Corporate Social Responsibility, Macro-Governance Environment, and Financial Health

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ABSTRACT

This study addresses the question of whether, and through which channel, corporate social responsibility (CSR) helps enhance the overall financial health of the firm, and whether the relationship between CSR and corporate financial health is moderated by macro-governance environment. We utilize a three-level multilevel modeling design to effectively capture group (country, industry, and firm-level) effects. Drawing on a panel sample of 4,480 firms across 39 nations over the ten-year period from 2010-2019, we find that CSR activities mitigate the risk of corporate failure significantly, and the positive impact of CSR on corporate financial health is more significant in weak governance countries. These results deepen our understanding of how CSR activities may be utilized to compensate for institutional voids in weak institutional environments. Further investigation indicates that the explanation for the impact of CSR on financial health largely runs through traits of firm valuation. The impact of CSR on accounting-based financial performance is marginal. Our results are robust over time, after addressing endogeneity concerns, and after controlling for other firm-level and country-level factors.

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1. INTRODUCTION

Despite the rich corporate social responsibility (CSR) literature that has accumulated over the past decades, there is limited understanding of the boundary and moderating influences of national institutions on firm-level CSR practices. Among existing cross-country studies, the focus has been on the institutional determinants/antecedents of CSR, or the moderating role of a particular dimension of governance environment, such as legal origin, market-supporting system, and shareholder- versus stakeholder-oriented systems (Benlemlih and Girerd-Potin, 2017; El Ghoul et al., 2017; and Desender et al., 2020). These studies generally suggest that national institutions play an important role in shaping the effectiveness of the CSR strategy. Our study adds to this important but under-researched strand of literature with new insights by investigating the inter-relationship among the quality of macro-governance environment, CSR, and corporate financial health.

The state of corporate financial health is fundamental to business operations, to the persistence of innovation and patterns, and to firm growth in the long run. Financial health also has important implications for firm financial performance and the risk of corporate failure (Altman et al., 2017; Miller et al., 2020; Ohlson, 1980). The risk reduction role of CSR has also been well-documented (e.g., Albuquerque et al., 2019; Jo and Na, 2012). In this study, we examine how CSR activities affect a firm's overall financial health, which is closely associated with the potential of corporate failure.

The theoretical orientation of our study is the institutional theory and the agency perspective. The institutional theory states that national institutions play an important role in shaping the behavior of individuals and organizations (North, 1991). The implications of the agency theory is more complex. On the one hand, because agency problems tend to be less prevalent in strong governance environments, CSR activities may be more value enhancing in such contexts due to mitigated agency concerns that CSR is not being used to maximize

shareholder value. On the other hand, if CSR can be used to compensate for institutional voids in weak governance environment as El Ghoul et al. (2017) suggest, then CSR activities should be more beneficial in weak governance environments. This study provides an empirical investigation into this paradox. Drawing on a panel sample of 4,480 publicly-listed firms across 39 countries over the ten-year period from 2010 to 2019, we find that CSR plays an important role in enhancing firms' overall financial health and stability. Moreover, we find that the role of CSR is more significant in weak governance countries, suggesting that CSR is being used to compensate for institutional voids in such environments. The moderating role of governance environment is significant even after controlling for economic growth, national culture, and the legal origin of the country. Further investigation indicates that the explanation for the impact of CSR on financial stability largely runs through traits of firm valuation. The impact of CSR on accounting-based financial performance is marginal. Our research highlights the positive impact of CSR on firms' overall financial health and stability and extends our understanding of how unique institutional features can shape the effectiveness of the CSR strategy.

This study contributes to the literature in many areas. First, we examine the effect of CSR activities on firm financial health and find that it is possible to prevent corporate failure from leveraging CSR activities. Second, we highlight the moderating role of macro-governance environment in this relationship. Third, we investigate which channel helps enhance corporate financial health and find that this positive CSR-financial health relationship is mainly driven by a valuation effect. From the empirical perspective, the use of the multilevel modeling design in examining the inter-relationships of CSR, macro-governance environment, and corporate financial health represents an advance in research design, because it allows us to effectively capture group (country, industry, and firm-level) effects and mitigates the risk of ecological fallacy that assumes relationships between variables at the aggregate level are the same at the individual level (Peterson et al., 2012).

The remainder of the paper proceeds as follows. Section 2 reviews the related literature and develops the hypotheses. Section 3 describes the data, key variables, and methodology. Section 4 reports empirical results, addresses endogeneity concerns, and provides further analyses. Section 5 concludes the paper.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 CSR, Firm Risk, and Firm Financial Health

To date, most empirical studies accessing the effectiveness of the CSR strategy focus on firm value, financial performance, and firm risk, and the evidence on the relationship between CSR and financial outcomes is mixed. Based on a review of over 120 studies, Margolis and Walsh (2003) find that the empirical literature on the relationship between CSR and financial performance is largely inconclusive, and that previous studies are subject to different imperfections, such as measurement issues related to both CSR and financial performance, endogeneity related to both causality and omitted variable problems, a lack of methodological rigor, and a lack of theory. In the next paragraph, we review some representative studies on the relationship between CSR and firm performance/value.

Drawing on a sample of U.S. listed firms, Jo and Harjoto (2011) find that CSR has a significant positive impact on firm value, measured by Tobin's Q. Wu and Shen (2013) find that CSR has been adopted strategically in the banking sector. Their study show that banks with higher CSR activities perform financially better and have better asset quality than banks that do not engage in CSR. Koh et al. (2013) find that CSR enhances firm value through a so-called insurance mechanism. Consistent with that, Eccles, Ioannou, and Serafeim (2014) find that CSR-oriented firms tend to implement processes that underpin stakeholder engagement and long-term goals, which leads to superior long-term financial performance. Gregory et al.

(2014) show that the driver of the value-enhancing role of CSR is the firm's long-term growth prospects. Studying from another angle, Harjoto and Laksmana (2018) argue that CSR is positively linked with firm value because it reduces firms' excessive risk taking. A recent study by Hannah et al. (2021) further confirms the positive relationship between CSR and firm growth, positively affecting firm performance and firm value. Even though numerous prior studies find a positive link between CSR and firm performance/value, Di Giuli and Kostovetsky (2014) show that CSR tends to be associated with negative future stock returns and reduced profitability, measured by the return on assets ratio. In line with Di Giuli and Kostovetsky (2014), Bhandari and Javakhadze (2017) show that CSR distorts firm-level capital allocation efficiency, and that the distortion is reflected in firm performance. Moreover, some studies find an insignificant relationship between CSR and financial performance (Aupperle et al., 1985; McWilliams and Siegel, 2000). While no definite conclusion can be safely drawn, the review of the literature indicates a generally positive link between CSR and firm value, at least among U.S. firms.

Moreover, previous studies also document a nontrivial relationship between CSR and firm risk, one of the drivers for firm value. For example, Orlitzky and Benjamin (2001) conducts a meta-analysis in the U.S. and highlights a negative relationship between CSR and financial risk. Following that, several studies find different channels to explain the effect of CSR on certain measures of firm risk. Jo and Na (2012) find that CSR engagement has a significant impact on firms' total risk, and the risk reduction role is more significant for firms in controversial industries (i.e. alcohol, tobacco, gambling, etc.) than in other industries. Bouslah et al. (2013) study 650 U.S. firms over the period 1991-2007 and find that the different dimensions of social performance affect firms' total and idiosyncratic risk differently across S&P500 and non-S&P500 firms. Mishra and Modi (2013) find a negative link between CSR and firms' idiosyncratic risk and they also find that financial leverage has a weak moderating

effect on the relationship between CSR and idiosyncratic risk. Koh et al. (2014) indicate that CSR has greater direct effects on firm value among firms with higher risk exposure. Cai et al. (2016) also supports the risk-reduction hypothesis, indicating that, for U.S. industries as a whole, corporate environmental responsibility engagement helps reduce firm risk. Inspired by Bénabou and Tirole (2010), Albuquerque et al. (2019) test the link between CSR and systematic risk. Their model predicts that CSR strongly decreases systematic risk for firms with high product differentiation. Jia et al (2020) find that firms use CSR to insure against stock price risk. In addition, Attig et al. (2013) find that credit rating agencies tend to award relatively high ratings to firms with good social performance. Gupta and Krishnamurti (2018) show that CSR increases the likelihood of a distressed firm's emergence from bankruptcy. All of these factors tend to enhance the financial stability of the firm.

On the whole, a growing body of literature documents that CSR reduces stock market risk, including total, idiosyncratic, and systematic risk, as well as archives that CSR reduces firm credit risk and bankruptcy risk. Despite the large body of research linking CSR with firm performance, firm value, and firm risk, it remains unclear how CSR affects the fundamental health of the firm. That is, how healthy a firm is financially? The positive link between CSR and firm financial health rests on strong theoretical grounds. In the literature, two prevailing theories that scholars frequently use to explain the impact of CSR are the stakeholder theory (Freeman, 1984; Jones, 1995) and the risk management theory (Godfrey, 2005). The stakeholder theory suggests that CSR represents an investment in social capital that can strengthen stakeholder relationships. Socially responsible firms make a special effort to take the interests of other stakeholders into account in their business decisions and operations. In addition, behaving in a socially responsible way sends a positive signal about the firm. Either through a signaling effect on firm reputation or through strengthened relationship with employees, consumers, and other stakeholders, CSR activities help firms receive support from

both the product market (Luo and Bhattacharya, 2006) and the capital market (Attig et al., 2013; El Ghoul et al., 2011). The risk management theory argues that CSR generates positive moral capital and provides some "insurance-like" protection, which may largely contribute to shareholder wealth (Godfrey, 2005). Consistent with this theoretical proposition, Godfrey et al. (2009) find that social capital built through CSR can help mitigate firm risk under unfavorable conditions. Lins et al. (2017) show that CSR pays off when the overall level of trust in corporations and markets suffers a negative shock. Both theories suggest that CSR engagement plays an important role in ensuring a stable financial condition through sustainable business with stakeholders.

Based on the above discussions, we argue that CSR plays an important role in firms' overall financial health. Therefore, the following hypothesis is developed:

H1: *CSR activities enhance corporate financial health.*

2.2 The Moderating Role of Macro-Governance Environment

Business models around the world are largely shaped by local institutional framework, culture, and governance environment. As Li et al. (2006) emphasize, different countries have different levels of development in shareholder protection, law enforcement, and corporate disclosure requirements. Different to weak governance environments, strong governance environments are able to bolster their monitoring ability through their well-developed legal system and enforcement scheme. Chen et al. (2014) find that family-controlled firms face a greater extent of decreases in sales growth rates in less-developed regulatory environment than in well-developed regulatory environment. Similarly, Ding et al. (2016) provide direct evidence that family control reduces the bribery behavior of firms in countries with weaker macro-governance environment. They argue that well-established governance environment has limited fraud opportunities in the first place, therefore the difference between family control and non-family control in countries with well-developed governance environment is small.

This study is developed in response to the call for more cross-country comparative research on CSR by Devinney et al. (2013). Notwithstanding almost thirty years of research on CSR, the focus has been dominantly on single country settings, most of which focus on U.S. firms. Relatively less attention has been paid to the boundary and moderating influences of institutions on firm-level CSR practices around the world. As Devinney et al. (2013) highlight in their editorial review paper, one cannot understand the CSR strategy without understanding the nature of the institutional environments in which firms operate. Empirical evidence supports the notion that a country's institutional environment matters to the evolution of CSR. For example, in a cross-country study of 16 Western European countries, Jackson and Apostolakou (2010) find that firms from more liberal markets tend to engage more in CSR activities than firms in coordinated market economies. Drawing on a panel sample across 42 countries, Ioannou and Serafeim (2012) show that the national political system, labor system, and cultural system are important institutional determinants of CSR. Dyck et al. (2019) find that the impact of institutional ownership on CSR is different in countries with strong versus weak community beliefs. Graafland and Noorderhaven (2020) show that economic freedom in combination with the cultural trait long-term orientation positively influences CSR practices. While these studies have largely enriched our understanding of the role of national institutions in explaining the antecedents of CSR, it is not clear how different institutional frameworks influence the consequences of CSR.

As previously noted, relatively less attention in the literature has been paid to the moderating role of national institutions in shaping the effectiveness of the CSR strategy, and both empirical findings and theoretical implications are mixed. Among limited prior studies, Benlemlih and Girerd-Potin (2017) focus on the moderating role of legal environment and find that CSR reduces firm risk in civil law, stakeholder-centered countries, but not in common law, shareholder-centered countries. They argue that the link between CSR and firm risk is weaker

in common law, shareholder-oriented countries, because CSR activities are likely to be perceived as a waste of resources in shareholder-centered environments. Moreover, El Ghoul et al. (2017) find that CSR is more positively related to firm value in countries with weaker market-supporting institutions, as measured by stock and credit market efficiency, business freedom, and legal system. They argue that firms in weak institutional environments may use non-market mechanisms such as CSR to compensate for institutional voids. Also focusing on the moderating role of shareholder- versus stakeholder-oriented systems, Desender et al. (2020) find that CSR reduces the cost of equity in shareholder-oriented countries but not in stakeholder-oriented countries. They argue that CSR fails to lower the cost of equity in stakeholder-oriented countries due to the increased agency concerns that CSR is not being employed to maximize shareholder value in such contexts. While the findings are mixed, prior studies suggest that national institutional environments play an important role in explaining the perception and the effectiveness of the CSR strategy.

Inspired by but differs from these previous studies, we investigate the role of macro-governance environment in shaping the effectiveness of the CSR strategy. Instead of focusing on certain institutional dimensions, such as legal origin, market-supporting system, and shareholder- versus stakeholder-oriented systems, we investigate the moderating role of the overall quality of national governance environment. Given that the quality of macro-governance environment covers six dimensions, including voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption, it offers a broader and more complete perspective on the institutional features of the markets involved.

The theoretical foundations of our study are the institutional theory and the agency theory. The institutional theory argues that the formal and informal institutional constraints at the national level (e.g., the macro-governance environment in the context of our study) plays

an important role in shaping the behavior of individuals and organizations (North, 1990). The implications of the agency theory is more complex in deriving our testing hypotheses. On the one hand, CSR may be more beneficial in strong governance environments. As highlighted by Desender et al. (2020), CSR may not be perceived as a value enhancing strategy in an environment with serious agency concerns. Because agency problems tend to be more pronounced in countries with weak shareholder protection and governance (La Porta et al. 2000), CSR activities should be less value enhancing in weak governance environments. This proposition is also consistent with Benlemlih and Girerd-Potin (2017), who argue that CSR is less effective in countries where shareholder value is in doubt. In particular, Benlemlih and Girerd-Potin (2017) find that the link between CSR and firm risk is significantly moderated by the legal environment of the country, where CSR reduces firm risk in civil law (more stakeholder-oriented) countries but not in common law (more shareholder-oriented) countries. Obviously, shareholder value is most likely to be in doubt when the quality of macro-governance environment is low, suggesting that the CSR strategy may be more effective in strong governance environments. On the other hand, if CSR can be used to compensate for institutional voids in weak governance environment as El Ghoul et al. (2017) suggest, then CSR should be more beneficial in weak governance environments, arguing that firms use CSR activities to compensate for institutional voids. In the literature, many studies suggest that firms tend to use various non-market mechanisms to compensate for institutional voids.

Based on the above discussions, we derive two alternative hypotheses, as summarized below:

H2a: *The positive relationship between CSR and corporate financial health is more significant in countries with strong governance environment.*

H2b: *The positive relationship between CSR and corporate financial health is more significant in countries with weak governance environment.*

2.3 Channels to Enhance Firm Financial Health

A firm's financial health is determined by a number of factors. Capturing dimensions of firm performance and firm valuation, Z-Score has been used widely in accounting, economics, and finance as a measure for firms' financial health including financial distress of the firm and the probability of bankruptcy (see, for example, Altman, 1968; Altman, 1977; Altman et al., 2017; Chava and Purnanandam, 2010; Coles et al., 2006; Graham et al., 1998; Purnanandam, 2008). By decomposing this indicator to two dimension (financial performance and firm value), we test which channel plays a more remarkable role in leveraging the effect of CSR to enhance firm financial health.

In the literature, two prevailing theories used to explain the impact of CSR are the stakeholder theory (Freeman, 1984; Jones, 1995) and the risk management theory (Godfrey, 2005). The stakeholder theory emphasizes that behaving in a socially responsible way sends a positive signal about the firm, and hence, strategies on the efforts to enhance social responsibility and minimize social concerns would be rewarded and reflected in firm performance and valuation. As such, CSR represents an investment in social capital that can strengthen stakeholder relationships. In addition, stakeholders' engagement is secured by CSR activities and policies such as legal presentation and employment relations (Wang and Berens, 2015). The level of CSR significantly influences the direction of stakeholder engagement, and as a result, positive CSR policies may bring stakeholders to promote rather than against regulatory approval needs for growth strategies (Barnett and Salomon, 2012) and support corporate communications (Crane and Glozer, 2016). Because positive CSR activities help strengthen stakeholder relations and mitigate the agency problem, the effects of CSR on a firm's financial stability shall be enhanced through its positive impact on firm performance and valuation. Moreover, prior research shows that high CSR firms tend to have higher transparency (Kim et al., 2012) and lower short-term opportunism (Bénabou and Tirol, 2010),

which mitigate perceived agency costs and information asymmetry. Lower agency costs and reduced information asymmetry facilitate a firm's access to external capital (Cheng et al., 2014; El Ghoul et al., 2011), which in turn accelerate firm growth. From the shareholder's point of view, a firm's CSR strategy affects its expected cash flows, risk, and growth (Gregory and Whittaker, 2013), and in turn, market valuation (Gregory et al., 2014).

The risk management theory argues that CSR generates positive moral capital and provides some "insurance-like" protection, which preserves firm performance and valuation under unfavorable conditions (Godfrey, 2005). Consistent with the risk management theory, Godfrey et al. (2009) find that the social capital built through CSR can help mitigate firm risk under unfavorable conditions. Lins et al. (2017) show that CSR pays off when the overall level of trust in corporations and markets suffers a negative shock. Koh et al. (2014) find that CSR has greater direct effects on firm value among firms with higher risk exposure. Based on a sample of S&P 3000 firms during 2004-2012, Hannah et al (2021) show that, during the 2008 Global Financial Crisis, CSR activities have a direct positive impact on firm value and that CSR has a moderating effect on the relation between asset (or sales) growth and firm valuation. Both instrumental stakeholder and risk management paradigms can conceptually coexist, each independently contributing to firm performance and valuation (Hannah et al., 2021).

To identify which channel remarkably contributes to the CSR-firm financial health link, the following hypotheses are derived to test for the effects of CSR on financial performance and firm value, respectively:

H3a: CSR enhances firm financial health through its impact on financial performance.

H3b: CSR enhances firm financial health through its impact on firm value.

3. DATA, MEASURES, AND METHODOLOGY

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3.1 Data and Sample

Our country-level data are compiled from the World Bank's World Development Indicators (WDI), the World Bank's Worldwide Governance Indicators (WGI), and the Global Leadership and Organizational Behavior Effectiveness (GLOBE) project. Our firm-level data are compiled from ASSET4 and Datastream. After deleting firms with no reported ASSET4 ESG scores, firms with missing values on key firm-level variables, and countries with less than 5 firms, we are left with 4,480 publicly-listed firms (27,287 firm-year observations) across 39 countries. Table 1 shows the country distribution for the 27,287 firm-year observations included in the sample.

[Insert Table 1 about here]

3.2 Variables

3.2.1 Dependent Variable: Firm Financial Health

In this study, we measure the overall financial health of the firm using the Z-Score developed by Altman's (1968) multiple discriminant analysis. Ever since its debut, Altman's Z-Score has continued to be used in both academic research and practice, worldwide, as a dominant tool for measuring overall financial stability and for predicting bankruptcy and financial distress (Altman et al. 2017). Altman's Z-Score captures a firm's financial liquidity, firm age and leverage, productivity, market valuation, and market competition. Specifically, we follow the literature and measure Altman's Z-Score as $Z = 0.012X_1 + 0.014X_2 + 0.033X_3 + 0.006X_4 + 0.999X_5$. X_1 is the working capital (the difference between current assets and current liabilities) to total assets ratio. This ratio is a measure of financial liquidity. X_2 is the retained earnings to total assets ratio. Retained earnings represents a company's total reinvested earnings for its entire lifecycle. This ratio implicitly captures firm

age (the ratio tends to be lower for younger firms with higher risk of bankruptcy) and the leverage effect (companies with more retained earnings have funded their assets by retaining profits rather than taking on leverage). X_3 is the earnings before interest and taxes (EBIT) to total assets ratio. This ratio measures the productivity of a firm's assets. X_4 is the market value of equity to book value of total debt ratio. This ratio indicates how much company assets may be impaired if the value of the debt exceeds the value of the assets and it also captures market valuation, which is neglected by most bankruptcy models. X_5 is the sales to total assets ratio. This ratios measures a firm's ability to cope with competitive conditions and to use its assets to generate sales.

3.2.2 Independent variable: CSR

CSR is measured using the Refinitiv (formerly Thomson Reuters) ASSET4 ESG ratings, which are widely used in the literature to measure CSR practices (e.g., Desender, et al., 2020; Dyck et al., 2019; Graafland and Noorderhaven, 2020; Ioannou and Serafeim, 2012; Kölbel and Busch, 2021; Maxfield and Wang, 2021).[1] The ASSET4 ESG Score is an overall company score based on 450 company-level ESG inputs (of which a subset of 186 inputs are identified to be more material) across ten categories, including resource use, emissions, innovation, workforce, human rights, community, product responsibility, management, shareholders, and CSR strategy. A combination of the ten categories, weighted proportionately, formulates the Environmental, Social, and Governance Pillar Scores, as well as the final ESG Score. The scores are ranging between 0 and 100, where higher scores indicate better relative ESG performance. ASSET4 offers a more appropriate measure of CSR in cross-country settings. Because ASSET4 is not embedded in any particular institutional context, it represents a cross-

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[1] In this study, we use the ASSET4 ESG scores calculated according to the April 2020 methodology and weighting scheme: https://www.refinitiv.com/content/dam/marketing/en_us/documents/methodology/refinitiv-esg-scores-methodology.pdf.

national perspective on CSR with minimal impact from any particular country (Kölbel and Busch, 2021).

3.2.3 Moderator: The Quality of Macro-Governance Environment

In this study, we focus on the moderating role of the quality of national governance environment, as measured by the Worldwide Governance Indicators (WGI). Initially credited by Kaufmann et al. (2003, 2004), the WGI aggregates six individual dimensions of governance, including voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. These indicators are measured based on over 30 individual data sources produced by a variety of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms across over 200 countries and territories. The WGI currently provides the only validated measure of the quality of a country's governance mechanism, and its individual indicators are frequently used in the literature to measure different dimensions of governance environment. For instance, defined as the extent to which agents have confidence in and abide by the rules of society (such as contract enforcement, property rights, the police, and the courts), the rule-of-law measure is often used in cross-country studies to control for the legal environment dimension of governance environment (Stephan et al., 2015).

3.2.4 Control Variables

Our firm-level control variables include the size of the firm (*SIZE)*, calculated as the natural log of total assets; the market-to-book-ratio (*MTB*), measured as the stock market capitalization of the firm divided by the total equity of the firm; the return on assets ratio (*ROA*), computed as EBIT divided by total assets; the leverage ratio (*LEV*), measured as the debt-to-assets ratio; and the liquidity ratio (*LEV*), measured as the current assets to current liabilities ratio. The market-to-book ratio, return on assets ratio, and leverage ratio are included to account for growth opportunities, profitability, and capital structure, respectively. These variables are

typical firm-level controls used in the CSR literature (e.g., Benlemlih and Girerd-Potin, 2017; Desender et al., 2020; Ioannou and Serafeim, 2012; Kölbel and Busch, 2021; Maxfield and Wang, 2021).[2]

In terms of country-level variables, we control for the country's economic growth, national culture, and legal origin. In line with previous studies (e.g., Buera et al., 2011; Hamilton 1994; Stephan and Uhlaner, 2010; Stephan et al., 2015), we use the GDP growth rate (*GDPG*) to control for a country's economic growth. The GDP growth rate is obtained from the WDI database. Following recent leading studies on national culture (e.g., Stephan and Uhlaner, 2010; Stephan et al., 2015), we conceptualize and measure culture using second-order descriptive norms, namely, the performance-based culture (*PBC*) and the socially supportive culture (*SSC*), derived from the GLOBE cultural practice measures. According to Stephan and Uhlaner (2010), *PBC* is characterized by high positive loadings on future orientation, performance orientation, and uncertainty avoidance, and by high negative loadings on in-group collectivism and power distance, and *SSC* is characterized by a high positive loading on humane orientation and a high negative loading on assertiveness. In this study, *PBC* is measured as the combined score of future orientation, performance orientation, uncertainty avoidance, in-group collectivism, and power distance. *SSC* is measured as the combined score of humane orientation and assertiveness. Note that negative values are utilized for individual dimensions with negative loadings in the factor analysis. Overall, *PBC* can be described as a culture that values individual performance, future-oriented planning, and formal rules that can alleviate uncertainty. *SSC* can be described as a positive societal climate in which people support each other and a descriptive cultural norm that encourages friendliness, supportiveness, cooperation, and helpfulness. To this end, *SSC* arguably captures the most generic aspect of

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[2] For a more rigorous analysis, the regressions are also conducted with additional control variables, including firm age, dividend yield, stock market turnover, sales growth, R&D to total assets ratio, Capex to total assets ratio, cash holding to total assets ratio, CFO to total assets ratio, board size, and board independence. These additional controls have no evident impact on the main results.

social capital at the national level (Stephan et al., 2015). Using *PBC* and *SSC* to measure national culture is appropriate in this study because CSR is both a performance-driven and a social-oriented activity. The use of higher-order cultural norms also represents an advance in research design, because they are able to capture the main cross-cultural variation while avoiding multicollinearity issues caused by the high correlations among individual dimensions (Stephan and Uhlaner, 2010). Moreover, considering the documented moderating role of legal origin, we further include a common law dummy (*DCOM*) as an additional control. As Benlemlih and Girerd-Potin (2017) and Desender et al. (2020) indicate, the traits of the legal origin of a country (e.g., civil law versus common law, shareholder- versus stakeholder-oriented countries) play an important role in shaping the effectiveness of the CSR strategy.[3] *DCOM* is defined as a value of 1 for common law countries and 0 otherwise.

3.2.5 Descriptive Statistics

Table 2 provides summary statistics and the correlation matrix for our main variables. All firm-level variables are measured using fiscal-year-end values and are winsorized at the 1% and 99% levels. Panel A presents the statistics of firm-level variables. Our primary variable of interest, *CSR*, across all 39 countries, has a mean value of 42.321 and a standard deviation of 20.456. This is consistent with international CSR studies such as Dyck et al. (2019) and Graafland and Noorderhaven (2020). The average Z-score of our sample firms is 4.194 with a standard deviation of 5.816. Panel B presents the statistics of country-level variables. The average *WGI* score is slightly positive with a mean value of 0.737 and a standard deviation of 0.835, echoing the diversity of the quality of macro-governance environments across countries, as indicated in Table 1. While Table 2 provides some preliminary evidence on the relationships

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[3] Our original model specification also includes a dummy variable of shareholder- versus stakeholder-oriented countries. It is dropped from the model due to multicollinearity concerns. The identified multicollinearity between legal origin and shareholder/stakeholder orientation is not surprising. As Benlemlih and Girerd-Potin (2017) point out, common law countries tend to be more shareholder-oriented and their laws and regulations are typically designed to protect shareholders. Civil law countries, on the other hand, are more stakeholder-oriented.

among key variables, such an analysis must be viewed cautiously, given that other cross-sectional factors are not taken into consideration.

[Insert Table 2 about here]

3.3 Methodology

In this study, we test our hypotheses using a three-level multilevel modeling (MLM) design, in which country is the highest level, industry (nested in country) is the intermediate level, and firm is the lowest level. MLM analysis advances research design on cross-country research because it effectively captures group effects and mitigates the risk of "ecological fallacy" that assumes relationships between variables at the aggregate level are the same at the individual level (Peterson et al., 2012). Given that CSR practices vary significantly across different countries and industries, we join international business (IB) researchers (e.g., Graafland and Noorderhaven, 2020; Stephan et al., 2015) in using the cutting edge cross-country research design, MLM, to test our hypotheses.

Our model specification is also supported by the intraclass correlation coefficients (ICCs), which are widely used in MLM research to identify potential clustering or nesting across different groups. The ICCs of the country-level variation and the industry-level variation (within a country) for CSR are 0.13 and 0.38, respectively, suggesting that 13% of the total variation resides at the country level and 38% of the total variation resides at the industry level within a country.[4] ICC values of 0.05, 0.10, and 0.15 are considered as small, medium, and large, respectively (Hox, 2010).

We test our hypotheses *H1* and *H2* by regressing the firm-level financial health, as measured by Altman's Z-Score, on the firm's CSR attributes, controlling for known firm-

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[4] In this study, we use the Global Industry Classification Standard (GICS) to classify industry sectors. In designing our MLM analysis, we also considered cross-classified MLM, but the ICC for the industry-level variation (without country nesting) is too small (0.03) to justify the use of cross-classified MLM.

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specific characteristics and country-level factors. The MLM design also allows us to effectively capture intraclass effects across different (country, industry, and firm-level) groups. In addition, we interact CSR with the quality of macro-governance environment to test whether the CSR-firm financial health link is stronger in countries with better governance environment quality (*H2a*), or the effect is more significant in weaker governance environments (*H2b*). Specifically, we conduct the following MLM regressions:

$$ZScore = \lambda_0 + \lambda_1 CSR + \lambda_2 SIZE + \lambda_3 MTB + \lambda_4 ROA + \lambda_5 LEV + \lambda_6 LIQ \\ + \lambda_7 WGI + \lambda_8 PBC + \lambda_9 SSC + \lambda_{10} GDPG + \lambda_{11} DCOM + \varepsilon \qquad (1)$$

$$ZScore = \lambda_0 + \lambda_1 CSR + \lambda_2 CSR*WGI + \lambda_3 SIZE + \lambda_4 MTB + \lambda_5 ROA + \lambda_6 LEV + \lambda_7 LIQ \\ + \lambda_8 WGI + \lambda_9 PBC + \lambda_{10} SSC + \lambda_{11} GDPG + \lambda_{12} DCOM + \varepsilon \qquad (2)$$

The dependent variable in the model is the Altman's Z-Score (*ZScore*), a proxy for firm financial health. The independent variables include the CSR score (*CSR*), firm size (*SIZE*), the market-to-book ratio (*MTB*), the return on assets ratio (*ROA*), the leverage ratio (*LEV*), the liquidity ratio (*LIQ*), the quality of macro-governance environment (*WGI*), the performance-based cultural dimension score (*PBC*), the socially supportive cultural dimension score (*SSC*), the GDP growth rate (*GDPG*), the common law dummy (*DCOM*) for equation (1), and an additional factor, the interaction term between CSR and the quality of macro-governance environment (*CSR*WGI*), for equation (2). To mitigate the issue of reverse causality, all firm-level independent variables are lagged by one year. To ensure a rigorous analysis, close attention is paid to multicollinearity. While the correlation test indicates that there are a number of statistically significant relationships among explanatory variables, none of the VIF statistics is greater than 5.0, suggesting that the concern about multicollinearity does not appear to be warranted.[5]

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[5] In this study, we use a relatively more conservative, and arguably more appropriate, cutoff VIF value of 5.0 to identify potential multicollinearity (Sheather, 2009).

Observing a significant impact of CSR on financial stability, a natural question to ask is how, and through which channel, CSR helps enhance financial stability. To address this question, the following MLM regressions are further conducted:

$$Q = \lambda_0 + \lambda_1 CSR + \lambda_2 WGI * CSR + \lambda_3 SIZE + \lambda_4 MTB + \lambda_5 ROA + \lambda_6 LEV + \lambda_7 LIQ$$
$$+ \lambda_8 WGI + \lambda_9 PBC + \lambda_{10} SSC + \lambda_{11} GDPG + \lambda_{12} DCOM + \varepsilon \tag{3}$$

$$ROE = \lambda_0 + \lambda_1 CSR + \lambda_2 WGI * CSR + \lambda_3 SIZE + \lambda_4 MTB + \lambda_5 ROA + \lambda_6 LEV + \lambda_7 LIQ$$
$$+ \lambda_8 WGI + \lambda_9 PBC + \lambda_{10} SSC + \lambda_{11} GDPG + \lambda_{12} DCOM + \varepsilon \tag{4}$$

The dependent variables in the regressions are financial performance and firm valuation. We use the return on equity (ROE) ratio to measure financial performance, which is arguably the most important financial performance measure.[6] From the financial management perspective, ROE captures how effectively a company's management uses shareholders' money to generate earnings and it also plays a critical role in determining sustainable growth rate. Following the literature, we use Tobin's Q ratio to measure firm value (see, for example, Jo and Harjoto, 2011; Servaes and Tamayo, 2013; Morck El Ghoul et al., 2017; Harjoto and Laksmana, 2018; Hannah et al., 2021). Measured as the ratio between the firm's market value and its replacement value, Tobin's Q provides a good indicator of how the market and investors perceive and value the firm. All other variables are defined as before. To mitigate the issue of reverse causality, all firm-level independent variables are lagged by one year.

4. EMPIRICAL FINDINGS

4.1 Main Results

Table 3 reports the MLM regression results regarding the impact of CSR on firm financial health (proxied by the Altman's Z-score), as well as the moderating role of the quality of macro-governance environment. CSR is measured by the ESG Score. Model 1 tests the

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[6] To ensure that our results are not sensitive to the performance measure used, we also repeat the regressions using ROA (net income over total assets) as an alternative measure. The results are unaffected.

relationship between firm financial health and other firm-specific characteristics (without CSR), where all control variables are found to have significant influences on firm financial health. Model 2 tests the direct effect of CSR on financial health. Model 3 tests the moderating effect of the quality of macro-governance environment on the relationship between CSR and corporate financial health.

[Insert Table 3 about here]

Consistent with our predictions, we find that the coefficient estimates on CSR are positive and significant (p-value < 0.01) across different model specifications (hypothesis *H1* is supported). Interesting findings emerge when the interaction term between governance environment and CSR is included in Model 3. In particular, we find that the coefficient estimate on *CSR*WGI* is negative and significant (the coefficient estimate is -0.009; p-value < 0.01), suggesting that CSR is more value enhancing in weak governance environments (hypothesis *H2b* is supported). Our finding complements and extends El Ghoul et al.'s (2017) finding that CSR is more positively related to firm value in countries with weaker market-supporting institutions. From a strategic management perspective, our findings suggest that non-market mechanisms such as CSR may be utilized by firms in weak institutional environments as an effective strategy to compensate for institutional voids.

In terms of control variables, we find that smaller firms with better growth opportunities, higher profitability, and better liquidity tend to be more financially stable, while firms with higher leverage appear to be less financially stable. Regarding country-level factors, we find that firms' financial stability tends to be higher in SSC-oriented countries and in civil law countries. A comparison of the AIC and BIC statistics across Models 1-3 indicates that CSR and governance environment play a significant role in jointly determining the financial health

of the firm, as indicated by notable decreases in log likelihood, AIC, and BIC values when CSR and the interaction terms are added to the model.

As previously noted, the measure of CSR score consists of three individual dimensions: the Environmental Pillar Score, the Social Pillar Score, and the Governance Pillar Score. To further advance our understanding, we regress firm financial health on each individual dimension, as well as its interaction with WGI (the quality of macro-governance environment), respectively. As illustrated in Table 4, firms with high-environmental, social score, and governance scores, tend to have better financial health. The quality of macro-governance environment significantly moderates the effects of environmental and governance pillars on firm financial health. However, we do not find significant moderating effect of macro-governance environment on social activities

[Insert Table 4 about here]

4.2 Robustness Checks

In the literature, an inevitable challenge associated with this kind of empirical studies is endogeneity. In this study, we utilize the following approaches to mitigate potential endogeneity. First, note that endogeneity, omitted-variables bias in particular, is less of an issue for panel models than for cross-sectional models. This is because the past values of the variables in the panel automatically capture the effects of the missing variables. Second, we use lagged independent variables in all regressions to control for the issue of reverse casualty. Moreover, a standard remedy for endogeneity, the two-stage model is conducted to gain additional confidence. For the two-stage model to work, we need at least one instrumental variable that is highly correlated with the endogenous regressor, the firm-level CSR score, but is uncorrelated with the error term. Following Maxfield and Wang (2021), among others, we

use the industry average CSR score (within a country in a given year) as the instrumental variable. The use of industry average CSR score as the instrumental variable also rests on a strong theoretical ground. As Jackson and Apostolakou (2010) point out, because firms operating in the same industry face similar challenges and regulations, common CSR patterns and standards are likely to develop, forcing CSR practices implemented by firms in the same industry to converge. The first stage F statistics are greater than 10 in all model specifications, suggesting that the instrumental variable used in the two-stage model is appropriate. In the two-stage model, the fitted values of the CSR scores from the first stage are utilized in second-stage regressions. The two-stage model results are reported in Panel A of Table 5. Given the empirical challenge in constructing a perfect two-stage model, an alternative robustness test is further conducted with respect to endogeneity, where the lagged dependent variable is included as an additional independent variable in the regressions. Using a lagged dependent variable as an additional regressor provides a simple way to account for historical factors that cause current differences in dependent variables that are difficult to capture in other models (Woodridge, 2000). The results from this robustness check are reported in Panel B of Table 4. As can be seen, the results in Table 4 are highly consistent with the results reported in Table 3, providing strong support to our research design.

[Insert Table 5 about here]

In addition to endogeneity checks, a series of robustness tests are further conducted to gain additional confidence. First, the regressions are conducted with additional control variables. Such variables include firm age, dividend yield, stock market turnover, sales growth, R&D to total assets ratio, Capex to total assets ratio, cash holding to total assets ratio, CFO to total assets ratio, board size, and board independence. These additional control variables have

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no evident impact on the main results. Moreover, in addition to using a continuous measure of WGI, we also split the sample into strong, medium, and weak governance countries and repeat the regressions with respect to each subsample. More specifically, we rank the 39 countries based on their 10-year average WGI scores and classify the top one-third as strong governance countries, the bottom one-third as weak governance countries, and the middle one-third as medium governance countries. The subsample analysis further confirms our main findings in Table 3 that CSR plays a more significant role in enhancing firm financial health in weak governance environments. In particular, we find that the coefficient estimate on CSR is highly significant in weak governance countries (p-value < 0.01), marginally significant in medium governance countries (p-value < 0.10), and insignificant in strong governance countries. For brevity, these results are not reported but are available upon request.

4.3 Further Analysis

To gain additional insights, we further investigates how, and through which channel, CSR helps enhance firm financial health. Table 6 reports the MLM regression results, where Panel A focuses financial performance and Panel B focuses on firm value. In particular, we find that the coefficient estimates on both *CSR* and the interaction term, *CSR*WGI*, are insignificant in Panel A where the ROE ratio is the dependent variable (hypothesis *H3a* is not supported). In contrast, the coefficient estimates on both *CSR* and the interaction term, *CSR*WGI*, are positive and significant (p-value < 0.01) in Panel B where the Tobin's Q ratio (a proxy for the market value of the firm, Servaes and Tamayo, 2013) is the dependent variable (hypothesis *H3b* is supported). Overall, the results in Table 6 suggest that the explanation for the impact of CSR on firm financial health largely runs through traits of firm valuation instead of accounting-based financial performance. Our tests are thus complementary to the findings in previous studies (e.g., Albuquerque et al. 2019; Hannah et al. 2021; Servaes and Tamayo,

2013) that CSR has a positive impact on firm value. We argue that CSR enhances the financial health of a firm via firm value.

[Insert Table 6 about here]

5. CONCLUDING REMARKS

Using a large sample of 4,480 publicly-listed firms across 39 countries over the ten-year period from 2010 to 2019, we investigate whether, and through which channel, CSR helps enhance the overall financial health of firms. Our empirical evidence indicates that CSR engagement largely enhances firms' financial health in countries with weak governance environments, but not in countries with strong governance environments. Our findings suggest that CSR is being used to compensate for institutional voids in weak institutional environments. Further investigation indicates that the explanation for the impact of CSR on financial health largely runs through traits of firm valuation. The impact of CSR on real financial performance is marginal. Our study is consistent with prior evidence that CSR activities increase firm value (e.g., Albuquerque et al. 2019; Hannah et al. 2021; Servaes and Tamayo, 2013). We bring the new insight that the strong link they find between CSR and firm value leads to a significant and positive effect on the overall financial health of the firm. We use a three-level multilevel modeling design (country, industry, and firm levels) to test our hypotheses, which adequately capture differences of CSR practices across different countries and industries. Our results are robust over time, after addressing endogeneity concerns, and after controlling for other firm-level and country-level factors.

The present study contributes to the literature in many ways. First, it adds to the firm financial distress literature by exploring new insights on a unique driver of a firm's overall financial health, and by extending our understanding of how unique institutional features can

shape the effectiveness of the CSR strategy. Our evidence shows CSR engagement enhances firm financial health, implying that CSR mitigates the risk of financial distress. Second, this study contributes to the governance literature by recognizing the crucial role of national governance environment in shaping CSR practice and the effectiveness of such a strategy. As Devinney et al. (2013) point out, we cannot understand the CSR strategy without understanding the nature of the institutional environments in which firms operate. In this study, we show that the overall quality of national governance environment significantly moderates the relationship between CSR and corporate financial health. By addressing the effectiveness of the CSR strategy in a contingency framework (contingent on the quality of macro-governance environment of a country), our study also offers a possible reconciliation to the mixed empirical findings in the literature. In particular, we find that the effects of CSR on firm financial health are more significant in countries with weak governance environments than countries with strong macro-governance environments. The moderating role of governance environment is significant even after controlling for economic growth, national culture, and the effect of legal origin. Third, we identify the channel through which CSR affects firm financial health. Our results show that, firm value, rather than accounting-based financial performance, is the main driver of the observed positive link between CSR and firm financial health.

Besides its contributions to the academic literature, this study also offers practical insights to firm management, investors, and policy makers to consider as they seek to undertake CSR. In particular, our research highlights the positive impact of CSR on firms' overall financial health and stability around the world and extends our understanding of how the overall quality of national governance environment can shape the effectiveness of the CSR strategy. From a strategic management perspective, we argue that CSR may be utilized by firms in weak governance environment as a strategic response to institutional voids.

Lastly, as with other exploratory research, the present paper also points out a promising area for future research. In this study, we focus mainly on the moderating role of governance environment. We do not try to rule out the impact of other formal and informal institutional differences across different country settings. Rather, we hope that this study will stimulate more cross-country comparative studies that will explore the impact of different institutional contexts on the determinants and the effectiveness of the CSR strategy.

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Table 1. Sample Breakdown by Country

This table reports the number of firms, number of observations, the 10-year average WGI score, and the 10-year average CSR score by country. WGI score represents the quality of national governance environment. Initially credited by Kaufmann et al. (2003, 2004), the WGI aggregates six individual dimensions of governance, including voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. These indicators are measured based on over 30 individual data sources produced by a variety of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms across over 200 countries and territories. CSR is measured using the Refinitiv (formerly Thomson Reuters) ASSET4 ESG ratings. The ASSET4 ESG Score is an overall company score based on 450 company-level ESG inputs (of which a subset of 186 inputs are identified to be more material) across ten categories, including resource use, emissions, innovation, workforce, human rights, community, product responsibility, management, shareholders, and CSR strategy. A combination of the ten categories, weighted proportionately, formulates the Environmental, Social, and Governance Pillar Scores, as well as the final ESG Score. The scores are ranging between 0 and 100, where higher scores indicate better relative ESG performance.

Country	# Firms	# Observations	WGI Score	CSR Score
Argentina	25	71	-0.034	35.007
Australia	323	2129	1.580	35.818
Austria	11	78	1.478	55.930
Brazil	81	601	-0.084	49.966
Canada	232	1477	1.630	39.172
China	306	1424	-0.451	33.361
Colombia	13	71	-0.215	55.298
Denmark	20	156	1.722	57.275
Egypt	5	39	-0.856	19.484
Finland	25	203	1.798	61.373
France	85	657	1.138	62.936
Germany	8	41	1.496	56.729
Greece	10	77	0.274	48.889
Hong Kong	116	846	1.420	38.847
India	86	615	-0.225	50.200
Indonesia	33	239	-0.260	43.673
Ireland	33	207	1.422	50.408
Israel	16	114	0.699	37.079
Italy	5	37	0.511	64.487
Japan	377	3136	1.329	44.712
Malaysia	48	347	0.368	44.367
Mexico	23	172	-0.247	50.299
Netherlands	30	210	1.685	65.302
New Zealand	46	219	1.832	38.127
Philippines	21	166	-0.322	39.774
Poland	21	150	0.777	39.187
Portugal	6	47	1.014	61.165
Qatar	6	31	0.503	17.832
Russia	31	258	-0.694	41.229
Singapore	34	282	1.581	43.565

South Africa	101	735	0.197	49.520
South Korea	102	802	0.809	44.985
Spain	26	195	0.836	66.772
Sweden	24	182	1.756	62.257
Switzerland	60	471	1.766	52.625
Thailand	33	220	-0.281	54.867
Turkey	24	170	-0.272	49.841
United Kingdom	320	2169	1.407	50.050
United States	1714	8243	1.240	41.895

Table 2. Descriptive Statistics and Correlations

This table reports the descriptive statistics and correlation coefficients of key variables. The variables in the table are defined as follows: *ZScore* is the Altman's Z-Score; *CSR* is the ASSET4 ESG score; *SIZE* is the size of the firm, calculated as the natural log of total assets; *MTB* is the market-to-book-ratio, measured as the stock market capitalization of the firm divided by the total equity of the firm; *ROA* is the return on assets ratio, computed as EBIT divided by total assets; *LEV* is the leverage ratio, measured as the debt-to-assets ratio; *LIQ* is the liquidity ratio, measured as the current assets to current liabilities ratio; *WGI* is the WGI score; *PBC* is the performance-based cultural dimension score; *SSC* is the socially supportive cultural dimension score; *GDPG* is the GDP growth rate; *DCOM* is the common law dummy, which takes the value of 1 for common law countries and 0 otherwise. All firm-level variables are measured using fiscal-year-end values and are winsorized at the 1% and 99% levels. The panel sample consists of 4,480 publicly-listed firms (27,287 firm-year observations) across 39 countries. The p-values are in parentheses.

Panel A: Firm-Level Variables

	Mean	Std Dev	ZScore	CSR	SIZE	MTB	ROA	LEV	LIQ	VIF
ZScore	4.194	5.816	1.000							
CSR	42.321	20.456	-0.087	1.000						1.135
			(<.0001)							
SIZE	23.347	2.865	-0.187	0.280	1.000					1.204
			(<.0001)	(<.0001)						
MTB	3.396	4.396	0.277	-0.022	-0.200	1.000				1.210
			(<.0001)	(<.0001)	(<.0001)					
ROA	0.075	0.099	0.234	0.135	0.063	0.217	1.000			1.155
			(<.0001)	(<.0001)	(<.0001)	(<.0001)				
LEV	0.532	0.207	-0.430	0.204	0.212	0.181	-0.026	1.000		1.604
			(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)			
LIQ	2.119	2.031	0.398	-0.200	-0.242	0.019	-0.164	-0.535	1.000	1.542
			(<.0001)	(<.0001)	(<.0001)	(0.002)	(<.0001)	(<.0001)		

Panel B: Country-Level Variables

	Mean	Std Dev	WGI	PBC	SSC	GDPG	DCOM		VIF
WGI	0.737	0.835	1.000						2.767
PBC	2.310	2.041	0.756	1.000					2.574
			(<.0001)						
SSC	-0.021	0.714	-0.180	0.044	1.000				1.284
			(<.0001)	(0.419)					
GDPG	2.750	2.801	-0.232	-0.045	0.382	1.000			1.256
			(<.0001)	(0.403)	(<.0001)				
DCOM	0.338	0.474	0.217	0.262	0.209	0.177	1.000		1.161
			(<.0001)	(<.0001)	(<.0001)	(<.0001)			

Table 3. CSR, Macro-Governance Environment, and Firm Financial Health: MLM Regression

This table reports the MLM regression results regarding the impact of CSR on firm financial health, as well as the moderating role of macro-governance environment. The dependent variable in the models is the Altman's Z-score, a proxy for firm financial health. CSR is measured by the ESG Score. Other independent variables include the interaction term between governance environment and CSR, *CSR*WGI*, firm size, *SIZE*, the market-to-book ratio, *MTB*, the return on assets ratio, *ROA*, the leverage ratio, *LEV*, the liquidity ratio, *LIQ*, the WGI score, *WGI*, the PBC score, *PBC*, the SSC score, *SSC*, the GDP growth rate, *GDPG*, and the common law dummy, *DCOM*. All firm-level independent variables are lagged by one year. Number of firms = 4,480; Number of countries = 39; Number of industry sectors =11; Number of years = 9 (note that the observations of year 2010 are lost in calculating lagged values); Number of observations = 27,287. Software: SAS. The *t*-values are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

	Model 1	Model 2	Model 3
Fixed Effects			
CSR*WGI			-0.009***
			(-3.87)
CSR		0.015***	0.025***
		(9.30)	(8.35)
Firm-Level Controls			
SIZE	-0.423***	-0.534***	-0.524***
	(-20.32)	(-22.34)	(-21.82)
MTB	0.331***	0.327***	0.327***
	(46.96)	(46.46)	(46.50)
ROA	11.059***	10.962***	10.985***
	(36.86)	(36.57)	(36.64)
LEV	-9.146***	-9.128***	-9.138***
	(-51.17)	(-51.14)	(-51.21)
LIQ	0.599***	0.603***	0.602***
	(36.48)	(36.75)	(36.70)
Year Fixed Effect	Controlled	Controlled	Controlled
Country-Level Controls			
WGI	0.548	0.584	0.728*
	(1.48)	(1.56)	(1.95)
PBC	-0.145	-0.218	-0.129
	(-0.67)	(-0.96)	(-0.58)
SSC	1.388***	1.547***	1.510***
	(2.59)	(2.75)	(2.75)
GDPG	0.003	0.008	0.009
	(0.15)	(0.34)	(0.39)
DCOM	-1.753**	-1.832**	-1.882**
	(-2.17)	(-2.15)	(-2.27)
Random Effects			
Country	3.669***	4.263***	3.974***
	(3.07)	(3.21)	(3.17)

Industry (Nested in Country)	10.890***	10.415***	10.280***
	(10.42)	(10.33)	(10.30)
Model Fit Statistics			
-2 Log Likelihood	156572	156486	156471
AIC	156600	156516	156503
BIC	156623	156541	156530
LR Test (p value)	<.0001	<.0001	<.0001

Table 4. Individual Dimensions of CSR Activities, Macro-Governance Environment, and Firm Financial Health: MLM Regression

This table reports the MLM regression results regarding the impact of CSR on firm financial health, as well as the moderating role of macro-governance environment. The dependent variable in the models is the Altman's Z-score, a proxy for firm financial health. The key independent variables are the Environmental, Social, and Governance Pillar Scores, as well as their interaction with WGI. Other independent variables include firm size, *SIZE*, the market-to-book ratio, *MTB*, the return on assets ratio, *ROA*, the leverage ratio, *LEV*, the liquidity ratio, *LIQ*, the WGI score, *WGI*, the PBC score, *PBC*, the SSC score, *SSC*, the GDP growth rate, *GDPG*, and the common law dummy, *DCOM*. All firm-level independent variables are lagged by one year. Number of firms = 4,480; Number of countries = 39; Number of industry sectors =11; Number of years = 9 (note that the observations of year 2010 are lost in calculating lagged values); Number of observations = 27,287. Software: SAS. The *t*-values are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

	Environmental	Social	Governance
Fixed Effects			
Environmental Pillar*WGI	-0.007***		
	(-3.64)		
Environmental Pillar	0.017***		
	(7.31)		
Social Pillar*WGI		-0.003	
		(-1.33)	
Social Pillar		0.013***	
		(5.08)	
Governance Pillar*WGI			-0.008***
			(-4.41)
Governance Pillar			0.016***
			(6.95)
Firm-Level Controls			
SIZE	-0.512***	-0.496***	-0.449***
	(-21.27)	(-21.26)	(-20.72)
MTB	0.328***	0.326***	0.332***
	(46.63)	(46.24)	(47.11)
ROA	11.054***	11.074***	10.968***
	(36.88)	(36.94)	(36.49)
LEV	-9.131***	-9.123***	-9.169***
	(-51.14)	(-51.08)	(-51.34)
LIQ	0.600***	0.599***	0.601***
	(36.57)	(36.55)	(36.63)
Year Fixed Effect	Controlled	Controlled	Controlled
Country-Level Controls			
WGI	0.617*	0.623*	0.792**
	(1.66)	(1.67)	(2.12)
PBC	-0.139	-0.170	-0.106
	(-0.62)	(-0.76)	(-0.49)
SSC	1.489***	1.494***	1.400***
	(2.71)	(2.73)	(2.61)

GDPG	0.010	0.007	0.003
	(0.43)	(0.31)	(0.11)
DCOM	-1.822**	-1.839**	-1.792**
	(-2.19)	(-2.22)	(-2.22)
Random Effects			
Country	3.999***	3.936***	3.676***
	(3.17)	(3.14)	(3.09)
Industry (Nested in Country)	10.363***	10.494***	10.494***
	(10.31)	(10.34)	(10.34)
Model Fit Statistics			
-2 Log Likelihood	156491	156513	156513
AIC	156523	156545	156545
BIC	156549	156572	156572
LR Test (p value)	<.0001	<.0001	<.0001

Table 5. Robustness Check for Endogeneity

This table reports the regression results from robustness checks, where Panel A reports the results from the 2-stage model and Panel B reports the results from the regressions with lagged dependent variable. The dependent variable in the models is the Altman's Z-score, a proxy for firm financial health. Independent variables include the ASSET4 ESG score, *CSR*, the interaction term between macro-governance environment and CSR, *CSR*WGI*, firm size, *SIZE*, the market-to-book ratio, *MTB*, the return on assets ratio, *ROA*, the leverage ratio, *LEV*, the liquidity ratio, *LIQ*, the WGI score, *WGI*, the PBC score, *PBC*, the SSC score, *SSC*, the GDP growth rate, *GDPG*, and the common law dummy, *DCOM*. All firm-level independent variables are lagged by one year. Number of firms = 4,480; Number of countries = 39; Number of industry sectors =11; Number of years = 9 (note that the observations of year 2010 are lost in calculating lagged values); Number of observations = 27,287. Software: SAS. The *t*-values are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

| | Panel A: 2-Stage Model | | Panel B: Lagged Dependent Variable | |
	Model 1	Model 2	Model 1	Model 2
Fixed Effects				
WGI*CSR		-0.014**		-0.004***
		(-2.51)		(-2.70)
CSR	0.022***	0.034***	0.004***	0.008***
	(5.02)	(3.95)	(3.88)	(4.40)
LZScore			0.807***	0.806***
			(205.31)	(205.09)
Firm-Level Controls				
SIZE	-0.490***	-0.518***	-0.156***	-0.152***
	(-19.82)	(-20.81)	(-11.02)	(-10.71)
MTB	0.331***	0.328***	0.019***	0.019***
	(46.98)	(46.55)	(4.04)	(4.10)
ROA	10.773***	10.952***	2.581***	2.594***
	(35.28)	(36.48)	(13.08)	(13.15)
LEV	-9.281***	-9.124***	-1.001***	-1.008***
	(-51.37)	(-51.08)	(-8.50)	(-8.56)
LIQ	0.607***	0.602***	-0.095***	-0.095***
	(36.81)	(36.66)	(-8.44)	(-8.44)
Year Fixed Effect	Controlled	Controlled	Controlled	Controlled
Country-Level Controls				
WGI	0.486	1.190	-0.117	0.007
	(1.32)	(2.84)	(-0.81)	(0.04)
PBC	-0.192	-0.197	0.019	0.039
	(-0.89)	(-0.87)	(0.31)	(0.64)
SSC	1.502***	1.526***	0.371***	0.370***
	(2.81)	(2.74)	(2.87)	(2.95)
GDPG	0.012	0.023	-0.012	-0.012
	(0.52)	(0.97)	(-0.82)	(-0.84)
DCOM	-1.784**	-1.906**	-0.437**	-0.462**
	(-2.22)	(-2.26)	(-2.36)	(-2.57)
Random Effects				
Country	3.648***	4.105***	0.213***	0.198***
	(3.07)	(3.15)	(3.25)	(3.21)

Industry (Nested in Country)	10.654***	10.604***	0.099***	0.098***
	(10.36)	(10.36)	(4.05)	(4.05)
Model Fit Statistics				
-2 Log Likelihood	156547	156525	131959	131952
AIC	156557	156557	131991	131986
BIC	156583	156583	132018	132014
LR Test (p value)	<.0001	<.0001	<.0001	<.0001

Table 6. Further Analysis

This table reports the regression results regarding our further analysis, where Panel A focuses on financial performance and Panel B focuses on firm value. Independent variables include the ASSET4 ESG score, *CSR*, the interaction term between macro-governance environment and CSR, *CSR*WGI*, firm size, *SIZE*, the market-to-book ratio, *MTB*, the return on assets ratio, *ROA*, the leverage ratio, *LEV*, the liquidity ratio, *LIQ*, the WGI score, *WGI*, the PBC score, *PBC*, the SSC score, *SSC*, the GDP growth rate, *GDPG*, and the common law dummy, *DCOM*. All firm-level independent variables are lagged by one year. Number of firms = 4,480; Number of countries = 39; Number of industry sectors =11; Number of years = 9 (note that the observations of year 2010 are lost in calculating lagged values); Number of observations = 27,287. Software: SAS. The *t*-values are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels.

	Panel A: Financial Performance (ROE)			Panel B: Firm Value (Tobin's Q)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Fixed Effects						
WGI*CSR			0.000			-0.002***
			(-0.47)			(-3.41)
CSR		0.000	0.000		0.009***	0.012***
		(0.00)	(0.39)		(19.43)	(13.53)
<u>Firm-Level Controls</u>						
SIZE	0.020***	0.020***	0.021***	-0.216***	-0.284***	-0.281***
	(20.93)	(18.54)	(18.51)	(-35.70)	(-40.92)	(-40.35)
MTB	0.013***	0.013***	0.013***	0.197***	0.195***	0.195***
	(37.62)	(37.59)	(37.59)	(96.25)	(95.71)	(95.75)
ROA	1.465***	1.465***	1.465***	2.161***	2.103***	2.109***
	(98.74)	(98.62)	(98.61)	(24.78)	(24.27)	(24.34)
LEV	0.074***	0.074***	0.074***	-1.390***	-1.378***	-1.381***
	(8.47)	(8.47)	(8.47)	(-26.74)	(-26.69)	(-26.75)
LIQ	0.003***	0.003***	0.003***	-0.020***	-0.017***	-0.018***
	(4.01)	(4.01)	(4.00)	(-4.11)	(-3.66)	(-3.71)
Year Fixed Effect	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
<u>Country-Level Controls</u>						
WGI	0.026**	0.026**	0.027**	-0.249**	-0.228**	-0.194*
	(2.12)	(2.12)	(2.17)	(-2.22)	(-2.01)	(-1.71)
PBC	0.003	0.003	0.003	0.085	0.041	0.065
	(0.49)	(0.49)	(0.54)	(1.15)	(0.52)	(0.82)
SSC	-0.018	-0.018	-0.018	0.463**	0.556***	0.547***
	(-1.56)	(-1.56)	(-1.55)	(2.46)	(2.69)	(2.70)
GDPG	0.004***	0.004***	0.004***	0.010	0.013*	0.013**
	(3.77)	(3.77)	(3.76)	(1.53)	(1.92)	(1.98)
DCOM	0.021	0.021	0.021	-0.488*	-0.532*	-0.545*
	(1.30)	(1.30)	(1.27)	(-1.71)	(-1.69)	(-1.76)
Random Effects						
Country	0.002***	0.002***	0.002***	0.493***	0.637***	0.609***
	(3.16)	(3.13)	(3.13)	(3.35)	(3.57)	(3.56)

Industry (Nested in Country)	0.002***	0.002***	0.002***	1.096***	1.011***	1.002***
	(6.45)	(6.45)	(6.45)	(10.84)	(10.73)	(10.71)
Model Fit Statistics						
-2 Log Likelihood	-8240	-8240	-8240	89179	88805	88794
AIC	-8212	-8210	-8208	89207	88835	88826
BIC	-8188	-8185	-8181	89230	88860	88852
LR Test (p value)	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001