to conduct a separate study focusing on CSR and debt financing links, drawing on a wide range of emerging countries. Thus, our study adds to the ongoing debate by examining the conditions under which CSR-oriented firms can access debt financing in emerging economies.

Practical implications – Our empirical evidence implies that creditors critically consider the CSR engagements of firms in the loan-granting decision process. Similarly, the inverted U-shaped relationship between CSR and access to debt implies that there is an optimal level of CSR engagement that creditors might consider in their decisions. Likewise, the moderating effects analysis highlights that asset tangibility and firm performance are two conditions under which CSR performance and reporting are linked to access to debt.

Keywords: CSR performance, CSR report, access to debt, asset tangibility, firm performance, emerging markets.

1. Introduction

As powerful stakeholders, such as creditors and lenders, increasingly prioritise meeting various corporate social responsibility (CSR) criteria, firms worldwide have begun considering CSR engagements as strategic competitive advantages that fulfil stakeholders' expectations and secure their support (Bansal, 2022; Jo and Harjoto, 2011; Jones, 1995). The United Nations (2016) conducted a study revealing that an overwhelming majority of international firm managers consider CSR as a top priority, with approximately 97% of them acknowledging its significant role in their firms' long-term success. For instance, over 50% of Fortune 1000 firms in the United States frequently issue CSR reports, and around 10% of investments in the country are screened for adherence to CSR-related standards (El Ghoul et al., 2011; Galema et al., 2008; Hamrouni et al., 2019). One strategic goal of firms engaging in CSR activities is to gain access to debt financing (Gerged et al., 2021; Oware and Mallikarjunappa, 2020; Oware et al., 2022).

However, firms must demonstrate their creditworthiness to instil confidence in funders. It is widely argued that undertaking and reporting CSR activities can help firms establish trustworthiness in the eyes of lenders (Bhuiyan & Nguyen, 2019; Hmaittane et al., 2019; Xu et al., 2020; Yu and Garg, 2022), which has implications for their liquidity position (Gerged et al., 2022) and access to debt financing. Empirical evidence suggests that firms' engagement with CSR/sustainability reporting leads to improved access to finance (Cheng et al., 2014) and enhanced financial performance (Bansal et al., 2021) due to reduced information asymmetry and agency costs, as well as enhanced stakeholder engagement.

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Despite these findings, existing studies have certain limitations. Firstly, current literature primarily examines the CSR-debt financing relationship from either the perspective of CSR reporting (disclosure) (e.g., Cheng et al., 2014; Hamrouni et al., 2019; Kansal et al., 2014) or CSR performance (e.g., Buallay, 2019; El Ghoul et al., 2011; Oware & Mallikarjunappa, 2020; Xu et al., 2020). For example, Bansal et al. (2021) were confined to examining the impact of CSR/sustainability reporting *only* on firm value. Therefore, a comprehensive study considering the role of both types of CSR engagement in assessing debt is needed. Secondly, the majority of existing research on CSR-to-corporate financing-related studies focuses more on developed economies (Bhuiyan & Nguyen, 2019; Buallay, 2019; El Ghoul et al., 2011; Galema et al., 2008; Hamrouni et al., 2019) rather than developing countries (Oware & Mallikarjunappa, 2020 Bansal & Kumar, 2021), often limited to single-country settings (Grabinska et al., 2021; Ye and Zhang, 2011), such as India in the case of Bansal (2022). Emerging (developing) countries differ from developed ones, characterised by high growth rates, the need for financing, weaker institutional environments, and lower stakeholder power. These distinctions motivate a separate study focused on the link between CSR and debt financing, drawing on a wide range of emerging countries.

Thirdly, existing research on the impact of different CSR engagements on debt financing has yielded mixed findings (Cheng et al., 2014; Tan et al., 2020; Xu et al., 2020; Ye and Zhang, 2011), indicating the potential influence of other contingent factors not accounted for in prior studies. Consequently, the literature has called for future researchers to consider the role of asset structure (tangibility) and financial performance (profitability) in the CSR-debt nexus, as they may help firms strike a balance between

"soft" and "hard" asset formation to secure external finance (Hall, 2012; Osazuwa & Che-Ahmad, 2016).

Therefore, this article adds to the ongoing debate by presenting empirical evidence on two specific mechanisms, namely asset structure and financial performance, through which firms can leverage CSR reporting (talk) and performance (walk) to enhance their access to debt in a variety of emerging economies. Utilising a sample of 5,750 firm-year observations across 16 emerging markets from 2008 to 2019, we employ a country-industry-year fixed effects model to examine the linear and non-linear association between CSR engagements (CSR reporting and CSR performance) and firms' access to debt while also considering the moderating role of asset structure and financial performance. To address potential endogeneity issues, we supplement our analysis with a two-stage least squares (2SLS) model. Our empirical findings indicate that firms' engagement in CSR performance and CSR reporting can facilitate their access to debt in emerging markets. Contrary to expectations, we find no evidence of an inverted U-shaped relationship between CSR performance and firms' access to debt in developing economies. Nevertheless, our robustness checks reveal an inverted U-shaped relationship between CSR and firms' access to debt. Similarly, asset tangibility negatively moderates the link between both proxies of CSR engagements (CSR performance and CSR reporting) and access to debt, confirming a substitutive (trade-off) relationship between asset tangibility and CSR engagements in accessing debt. Furthermore, firms' financial performance positively moderates the association between CSR performance and reporting on one hand and access to debt on the other, confirming a complementary

(synergy) relationship between financial performance and various CSR engagements in accessing debt.

By conducting this study, our contribution to the existing literature is multi-fold. First, our research complements the current body of knowledge on CSR (e.g., Buallay, 2019; Cheng et al., 2014; El Ghoul et al., 2011; Hamrouni et al., 2019; Kansal et al., 2014; Oware & Mallikarjunappa, 2020; Xu et al., 2020; Gerged et al., 2021) by examining *both* CSR disclosure and performance as crucial factors in obtaining debt. Second, our study expands upon previous research that mainly focused on developed economies in investigating the relationship between CSR and debt (Bhuiyan & Nguyen, 2019; Buallay, 2019; El Ghoul et al., 2011; Galema et al., 2008; Hamrouni et al., 2019). We provide new empirical evidence of this link in developing countries, which have a different setting than developed ones, characterised by a poor institutional environment, weaker stakeholder power, but stronger external financing needs.

Third, we deepen the investigation by examining the possible quadratic relationship between CSR and access to debt financing since CSR commitment may facilitate access to debt up to a certain point beyond which aggressive CSR endeavours may hinder access to debt. This is because creditors may consider excessive CSR engagements as a sign of managerial opportunism (Bu et al., 2021). Fourth, we enhance the existing CSR-to-debt financing research by shedding light on contingent factors that were not adequately addressed in earlier studies (Cheng et al., 2014; Tan et al., 2020; Xu et al., 2020; Ye and Zhang, 2011). Specifically, we investigate the role of asset structure (tangibility) and financial performance (profitability) in the CSR-debt relationship.

These factors help firms strike a balance between "soft" and "hard" asset formation to secure external finance (Hall, 2012; Osazuwa & Che-Ahmad, 2016).

The remainder of the paper is organised as follows. Section 2 shows the theoretical background and hypotheses; section 3 explains the research methodology. Section 4 presents and discusses the empirical results, while section 5 provides the discussion and conclusion and suggests key implications for emerging market firms.

2. Theoretical background and hypotheses

2.1. The link between CSR implementations and debt financing

Our research contends that the adoption of CSR strategies can effectively lead to decreased capital constraints for firms. This is achieved through two complementary mechanisms (Cheng et al., 2014). Firstly, CSR performance demonstrates a firm's dedication and involvement with influential stakeholders, fostering productive cooperation and mutual trust (Gerged et al., 2023). As a result, this reduces agency and transaction costs (Jones, 1995), which include expenses related to bonding, monitoring, warranty, search, and residual losses. Additionally, superior engagement with stakeholders through CSR activities can enhance revenue generation and contribute to sustained profitability (Choi and Wang, 2009). This is achieved by fostering improved relationships among employees, business partners, and customers, ultimately enhancing customer interactions and facilitating the development of new products. In other words, meeting stakeholder expectations through various CSR strategies directly decreases the likelihood of opportunistic managerial behaviour in the short term (Bénabou & Tirole, 2010), such as earning management (Bansal & Kumar, 2021). Furthermore, it represents

a more effective means of contracting with influential stakeholders, which can lead to improved profit generation and subsequent market rewards (Jones, 1995). Consequently, the adoption and implementation of CSR strategies by firms can effectively reduce agency costs and informational asymmetries, resulting in a less steep supply curve for debt (funds) (Cheng et al., 2014). As a result, improved access to funds through CSR implementations is expected to alleviate capital constraints and positively influence the capital structure choices of corporations (Hennessy & Whited, 2007).

Secondly, prior research indicates that firms focused on CSR are more likely to disclose their CSR strategies through sustainability-related reports (Bansal et al., 2021; Dhaliwal et al., 2011). Consequently, CSR reporting enhances corporate transparency regarding the social and environmental impacts of firms. This increased transparency may lead to significant changes in internal control systems, thereby promoting adherence to disclosure-related regulations (Simnett et al., 2009). As a result, in addition to financial reporting, the availability of credible information regarding a firm's CSR engagements is anticipated to reduce the information gap and alleviate capital constraints (Hubbard, 1998). Therefore, the first hypothesis to be tested in this study is as follows:

> *H1*: (a) CSR performance and (b) CSR reporting have a positive association with access to debt financing in emerging markets.

Hennessy and Whited (2007) propose a departure from the conventional neoclassical economics perspective by asserting that the supply curve for funds is not flat but upward-sloping beyond a firm's net worth. This deviation is attributed to market imperfections, such as agency costs (Bernanke & Gertler, 1990) and informational asymmetries (Myers & Majluf, 1984). Essentially, when the likelihood of agency costs is

higher, particularly due to a firm's limited commitment to CSR, and the required capital for investments surpasses its net value, creditors demand higher returns to compensate for their information and monitoring expenses. As a result, a firm with lower CSR engagement experiences a steeper supply curve for funds and incurs higher external financing costs (Cheng et al., 2014).

Nonetheless, contrary to this viewpoint, which finds support in various previous studies (e.g., Ferrell et al., 2016; Krüger, 2015; Zhou, 2022), we contend that CSR performance might not consistently achieve its intended objectives. Executives may go beyond the optimal level of CSR engagement and excessively prioritise it to bolster their reputation, potentially to the detriment of shareholders (Barbu et al., 2022; Masulis and Reza, 2015). In this context, excessive CSR activities could be perceived by creditors and other important stakeholders as a manifestation of managerial opportunism (Bu et al., 2021). Consequently, we argue that while CSR initiatives facilitate access to debt up to a certain point of optimal CSR performance, beyond that threshold, aggressive and exaggerated CSR endeavours may hinder access to debt. Thus, the second hypothesis to be examined in this study is as follows:

H_2: CSR performance has an inverted-U-shaped association with access to debt financing in emerging markets.

2.2. The moderating role of assets structure and financial performance

Previous research has established connections between creditors' rights and the structure of a company's capital, as well the relationship between measures of tangible assets and leverage (Hall, 2012; Haselmann et al., 2010; Weill & Godlewski, 2009). In

the context of developing economies, companies that actively issue stocks face more limitations on borrowing (Hall, 2012). However, there have been limited investigations into how the tangibility of assets, including property, plants, and equipment, can affect the debt financing of socially responsible firms in emerging markets (Haselmann et al., 2010; Hall, 2012). Put simply, the existing literature on emerging markets fails to examine the role of asset tangibility as a contingency factor in the relationship between CSR and debt. Our study aims to address this gap by providing evidence that asset tangibility acts as a specific mechanism through which CSR-oriented firms can access debt financing. We utilise asset tangibility as a measure of creditors' ability to seize tangible assets and convert them into liquid assets in the event of default.

Past evidence indicates that tangible assets are often pledged as collateral for loans, thereby facilitating access to debt in emerging market contexts (Giannetti, 2003; Hall & Jörgensen, 2008; Haselmann et al., 2010; Weill & Godlewski, 2009). This suggests that CSR engagements, which serve as a proxy for stakeholder support and low agency costs, and asset tangibility, which serves as a proxy for creditors' rights, can mutually enhance each other, reducing capital constraints and facilitating access to debt financing. However, some argue that the role of asset tangibility in facilitating access to debt financing varies across different institutional environments (Hall, 2012; Ramzan et al., 2021). This debate proposes that CSR may substitute for asset tangibility and, therefore, facilitate access to debt. Importantly, CSR activities may help build intangible assets, such as reputation, brand value, and customer trust and satisfaction, which are expected to facilitate a company's access to debt financing (Cheng et al., 2014). As a result, we divide the third hypothesis into two sub-hypotheses, reflecting two distinct theoretical

perspectives on the moderating influence of asset tangibility: the complementary hypothesis, suggesting a positive moderating impact, and the substitution hypothesis, indicating the opposite, as follows:

> **H_{3a}:** Asset tangibility positively moderates the link between (a) CSR performance and (b) reporting and access to debt financing in emerging markets.

> **H_{3b}**: Asset tangibility negatively moderates the association between (a) CSR performance and (b) reporting and access to debt financing in emerging markets.

Firms that prioritise CSR can improve their ability to secure debt financing through various conditions, one of which is profitability. Choi and Wang (2009) propose that CSR-oriented firms tend to have stronger relationships with stakeholders, leading to increased revenue generation and higher levels of profitability. Building upon existing literature, we contend that creditors typically view favourable firm performance as advantageous when granting loans (Campello, 2006; Shivakumar, 2013). Therefore, we anticipate that firm performance plays a positive moderating role in the relationship between CSR and debt financing. Specifically, we hypothesise that CSR and financial performance act as complementary factors that enhance a firm's position in obtaining debt from creditors. Consequently, the fourth hypothesis to be examined in this study can be stated as follows:

> **H_4**: Firm performance positively moderates the link between (a) CSR performance and (b) reporting and access to debt financing in emerging markets.

3. Research methodology

The research variables, detailed sample description with its distributions, univariate analysis of the research variables, correlation analysis, baseline analyses including country-industry-year fixed-effects (FE) regression analysis, and the moderation analysis along with the robustness checks are thoroughly covered in this section.

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3.1. Variables

We measure access to debt with two sets of leverage ratios, namely industry-adjusted debt ratios (DebtR1-adj and DebtR2-adj) and raw debt ratios (DebtR1 and DebtR2). The debt ratios could change as a result of industry-specific factors; hence, industry-adjusted variables alleviate this concern (Ghosh & Jain, 2000; Kim et al., 2007; González, 2013). The industry-adjusted proxies are calculated by the difference between the firm's debt ratio and the median debt ratio of the firms in the same industry in the same year. While DebtR1 is proxied by the total debt to total assets ratio, DebtR2 is proxied by the total long-term debt to total assets ratio, of which the former is adopted in the baseline analyses, and the latter is adopted in the robustness tests.

We use three proxies for CSR performance, namely environmental performance (ENVpillar), social performance (SOCpillar), and their mean (CSR), by equally weighing each pillar following the past literature (Ghoul et al., 2017; Gangi et al., 2020). While CSR is used in the baseline analyses, ENVpillar and SOCpillar are used in the robustness tests. ENVpillar assesses a company's impact on non-living and living ecosystems, avoidance of environmental risks, and generating shareholder value by leveraging environmental opportunities. SOCpillar assesses a company's ability to foster trust and loyalty with its workforce, customers and society via best managerial practices. The three CSR proxies range from 0 to 100. Besides, CSR report existence (CSRreport) is measured with a binary variable indicating one for report existence and zero for non-existence (Uyar et al., 2021).

Furthermore, we use asset tangibility (Tangibility) and firm performance as moderators between CSR engagement and reporting and access to debt. While Tangibility is proxied by the ratio of net property, plant and equipment to total assets, firm performance is proxied by the return on assets (ROA) calculated by the ratio of earnings before interest and tax to total assets (Clausen & Hirth, 2016; Margaritis & Psillaki, 2010).

Finally, following prior studies (Gerwanski, 2020; La Rosa et al., 2018), we control firm-level and country-level factors that are likely to affect the debt ratios of firms. Among firm-level controls, board size (Boardsize), board independence (Boardindep), firm size (Firmsize), return on assets (ROA), current ratio (Currentratio), firm risk (Firmrisk), free float (Freefloat) and agency cost (Agencycost) are included. From the creditor's perspective, the integrity of the financial accounting and reporting process is one of the critical elements that is ensured by the board of directors (Anderson et al., 2004). Larger firms may have easier access to debt (Doukas and Pantzalis, 2003; Elert et al., 2022), and liquidity and financial distress play a role in debt financing and covenants (Cai et al., 2008; Graham et al., 2008). Agency cost (Ugur et al., 2022) and ownership structure (Hernández-Cánovas et al., 2016) have capital structure implications. Among country-level controls, Word Governance Indicators (WGI) based on the average of six public governance quality indicators, regulation of securities exchange (MREG), and financial market development (FSDEV) are used. These institutional characteristics might influence credit availability and financial institutions' functioning, which eventually affect the debt ratios of firms. While the data for all firm-level variables (dependent, test, and control variables) were retrieved from the Thomson Reuters Eikon database, WGI data were fetched from the World Bank (2021), and MREG and FSDEV data were retrieved

from the Global Competitiveness Index issued by the World Economic Forum (2018). All variables are presented and defined in Table 1.

INSERT TABLE 1 HERE

3.2. Sample

The sample covers the observations between 2008 and 2019 associated with 16 emerging markets and nine major sectors presented in the Thomson Reuters Eikon/Refinitiv (formerly Asset4) database. The sample period started with 2018 since there was a very low number of observations before 2008 in the data set and ended with 2019, for which the latest data was available. Following the retrieval of the raw data, the research sample is subject to data preprocessing steps since it is crucial to purify the research data set before testing the research models (Hair et al., 2019). First, the raw data set is cleaned and transformed into a software environment by preparing it for forthcoming analyses. From the initial sample size of 59,201 observations, we excluded 13,333 observations from the financial sector, 5,631 observations before 2008, 34,372 observations from the non-emerging countries, 19 significant outliers, and 96 observations from Egypt, Hungary, and the United Arab Emirates[1]. A final sample of 5,750 records from emerging countries is left for further analysis[2].

The preliminary results of the descriptive statistics reveal that some of the research variables are heavily skewed; hence, DebtR1-adj, DebtR2-adj, DebtR1, Tangibility, Boardsize, ROA, Currentratio, Firmrisk, Freefloat, and Agencycost are subject to

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[1] These countries had less than 10 firms, that is why they are excluded.
[2] Please see Panel A in Table 2 for a detailed sampling process.

winsorisation. The indicated variables are winsorised at one percent of both tails by replacing the extreme values with the winsorised counterpart values (Cox, 2006).

Moreover, the research sample is examined for multivariate outliers. Toward this aim, the method of minimum covariance determinant-MCD that can robustify the Mahalanobis distance (Verardi & Dehon, 2010) is performed for checking the multivariate outliers. As a result, 19 significant multivariate outliers are detected and removed from the research sample.

Furthermore, the research data is subject to missing value analysis. According to the missing value analysis, the ratios of the missing values range between 0.03% and 1.41 %[3]. The ratios of the missing values are significantly less than 5%, which can be inconsequential (Schafer, 1999) and do not cause any estimation bias during the analysis (Bennett, 2001). Finally, although the ratios are significantly low and do not cause any estimation issues, the variables with the missing values are subject to the imputation phase by using the Markov Chain Monte Carlo- MCMC imputation approach.

Based on the country-level sampling distribution analysis, there are 16 emerging countries with 1,063 unique firms and 5,750 corresponding data points (Please see Table A1 in the Appendix section). Further sampling distributions are provided in Table 2. Accordingly, the sector-level sampling distribution indicates that the observations range between 4.54% (Technology) and 18.35 % (Basic Materials),[4] while the year-level

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[3] The ratios of the missing values are as follows: ENVpillar is 0.03%, SOCpillar is 0.03%, Firmsize is 0.17%, DebtR1-adj is 0.19%, DebtR1 is 0.19%, DebtR2-adj is 0.23%, Tangibility is 0.30%, Boardsize is 0.33%, Currentratio is 0.38%, Firmrisk is 0.40%, Boardindep is 0.50%, ROA is 0.63%, Agencycost is 0.87%, and Freefloat is 1.41%.
[4] Sector level sampling distribution shows Basic Materials account for 18.35% of the sample, Industrials -17.17%, Consumer Non-Cyclicals – 13.88%, Consumer Cyclicals 13.76%, Utilities – 10.43%, Energy – 10.24%, Telecommunications Services – 6.63%, Healthcare – 5.01%, and Technology – 4.54%.

sampling distribution reveals that the ratios range between 1.25% (2008) and 18.14% (2019).

INSERT TABLE 2 HERE

3.2. Research models and their formulations

The proposed research models incorporate linear as well as quadratic regression and moderation analysis approaches.

(i) Linear and Quadratic regression models: The research models and the formulation of the models are examined in detail. Country-Industry-Year fixed-effects (FE) regression analysis is utilised to test the research hypotheses to eliminate the risk of time-invariant endogeneity concerns (Feenstra et al., 2013; Nunn, 2007; Rjiba et al., 2020; Schons & Steinmeier, 2016). The fixed-effect regression analysis can alleviate the risk of multicollinearity (Baltagi, 2005) and estimation, as well as the omitted variable biases (Baltagi, 2005; Wooldridge, 2010). Moreover, the country, industry, and year effects approach allows us to capture the timer series and cross-sectional dimensions of the data (Singh et al., 2022) and to control the country, industry, and year-specific heterogeneity (Gujarati, 2014) by allowing each entity to have its intercept.

The baseline research models are formulated using the equation (1 & 2) below.

$$y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \varepsilon_i \qquad i= 1,\ldots,N \qquad (1).$$

Equation (1) tests the association between CSR and CSRreport and DebtR1-adj. The dependent variable is DebtR1-adj, which is denoted by the "y_i" term in equation (1). Moreover, the independent testing variables are CSR and CSRreport denoted by the "X_{1i}"

term. Also, the independent control variables are Boardsize, Boardindep, Firmsize, ROA, Currentratio, Firmrisk, Freefloat, Agencycost, Country effect, Industry effect, and Year effect, which are denoted by the "X_{2i}" term in equation (1).

Equation (2) tests the quadratic relationship between CSR and DebtR1-adj. Accordingly, the dependent variable is the same, DebtR1-adj (y_i), while the independent testing variable is CSR, denoted by the "X_{1i}" term in equation (2). Similarly, the control variables are the same as in equation (1), denoted by the "X_{2i}" term in equation (2).

$$y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{1i}^2 + \beta_3 X_{2i} + \varepsilon_i \qquad i= 1,\ldots,N \qquad (2).$$

(ii) Moderating roles

The baseline research models include moderation analysis as well. Thus, the moderation roles of Tangibility and ROA on the relationship of CSR and CSRreport with DebtR1-adj are formulated in equation (3) below. In equation (3), the dependent variable is DebtR1-adj, represented by the "y_i" term, and the independent testing variables are CSR and CSRreport, represented by the "X_{1i}" term. The moderating variables are Tangibility and ROA, represented by the "M_i" term. Finally, the independent control variables are the same as in equations (1) and (2), represented by the "X_{2i}" term.

$$y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 M_i + \beta_3 (x_{1i} * M_i) + \beta_4\, x_{2i} + \varepsilon_i \qquad i= 1,\ldots,N \qquad (3).$$

The term "ε_i" is the regular error term. In the Huber-White sandwich estimator (Huber, 1967; White, 1980), robust standard errors are reported in the regression analysis to control the risk of heteroscedasticity (Wooldridge, 2020)

3.3. Multicollinearity analysis

The multicollinearity risk is examined before running the proposed models to determine whether there is a significantly high correlation among the independent variables of the research models. The variance inflation factor (VIF) values are reported in Table A2 in the Appendix section. The results reveal that the VIF values range between 1.02 and 1.58, which are significantly smaller than the suggested threshold value of 10 (Neter et al., 1996; Kennedy, 2008; Hair et al., 2019). Therefore, there is no risk of multicollinearity among the independent variables of the research models.

4. Empirical Findings

4.1. Summary statistics

The descriptive statistics of the research variables are summarised in Table 3. Regarding the dependent variables, the results indicate that the means of DebtR1-adj, DebtR2-adj, and DebtR1 are .02, -.01, and .27, respectively. The mean values of the independent variables of interest are 37.95 for CSR, 34.78 for ENVpillar, and 41.12 for SOCpillar. Finally, the means of the moderating variables are .37 for Tangibility and .10 for ROA.

INSERT TABLE 3 HERE

4.2. Correlation analysis

The bivariate linear correlations analysis based on Pearson's correlation coefficients is reported in Table 4. The results show that the independent testing variables and the moderating variables, including CSR, ENVpillar, SOCpillar, CSRreport, and Tangibility, have a significant positive linear correlation with the industry-adjusted and raw debt

rations (DebtR1-adj, DebtR2-adj, and DebtR1)[5] while the other moderating variable, ROA, has a significant negative linear correlation with the raw and industry-adjusted debt ratios.

INSERT TABLE 4 HERE

4.3. Baseline analysis

The three models of baseline research models are examined using the linear and quadratic country-industry-year FE regression analysis (Table 5). The results show that the CSR and CSRreport have a significant positive relationship with DebtR1-adj (Table 5; Columns #2 and 3, respectively). The quadratic regression analysis results also indicate that CSR has a significant positive association with the DebtR1-adj, while the coefficient of the quadratic form of CSR is negative but non-significant (Table 5; Column #4). While these results support H1, they reject H2.

We find that CSR performance and reporting facilitate access to debt in emerging markets. This finding confirms prior studies' findings that found CSR facilitates access to debt financing in France (Hamrouni et al., 2019) and lowers the cost of capital in Australia (Bhuiyan & Nguyen, 2019) and the US (El Ghoul et al., 2011). Contrary to expectations, CSR performance does not have an inverted U-shaped relationship with access to debt. However, we found some evidence for an inverted U-shaped relationship between CSR and access to debt in the robustness tests[6]. This finding suggests that CSR performance might not always fulfil desired favourable outcomes as executives may excessively

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[5] Except CSRreport has no significant correlation with DebtR1-adj.
[6] Please see the robustness section.

engage in CSR activities beyond the optimal level to boost their personal reputation at the expense of shareholders (Barbu et al., 2022; Masulis and Reza, 2015). In this case, creditors may consider excessive CSR engagements as a sign of managerial opportunism (Bu et al., 2021), leading to a quadratic relationship between CSR and access to debt financing.

INSERT TABLE 5 HERE

Furthermore, moderation analyses are performed to examine the moderating roles of Tangibility and firm performance (ROA). First, the moderating role of Tangibility between the CSR and CSRreport and DebtR1-adj is examined (Table 6). The results reveal that the interaction variables, including *CSR*Tangibility* and *CSRreport*Tangibility,* have a significant negative association with DebtR1-adj. Thus, the findings confirm H3b but not H3a, which lends support for a substitutive relationship between asset tangibility and CSR performance and reporting in accessing debt. With this finding, we advance prior studies that found that tangible assets pledged as collateral against loans may facilitate access to debt in emerging settings (Giannetti, 2003; Hall & Jörgensen, 2008; Haselmann et al., 2010; Weill & Godlewski, 2009). Our evidence for the substitutive relationship between asset tangibility and CSR may encourage firms to build up soft assets via CSR, such as image, brand building, and customer trust and satisfaction, which, in return, facilitate firms' access to debt financing (Cheng et al., 2014).

INSERT TABLE 6 HERE

Second, the moderating role of ROA is reported in Table 7. The results reveal that the interaction variables *CSR*ROA* and *CSRreport*ROA* have a significant positive

relationship with DebtR1-adj, which confirms H4 and validates the complementary role of firm performance on the positive association between CSR and CSRreport and DebtR1-adj. The positive moderating effect between both CSR performance and reporting and access to debt confirms a complementary relationship between firm performance and CSR performance and reporting in accessing debt. This positive moderating effect might imply that higher financial performance may provide essential financial resources for CSR (Choi and Wang, 2009) and is considered favourable by creditors in loan-granting decisions as it increases firms' debt repayment ability (Campello, 2006; Shivakumar, 2013).

INSERT TABLE 7 HERE

4.4. Robustness tests

Additional tests are performed to check the consistency of the results with the initial baseline analyses. Accordingly, multiple further analyses are performed, including analyses with alternative, dependent variables, alternative testing variables, additional control variables, an alternative sample of BRICS[7] countries, and alternative methodologies such as 2SLS.

First, DebtR2-adj is included in the baseline research models with ordinary linear and quadratic models as the alternative dependent variable (Table 8). The results mainly confirm the baseline analysis results, except for the quadratic term (CSR^2), which is

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[7] Brazil, Russia, India, China, South Africa.

significantly negative in the robustness check. Thus, this provides the existence of the inverted U-shaped relationship between CSR and access to debt, confirming H2[8].

INSERT TABLE 8 HERE

Second, DebtR1 is utilised in the moderation analyses as the alternative dependent variable. In terms of the moderating role of Tangibility (Table 9), the interaction variable, *CSR*Tangibility*, is consistent with the baseline analysis, while the interaction variable, *CSRreport*Tangibility*, is weaker compared to the baseline moderation analysis. Regarding the moderating role of ROA, we found no differences between the baseline and the robustness test where the interacting variables are significantly positive (Table 10).

INSERT TABLE 9 HERE

INSERT TABLE 10 HERE

Third, ENVpillar and SOCpillar are included as the alternative, independent testing variables in the quadratic research models with DebtR1-adj and DebtR2-adj as the dependent variables (Table 11). The results are mostly consistent with the initial baseline analysis where ENVpillar and SOCpillar are significantly positive. However, the quadratic terms, including $ENVpillar^2$, have a significant negative association with DebtR2-adj, and $SOCpillar^2$ has a significant negative association with both DebtR1-adj and DebtR2-adj. These results also provide the existence of the inverted U-shaped relationship between CSR and access to debt, confirming H2.

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[8] This inverted U-shaped relationship was not supported in the baseline analysis.

INSERT TABLE 11 HERE

Fourth, WGI, MREG, and FSDEV are incorporated into the research models as additional country-level control variables. The linear and quadratic analysis results are consistent with the initial analysis results (Table 12). Also, the results of the moderating roles of Tangibility and ROA are in line with the results of the initial moderation analysis (Table 13 and Table 14).

INSERT TABLE 12 HERE

INSERT TABLE 13 HERE

INSERT TABLE 14 HERE

Fifth, an alternative sample including Brazil, Russia, India, China, and South Africa (BRICS) is generated. The baseline research models are subject to the new alternative sample with BRICS countries. Regarding the linear and quadratic models, while CSRreport in the linear model is consistent with the initial result, CSR in the linear model is non-significant, whereas the quadratic model supports an inverted U-shaped relationship (Table 15). Regarding the moderating role of Tangibility, only *CSR*Tangibility* is in line with the initial moderation analysis results (Table 16). In terms of the moderating role of ROA, the results are fully compatible with the initial moderation analysis results (Table 17).

INSERT TABLE 15 HERE

INSERT TABLE 16 HERE

INSERT TABLE 17 HERE

Finally, an alternative regression methodology is performed. Toward this aim, 2SLS regression analysis is used for the baseline research models to address the risk of endogeneity concern. The first stage, second stage, Durbin Wu-Hausman test of endogeneity, Overidentifying restriction test, and Weak instrument test are reported in Table 18. The results of the Durbin Wu-Hausman test of endogeneity reveal that there is no endogeneity risk (H0: The regressors are exogenous) in the research models (Davidson and MacKinnon, 1993). Accordingly, the baseline analysis results are used for interpretation and implication purposes. However, the results of the 2SLS regression analysis are consistent with the initial baseline analysis results where CSR and CSRreport are significantly positive. In the analysis of 2SLS, the CSR committee, the industry-level average of CSR excluding focal firms (CSR-ave), and the industry-level average of CSRreport excluding focal firms (CSRreport-ave) are used as the instrumental variables (Wang & Li, 2008; Murcia et al., 2021).

INSERT TABLE 18 HERE

5. Conclusions and implications

Our aim is to guide firms in emerging markets on whether CSR engagement and reporting facilitate their access to debt with the moderation effect of asset structure and firm performance. Emerging countries have a different setting than developed ones, characterised by high growth rates, a weaker institutional environment, and weaker stakeholder power. These particularities motivated us to conduct a separate study focusing on CSR and debt financing links, drawing on a wide range of emerging countries. With the moderators (i.e., asset tangibility and firm performance), the study determines whether there is a substitutive or complementary effect of these two channels on CSR

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engagement in accessing debt. Hence, we aim to suggest emerging market firms' implications for better access to debt financing via leveraging CSR and CSR reporting.

We find that CSR performance and reporting facilitate access to debt in emerging markets. Contrary to expectations, CSR performance does not have an inverted U-shaped relationship with access to debt. However, we found some evidence for an inverted U-shaped relationship between CSR and access to debt in the robustness tests. Furthermore, asset tangibility has a negative moderating effect between both CSR performance and reporting and access to debt, which confirms a substitutive relationship between asset tangibility and CSR performance and reporting in accessing debt. Finally, firm performance has a positive moderating effect between both CSR performance and reporting and access to debt, which confirms a complementary relationship between firm performance and CSR performance and reporting in accessing debt.

The study suggests theoretical and practical implications for firms affiliated with emerging countries. The results imply that firms' adoption and implementation of CSR strategies reduce agency costs and informational asymmetries between firms and creditors. Hence, CSR implementations and disclosure lower firms' capital constraints and influence the capital structure choices of the corporations. In addition, the synergy hypothesis was rejected, but the trade-off hypothesis is accepted concerning asset tangibility's moderating role, which may help firms establish a balance between "soft" and "hard" asset formation to reach out to external finance.

Practical implications suggest that the positive and significant results for both CSR performance and reporting imply that they meet creditors' expectations and play a role in

debt contracting. While CSR performance shows firms' sincerity and commitment to resolving environmental and social issues, CSR reporting fosters the legitimacy of the firm in society with successful communication. Although the baseline analysis did not support an inverted U-shaped relationship between CSR and access to debt, robustness tests confirmed its existence. This implies that there could be an optimal CSR engagement point creditors might consider, and beyond that point, CSR engagement might weaken firms' access to debt. This could be because creditors might assume that excessive CSR commitment may hurt firms' debt repayment ability and may cause some agency costs. Excessive environmental and social engagement may impose tension on firms' financial resources, creating difficulty in meeting the financial obligations of firms toward creditors.

Moderating effects also bear important implications. While CSR may help to build up soft assets such as image, brand building, and customer trust and satisfaction, tangible asset infrastructure is necessary for the maintenance of operations. Creditors consider CSR and asset tangibility as substitutes, which may motivate firms without many available tangible assets to continue CSR engagement. This finding may help emerging market firms overcome barriers to accessing debt more easily, as well as motivate them for greater CSR engagement and reporting. Besides, creditors consider firm performance while integrating CSR into their decision-making since financial performance ensures necessary internal funds for CSR engagement as well as strengthens firms' debt repayment and interest payment capacity.

Considering the study's particular sampling, the findings guide emerging market firms to better leverage CSR engagement and reporting for more easily accessing debt

financing and accessing debt in more favourable conditions. Given that creditors are relatively less studied stakeholder parties compared to other parties such as shareholders, our study highlights debt contracting implications of CSR implementations beyond intensively studied market value implications. As emerging market firms are more in need of external financing necessary for expansion, the findings outline that they may have access to debt without sacrificing stakeholders' expectations.

The study poses several limitations. First, the findings are peculiar to emerging markets and hence may not be valid in other contexts as emerging markets have differing characteristics than developed markets, such as high growth rates and weak institutions. Second, the sample period excludes the years before 2008 due to the low number of observations prior to 2008. Third, CSR reporting is measured by a binary variable and hence does not assess the reporting extent or quality due to the data availability. This limitation suggests potential future research focusing on the content analysis and quality of CSR reports via content analysis and debt financing relationship. Besides, whether CSR reports assured by a third party facilitate access to debt or not could be a question of future research, too. Future studies could expand the current study in testing more internal and external contingencies' moderations. Internal contingencies might involve firm governance structure and composition, whereas external contingencies might consider financial sector development, political stability, and public and market regulatory environments. Such an investigation may help explore whether internal contingencies or external mechanisms may better help firms leverage CSR reports for debt financing.

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Table 1: Variables

Variable	Definitions
DebtR1	Total debt to total assets ratio.
DebtR2	Total long-term debt to total assets ratio.
DebtR1-adj	The difference between the firm's DebtR1 and the median DebtR1 of the firms in the same industry in the same year.
DebtR2-adj	The difference between the firm's DebtR2 and the median DebtR2 of the firms in the same industry in the same year.
CSR	Mean of environmental and social performance ranges from 0 to 100.
ENVpillar	The environmental performance indicates a company's impact on non-living and living natural systems, including water, land, and air, as well as complete ecosystems. It shows how well a firm uses best managerial practices to prevent environmental risks and capitalise on environmental opportunities to generate long-term value for shareholder value. Environmental performance, including emissions, resource consumption, and eco-innovation dimensions, ranges from 0 to 100.
SOCpillar	Social performance indicates a company's ability to foster trust and loyalty with its workforce, customers and society via best managerial practices. It includes workforce, human rights, product responsibility, and community development dimensions and ranges from 0 to 100.
CSRreport	CSR report existence is measured with a binary variable indicating one for report existence and zero for non-existence.
Tangibility	The ratio of net property, plant and equipment to total assets.
Boardsize	Number of board members.
Boardindep	The proportion of non-executive board members within total board members.
Firmsize	Natural logarithm of total assets.
ROA	Earnings before interest and tax to total assets.
Currentratio	Total current assets to total current liabilities.
Firmrisk	Firm risk is calculated based on the ZFS score as calculated below: $$ZFS\ (Zmijewski, 1984) =$$ $$= -4.336 - 4.513\ \frac{Net\ income\ after\ tax}{Total\ assets} + 5.679\ \frac{Total\ debt}{Total\ assets}$$ $$- 0.004\ \frac{Total\ current\ assets}{Total\ current\ liabilities}$$
Freefloat	Free float percentage of shares in the ownership structure.
Agencycost	Total operating expenses scaled by net sales.
WGI	Word governance indicators are based on the average of the following six public governance quality indicators: voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, the rule of law, and control of corruption. These six indicators and the WGI composite indicator range from -2.5 to 2.5.
MREG	Regulation of securities exchange measures to what extent regulators ensure the stability of the financial market [1 = not at all; 7 = to a great extent].
FSDEV	Financial market development captures different aspects of financial sector development, such as availability and affordability of financial services, financing through the local equity market, and ease of access to loans [1 = not at all; 7 = to a great extent].
CSRcommittee	CSR committee existence is measured with a binary variable indicating one for committee existence and zero for non-existence.

Table 2: Sample

Panel A:

Initial sample	59,201
(-) Financial sector	13,333
(-) Before 2008	5,631
(-) Non-emerging countries	34,372
(-) Outliers	19
(-) Egypt, Hungary, and the United Arab Emirates, with less than 10 firms	96
Final Sample	5,750

Panel B:

Variable	Category	Freq.	Percent
Emerging markets	Argentina	112	1.95
	Brazil	589	10.24
	Chile	228	3.97
	China	1,138	19.79
	Colombia	79	1.37
	India	737	12.82
	Indonesia	268	4.66
	Malaysia	405	7.04
	Mexico	272	4.73
	Philippines	140	2.43
	Poland	185	3.22
	Russia	319	5.55
	Saudi Arabia	82	1.43
	South Africa	760	13.22
	Thailand	244	4.24
	Turkey	192	3.34
	Total	5,750	100.00
Sector	Basic Materials	1,055	18.35
	Consumer Cyclicals	791	13.76
	Consumer Non-Cyclicals	798	13.88
	Energy	589	10.24
	Healthcare	288	5.01
	Industrials	987	17.17
	Technology	261	4.54
	Telecommunications Services	381	6.63
	Utilities	600	10.43
	Total	5,750	100.00
Year	2008	72	1.25
	2009	152	2.64
	2010	266	4.63
	2011	366	6.37
	2012	423	7.36
	2013	446	7.76
	2014	479	8.33
	2015	505	8.78
	2016	533	9.27
	2017	680	11.83
	2018	785	13.65
	2019	1043	18.14
	Total	5,750	100.00

Table 3: Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
DebtR1-adj	5,750	0.02	0.17	-0.41	0.63
DebtR2-adj	5,750	-0.01	0.14	-0.33	0.57
DebtR1	5,750	0.27	0.18	0.00	0.83
CSR	5,750	37.95	23.46	0.11	93.90
ENVpillar	5,750	34.78	24.96	0.00	97.26
SOCpillar	5,750	41.12	25.13	0.21	97.33
CSRreport	5,750	0.73	0.44	0.00	1.00
Tangibility	5,750	0.37	0.22	0.00	0.92
Boardsize	5,750	10.70	3.44	4.00	21.00
Boardindep	5,750	75.88	15.15	20.00	100.00
Firmsize	5,750	22.31	1.40	16.81	26.74
ROA	5,750	0.10	0.08	-0.37	0.36
Currentratio	5,750	1.71	1.33	0.25	12.90
Firmrisk	5,750	-3.11	1.20	-5.42	0.82
Freefloat	5,750	49.99	25.81	0.00	100.00
Agencycost	5,750	-0.18	0.50	-1.28	0.89

Table 4: Correlation analysis

	Variables	1	2	3	4	5	6	7	8
1	DebtR1-adj	1							
2	DebtR2-adj	0.840*	1						
3	DebtR1	0.949*	0.801*	1					
4	CSR	0.050*	0.133*	0.060*	1				
5	ENVpillar	0.066*	0.121*	0.073*	0.936*	1			
6	SOCpillar	0.028*	0.128*	0.040*	0.937*	0.756*	1		
7	CSRreport	0.019	0.079*	0.037*	0.596*	0.554*	0.562*	1	
8	Tangibility	0.121*	0.183*	0.209*	0.123*	0.129*	0.102*	0.110*	1
9	Boardsize	0.080*	0.110*	0.095*	0.213*	0.219*	0.179*	0.113*	0.098*
10	Boardindep	-0.053*	0.019	0.006	0.140*	0.090*	0.172*	0.060*	0.126*
11	Firmsize	0.200*	0.194*	0.264*	0.201*	0.264*	0.112*	0.142*	0.246*
12	ROA	-0.277*	-0.174*	-0.305*	0.058*	0.012	0.096*	0.01	-0.023
13	Currentratio	-0.305*	-0.144*	-0.364*	-0.089*	-0.093*	-0.073*	-0.088*	-0.163*
14	Firmrisk	0.902*	0.752*	0.955*	0.050*	0.071*	0.024	0.036*	0.202*
15	Freefloat	-0.001	0.038*	-0.049*	0.060*	0.024	0.089*	0.025	-0.152*
16	Agencycost	-0.023	-0.089*	-0.064*	0.062*	0.082*	0.035*	0.072*	0.040*

	Variables	9	10	11	12	13	14	15	16
9	Boardsize	1							
10	Boardindep	-0.016	1						
11	Firmsize	0.243*	0.017	1					
12	ROA	-0.075*	0.031*	-0.226*	1				
13	Currentratio	-0.127*	-0.033*	-0.209*	0.185*	1			
14	Firmrisk	0.105*	0.01	0.278*	-0.499*	-0.379*	1		
15	Freefloat	0.091*	-0.022	-0.209*	-0.009	0.031*	-0.025	1	
16	Agencycost	0.107*	-0.115*	0.117*	-0.151*	-0.130*	-0.007	-0.027*	1

*$p<0.05$

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Baseline

Table 5: Country-Industry-Year FE regression analysis

Independent variables	(1) DebtR1-adj	(2) DebtR1-adj	(3) DebtR1-adj	(4) DebtR1-adj
CSR		0.000069**		0.00020**
		(2.37)		(2.25)
CSRreport			0.0030**	
			(2.25)	
CSR^2				-0.0000016
				(-1.57)
Boardsize	-0.000034	-0.000094	-0.000062	-0.000092
	(-0.18)	(-0.49)	(-0.33)	(-0.48)
Boardindep	-0.000096**	-0.00011**	-0.00010**	-0.00011***
	(-2.30)	(-2.54)	(-2.42)	(-2.62)
Firmsize	0.0021***	0.0017***	0.0018***	0.0016***
	(4.11)	(3.07)	(3.48)	(3.04)
ROA	0.49***	0.48***	0.48***	0.48***
	(60.07)	(59.29)	(59.85)	(59.32)
Currentratio	-0.00036	-0.00028	-0.00029	-0.00026
	(-0.80)	(-0.60)	(-0.64)	(-0.58)
Firmrisk	0.16***	0.16***	0.16***	0.16***
	(271.79)	(271.85)	(271.77)	(271.42)
Freefloat	-0.0000017	-0.00000095	-0.00000069	0.00000089
	(-0.07)	(-0.04)	(-0.03)	(0.04)
Agencycost	-0.012***	-0.012***	-0.013***	-0.012***
	(-9.22)	(-9.27)	(-9.32)	(-9.22)
Constant	0.41***	0.42***	0.41***	0.42***
	(30.59)	(29.92)	(30.40)	(29.79)
Country effect	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
N	5750	5750	5750	5750
R^2	0.95	0.95	0.95	0.95
F-stat.	2424.23***	2369.91***	2369.66***	2316.69***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Moderating role of Tangibility

Independent variables	(1) DebtR1-adj	(2) DebtR1-adj
CSR	0.00018***	
	(3.79)	
Tangibility	0.014***	0.011**
	(2.89)	(2.14)
CSR*Tangibility	-0.00033***	
	(-3.00)	
CSRreport		0.0067***
		(2.94)
CSRreport*Tangibility		-0.011**
		(-2.03)
Boardsize	-0.00010	-0.000061
	(-0.53)	(-0.32)
Boardindep	-0.00011**	-0.000098**
	(-2.55)	(-2.35)
Firmsize	0.0017***	0.0018***
	(3.18)	(3.44)
ROA	0.48***	0.48***
	(58.94)	(59.57)
Currentratio	-0.00019	-0.00019
	(-0.41)	(-0.42)
Firmrisk	0.16***	0.16***
	(267.07)	(268.52)
Freefloat	0.0000014	0.00000018
	(0.06)	(0.01)
Agencycost	-0.012***	-0.013***
	(-9.22)	(-9.28)
Constant	0.41***	0.41***
	(28.90)	(29.60)
Country effect	Yes	Yes
Industry effect	Yes	Yes
Year effect	Yes	Yes
N	5,750	5,750
R^2	0.95	0.95
F-stat.	2267.83***	2265.59***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Moderating role of ROA

Independent variables	(1) DebtR1-adj	(2) DebtR1-adj
CSR	-0.00012***	
	(-2.88)	
ROA	0.42***	0.45***
	(34.29)	(37.20)
CSR*ROA	0.0017***	
	(6.62)	
CSRreport		-0.0020
		(-1.07)
CSRreport*ROA		0.053***
		(3.89)
Boardsize	-0.000033	-0.000052
	(-0.17)	(-0.27)
Boardindep	-0.00010**	-0.000099**
	(-2.44)	(-2.36)
Firmsize	0.0019***	0.0019***
	(3.50)	(3.72)
Currentratio	-0.00020	-0.00021
	(-0.44)	(-0.46)
Firmrisk	0.16***	0.16***
	(272.88)	(271.85)
Freefloat	0.000012	0.0000021
	(0.49)	(0.09)
Agencycost	-0.013***	-0.013***
	(-9.40)	(-9.34)
Constant	0.42***	0.41***
	(29.96)	(30.42)
Country effect	Yes	Yes
Industry effect	Yes	Yes
Year effect	Yes	Yes
N	5,750	5,750
R^2	0.95	0.95
F-stat.	2334.42***	2321.88***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Robustness

Table 8: DebtR2-adj as an alternative dependent variable (Table 5)

Independent variables	(1) DebtR2-adj	(2) DebtR2-adj	(3) DebtR2-adj
CSR	0.00019*** (3.59)		0.00099*** (6.01)
CSRreport		0.013*** (5.32)	
CSR^2			-0.0000097*** (-5.12)
Boardsize	0.00072** (2.04)	0.00077** (2.19)	0.00073** (2.08)
Boardindep	0.000095 (1.22)	0.00010 (1.33)	0.000075 (0.97)
Firmsize	0.012*** (11.70)	0.012*** (12.14)	0.012*** (11.63)
ROA	0.43*** (28.81)	0.44*** (29.19)	0.44*** (29.03)
Currentratio	0.014*** (15.95)	0.014*** (16.06)	0.014*** (16.06)
Firmrisk	0.11*** (106.55)	0.11*** (106.76)	0.11*** (106.36)
Freefloat	0.000076* (1.72)	0.000078* (1.77)	0.000087** (1.97)
Agencycost	-0.024*** (-9.64)	-0.024*** (-9.83)	-0.024*** (-9.50)
Constant	-0.023 (-0.89)	-0.023 (-0.90)	-0.030 (-1.17)
Country effect	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes
Year effect	Yes	Yes	Yes
N	5,750	5,750	5,750
R^2	0.74	0.74	0.74
F-stat.	373.90***	375.28***	367.61***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: DebtR1 as an alternative dependent variable (Table 6)

Independent variable	(1) DebtR1	(2) DebtR1
CSR	0.00013***	
	(2.86)	
Tangibility	0.012**	0.0078*
	(2.52)	(1.65)
CSR*Tangibility	-0.00027***	
	(-2.62)	
CSRreport		0.0047**
		(2.18)
CSRreport*Tangibility		-0.0078
		(-1.54)
Boardsize	-0.00015	-0.00013
	(-0.81)	(-0.72)
Boardindep	-0.00011***	-0.00011***
	(-2.82)	(-2.72)
Firmsize	0.0020***	0.0019***
	(3.82)	(3.89)
ROA	0.47***	0.48***
	(61.58)	(62.12)
Currentratio	-0.00036	-0.00036
	(-0.84)	(-0.82)
Firmrisk	0.16***	0.16***
	(284.20)	(285.75)
Freefloat	-0.000014	-0.000015
	(-0.63)	(-0.67)
Agencycost	-0.011***	-0.011***
	(-8.64)	(-8.70)
Constant	0.66***	0.66***
	(49.12)	(50.57)
Country effect	Yes	Yes
Industry effect	Yes	Yes
Year effect	Yes	Yes
N	5,750	5,750
R^2	0.96	0.96
F-stat.	2711.93***	2710.15***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: DebtR1 as an alternative dependent variable (Table 7)

Independent variables	(1) DebtR1	(2) DebtR1
CSR	-0.00017***	
	(-4.37)	
ROA	0.41***	0.44***
	(35.31)	(38.81)
CSR*ROA	0.0018***	
	(7.65)	
CSRreport		-0.0028
		(-1.62)
CSRreport*ROA		0.052***
		(4.04)
Boardsize	-0.000074	-0.00012
	(-0.41)	(-0.66)
Boardindep	-0.00011***	-0.00011***
	(-2.69)	(-2.71)
Firmsize	0.0022***	0.0021***
	(4.24)	(4.18)
Currentratio	-0.00035	-0.00035
	(-0.82)	(-0.81)
Firmrisk	0.16***	0.16***
	(290.73)	(289.35)
Freefloat	-0.0000023	-0.000013
	(-0.10)	(-0.58)
Agencycost	-0.011***	-0.011***
	(-8.84)	(-8.75)
Constant	0.66***	0.66***
	(50.57)	(51.64)
Country effect	Yes	Yes
Industry effect	Yes	Yes
Year effect	Yes	Yes
N	5,750	5,750
R^2	0.96	0.96
F-stat.	2800.07***	2779.08***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: ENVpillar and SOCpillar as the alternative testing variables for CSR (Table 5)

Independent variables	(1) DebtR1-adj	(2) DebtR1-adj	(3) DebtR2-adj	(4) DebtR2-adj
ENVpillar	0.00014* (1.93)		0.00036*** (2.64)	
ENVpillar^2	-0.00000098 (-1.10)		-0.0000034** (-2.03)	
SOCpillar		0.00021** (2.40)		0.0013*** (8.44)
SOCpillar^2		-0.0000018** (-1.96)		-0.000012*** (-7.38)
Boardsize	-0.000094 (-0.49)	-0.000075 (-0.40)	0.00080** (2.27)	0.00068* (1.94)
Boardindep	-0.00011** (-2.54)	-0.00011*** (-2.61)	0.00011 (1.37)	0.000045 (0.59)
Firmsize	0.0016*** (2.94)	0.0018*** (3.44)	0.012*** (12.09)	0.012*** (11.88)
ROA	0.48*** (59.55)	0.48*** (59.32)	0.44*** (29.20)	0.43*** (28.97)
Currentratio	-0.00028 (-0.61)	-0.00028 (-0.62)	0.013*** (15.83)	0.014*** (16.24)
Firmrisk	0.16*** (271.80)	0.16*** (271.31)	0.11*** (106.37)	0.11*** (106.59)
Freefloat	0.0000014 (0.06)	-0.00000074 (-0.03)	0.000081* (1.84)	0.000080* (1.83)
Agencycost	-0.013*** (-9.28)	-0.012*** (-9.14)	-0.024*** (-9.58)	-0.023*** (-9.31)
Constant	0.42*** (30.00)	0.41*** (29.87)	-0.035 (-1.37)	-0.032 (-1.26)
Country effect	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
N	5,750	5,750	5,750	5,750
R^2	0.95	0.95	0.74	0.74
F-stat.	2316.67***	2316.12***	364.98***	370.73***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Additional control variables (Table 5)

Independent variables	(1) DebtR1-adj	(2) DebtR1-adj	(3) DebtR1-adj
CSR	0.000070**		0.00022**
	(2.23)		(2.24)
CSRreport		0.0032**	
		(2.23)	
CSR^2			-0.0000018
			(-1.61)
Boardsize	-0.000096	-0.000065	-0.000096
	(-0.48)	(-0.33)	(-0.48)
Boardindep	-0.00013***	-0.00012***	-0.00013***
	(-2.79)	(-2.66)	(-2.86)
Firmsize	0.0013**	0.0014**	0.0012**
	(2.11)	(2.45)	(2.09)
ROA	0.48***	0.48***	0.48***
	(54.04)	(54.66)	(54.07)
Currentratio	-0.00064	-0.00068	-0.00066
	(-1.23)	(-1.29)	(-1.25)
Firmrisk	0.16***	0.16***	0.16***
	(250.83)	(250.75)	(250.37)
Freefloat	-0.0000017	-0.0000011	0.00000067
	(-0.06)	(-0.04)	(0.03)
Agencycost	-0.012***	-0.012***	-0.012***
	(-8.29)	(-8.37)	(-8.23)
WGI	-0.0019	-0.0020	-0.0022
	(-0.38)	(-0.40)	(-0.43)
MREG	-0.0052*	-0.0050*	-0.0053**
	(-1.96)	(-1.87)	(-1.98)
FSDEV	0.0059	0.0058	0.0058
	(1.32)	(1.31)	(1.31)
Constant	0.43***	0.43***	0.43***
	(24.41)	(24.80)	(24.36)
Country effect	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes
Year effect	Yes	Yes	Yes
N	4699	4699	4699
R^2	0.95	0.95	0.95
F-stat.	1930.87***	1930.88***	1889.59***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 13: Additional control variables (Table 6)

Independent variables	(1) DebtR1-adj	(2) DebtR1-adj
CSR	0.00019***	
	(3.66)	
Tangibility	0.012**	0.0095*
	(2.27)	(1.81)
CSR*Tangibility	-0.00035***	
	(-2.91)	
CSRreport		0.0079***
		(3.19)
CSRreport*Tangibility		-0.013**
		(-2.32)
Boardsize	-0.000099	-0.000059
	(-0.49)	(-0.30)
Boardindep	-0.00013***	-0.00011**
	(-2.76)	(-2.53)
Firmsize	0.0014**	0.0014**
	(2.29)	(2.48)
ROA	0.48***	0.48***
	(53.78)	(54.51)
Currentratio	-0.00063	-0.00063
	(-1.19)	(-1.19)
Firmrisk	0.16***	0.16***
	(246.17)	(247.83)
Freefloat	-0.00000083	-0.0000018
	(-0.03)	(-0.07)
Agencycost	-0.012***	-0.012***
	(-8.30)	(-8.36)
WGI	-0.0018	-0.0021
	(-0.36)	(-0.42)
MREG	-0.0051*	-0.0050*
	(-1.91)	(-1.89)
FSDEV	0.0060	0.0060
	(1.35)	(1.36)
Constant	0.42***	0.42***
	(23.68)	(24.26)
Country effect	Yes	Yes
Industry effect	Yes	Yes
Year effect	Yes	Yes
N	4699	4699
R^2	0.95	0.95
F-stat.	1851.45***	1850.18***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 14: Additional control variables (Table 7)

Independent variables	(1) DebtR1-adj	(2) DebtR1-adj
CSR	-0.00018***	
	(-4.08)	
ROA	0.40***	0.43***
	(29.38)	(32.79)
CSR*ROA	0.0022***	
	(7.96)	
CSRreport		-0.0037*
		(-1.81)
CSRreport*ROA		0.070***
		(4.81)
Boardsize	-0.000011	-0.000053
	(-0.05)	(-0.27)
Boardindep	-0.00012***	-0.00012***
	(-2.68)	(-2.64)
Firmsize	0.0015**	0.0015***
	(2.56)	(2.64)
Currentratio	-0.00047	-0.00052
	(-0.89)	(-0.99)
Firmrisk	0.16***	0.16***
	(252.56)	(251.16)
Freefloat	0.000014	0.0000018
	(0.54)	(0.07)
Agencycost	-0.012***	-0.012***
	(-8.34)	(-8.34)
WGI	-0.0016	-0.0013
	(-0.32)	(-0.26)
MREG	-0.0055**	-0.0055**
	(-2.10)	(-2.06)
FSDEV	0.0064	0.0067
	(1.46)	(1.52)
Constant	0.43***	0.43***
	(24.60)	(24.91)
Country effect	Yes	Yes
Industry effect	Yes	Yes
Year effect	Yes	Yes
N	4699	4699
R^2	0.95	0.95
F-stat.	1915.58***	1898.40***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 15: BRICS countries as an alternative sample (Table 5)

Independent variables	(1) DebtR1-adj	(2) DebtR1-adj	(3) DebtR1-adj
CSR	-0.0000043 (-0.10)		0.00022* (1.72)
CSRreport		0.0046** (2.39)	
CSR^2			-0.0000028* (-1.86)
Boardsize	0.00011 (0.42)	0.000087 (0.34)	0.00012 (0.46)
Boardindep	0.000038 (0.64)	0.000029 (0.49)	0.000036 (0.59)
Firmsize	0.0034*** (4.46)	0.0029*** (4.01)	0.0034*** (4.48)
ROA	0.46*** (39.85)	0.46*** (39.82)	0.46*** (39.90)
Currentratio	0.0000023 (0.00)	0.00011 (0.17)	0.000088 (0.13)
Firmrisk	0.15*** (201.08)	0.15*** (201.17)	0.15*** (200.92)
Freefloat	-0.000033 (-1.03)	-0.000033 (-1.02)	-0.000031 (-0.95)
Agencycost	-0.014*** (-7.93)	-0.014*** (-8.14)	-0.014*** (-7.89)
Constant	0.37*** (19.01)	0.38*** (20.12)	0.37*** (18.74)
Country effect	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes
Year effect	Yes	Yes	Yes
N	3543	3543	3543
R^2	0.94	0.94	0.94
F-stat.	1782.71***	1785.78***	1730.01***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 16: BRICS countries as an alternative sample (Table 6)

Independent variables	(1) DebtR1-adj	(2) DebtR1-adj
CSR	0.00017***	
	(2.60)	
Tangibility	0.033***	0.021***
	(4.83)	(2.96)
CSR*Tangibility	-0.00057***	
	(-3.76)	
CSRreport		0.0080***
		(2.61)
CSRreport*Tangibility		-0.012
		(-1.55)
Boardsize	0.000035	0.000024
	(0.13)	(0.09)
Boardindep	0.000052	0.000038
	(0.87)	(0.64)
Firmsize	0.0035***	0.0028***
	(4.66)	(3.86)
ROA	0.45***	0.45***
	(39.43)	(39.42)
Currentratio	0.00022	0.00032
	(0.34)	(0.48)
Firmrisk	0.15***	0.15***
	(193.90)	(195.97)
Freefloat	-0.000023	-0.000028
	(-0.71)	(-0.85)
Agencycost	-0.013***	-0.014***
	(-7.72)	(-7.93)
Constant	0.35***	0.37***
	(17.83)	(19.56)
Country effect	Yes	Yes
Industry effect	Yes	Yes
Year effect	Yes	Yes
N	3543	3543
R^2	0.94	0.94
F-stat.	1688.73***	1685.24***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 17: BRICS countries as an alternative sample (Table 7)

Independent variables	(1) DebtR1-adj	(2) DebtR1-adj
CSR	-0.00014**	
	(-2.34)	
ROA	0.41***	0.39***
	(22.51)	(21.96)
CSR*ROA	0.0013***	
	(3.37)	
CSRreport		-0.0035
		(-1.33)
CSRreport*ROA		0.091***
		(4.55)
Boardsize	0.00016	0.00012
	(0.60)	(0.45)
Boardindep	0.000043	0.000038
	(0.71)	(0.63)
Firmsize	0.0034***	0.0030***
	(4.50)	(4.23)
Currentratio	-0.00011	0.00012
	(-0.17)	(0.18)
Firmrisk	0.15***	0.15***
	(201.18)	(201.36)
Freefloat	-0.000025	-0.000029
	(-0.76)	(-0.91)
Agencycost	-0.014***	-0.014***
	(-7.90)	(-8.14)
Constant	0.37***	0.38***
	(19.16)	(20.17)
Country effect	Yes	Yes
Industry effect	Yes	Yes
Year effect	Yes	Yes
N	3543	3543
R^2	0.94	0.94
F-stat.	1734.13***	1742.00***

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 18: Two-Stage Least Square (2SLS) regression analysis

Independent variables	(1) CSR	(2) DebtR1-adj	(3) CSRreport	(4) DebtR1-adj
	1.stage	2.stage	1.stage	2.stage
CSRcommittee	18.7*** (35.80)		0.30*** (25.72)	
CSR-ave	-1.28*** (-5.47)			
CSRreport-ave			-0.23* (-1.70)	
CSR		0.00018*** (2.65)		
CSRreport				0.0085** (2.06)
Boardsize	0.72*** (9.21)	-0.00019 (-0.94)	0.0068*** (3.88)	-0.00011 (-0.58)
Boardindep	0.12*** (6.86)	-0.00012*** (-2.88)	0.0011*** (2.76)	-0.00011*** (-2.62)
Firmsize	5.00*** (23.52)	0.00099 (1.51)	0.068*** (14.23)	0.0013** (2.12)
ROA	28.5*** (8.58)	0.48*** (57.02)	0.23*** (3.06)	0.48*** (58.88)
Currentratio	-1.08*** (-5.74)	-0.00014 (-0.30)	-0.020*** (-4.66)	-0.00016 (-0.35)
Firmrisk	-0.85*** (-3.59)	0.16*** (272.16)	-0.021*** (-3.96)	0.16*** (270.78)
Freefloat	0.0073 (0.75)	0.00000018 (0.01)	-0.000036 (-0.16)	0.0000011 (0.05)
Agencycost	1.31** (2.37)	-0.013*** (-9.36)	0.054*** (4.32)	-0.013*** (-9.45)
Constant	-65.9*** (-6.37)	0.41*** (28.51)	-1.50*** (-9.78)	0.40*** (29.39)
Country effect	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
Wu-Hausman test of endogeneity		2.65		1.97
Overidentifying restriction test (Sargan)		2.59		2.14
Weak instrument test (F-value)		669.53		334.34
N	5,750	5,750	5,750	5,750
F-stat.	139.34***		57.19***	
χ^2-stat.		102449.65***		102381.61***

t statistics in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Instrumental variables: CSRcommittee, CSR-ave (Industry level average of CSR excluding focal firms), and CSRreport-ave (Industry level average of CSRreport excluding focal firms)

Appendix

Table A1: Country-level sampling

Country	Unique firms	Percent	Data points	Percent
Argentina	46	4.41	112	1.95
Brazil	78	7.48	589	10.24
Chile	33	3.16	228	3.97
China	373	35.76	1,138	19.79
Colombia	15	1.44	79	1.37
India	112	10.74	737	12.82
Indonesia	33	3.16	268	4.66
Malaysia	49	4.70	405	7.04
Mexico	38	3.64	272	4.73
Philippines	16	1.53	140	2.43
Poland	30	2.88	185	3.22
Russia	35	3.36	319	5.55
Saudi Arabia	20	1.92	82	1.43
South Africa	89	8.53	760	13.22
Thailand	33	3.16	244	4.24
Turkey	43	4.12	192	3.34
Total	1,043	100.00	5,750	100.00

Table A2: Multicollinearity analysis

Variable	VIF	Variable	VIF
Firmrisk	1.58	Firmrisk	1.57
ROA	1.42	ROA	1.40
Firmsize	1.28	Firmsize	1.26
Currentratio	1.21	Currentratio	1.22
Boardsize	1.13	Boardsize	1.11
CSR	1.13	Agencycost	1.09
Agencycost	1.09	Freefloat	1.08
Freefloat	1.08	CSRreport	1.04
Boardindep	1.04	Boardindep	1.02
Mean VIF	1.22	Mean VIF	1.20

VIF: Variance Inflation Factor