Corporate Social (Ir)responsibility and Firm Risk: The Role of Corporate Governance

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Abstract

This study examines how corporate governance moderates the association between corporate social responsibility (CSR)/corporate social irresponsibility (CSI) and firm risk. Our evidence indicates that CSR significantly reduces risk for firms with certain governance characteristics, as proxied by board diversity, board independence and the presence of sustainability committee, indicating that those characteristics are drivers of CSP reputation. On the other hand, CSI represents firm missteps or misconducts that increase risk. We find that the positive effect of CSI on risk is more pronounced for firms with governance choices found to be drivers of CSP reputation. Investors will see attempts to establish CSP reputation through governance choices as insincere when CSI outcomes arise. Overall, the evidence strongly supports information intensity arguments and are inconsistent with implications of CSP-as-insurance or CSP-as-product differentiation theories. This study thus enhances our understanding on the channels through which CSR and CSI impacts firm risk.

Key Words: *Corporate Social Responsibility (CSR), Corporate Social Irresponsibility (CSI), Firm Risk, Insurance Theory, Product Differentiation Theory, Agency Theory*

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1. *Introduction*

Although evidence on the impact of corporate social performance (henceforth CSP) on *firm value* is mixed,[2] researchers provide strong and consistent evidence of a negative relation between CSP and firm risk (e.g., Orlitzky and Benjamin, 2001). To explain this relation, Godfrey (2005) posits that CSP creates a reservoir of goodwill among a firm's stakeholders, and this goodwill acts as insurance against negative events. To test this "CSP-as-insurance" theory, Godfrey, Merrill and Hansen (2009) study 178 unexpected negative legal/regulatory actions, and find that the market reaction to a negative event is much less negative for firms with higher CSP standing. Koh, Qian and Wang (2014) extend this evidence by showing that CSP reduces risk ex ante (firms facing a greater litigation risk have less volatile stock performance when CSP standing is high). Numerous studies have confirmed the negative CSP-risk relation.[3] As concluded by Kolbel, Busch and Jansco (2017), this large body of evidence has made the CSP-as-insurance hypothesis "an empirical success".

Despite this success, some recent studies have raised questions. Kang, Germann and Grewal (2016) find that current CSP strengths do not insure against future CSP weaknesses as the CSP-as-insurance theory would predict. Also, while the CSP-risk relation has been extensively studied, less is known regarding the mechanisms through which CSP impacts risk. In this study, we consider whether information reflected in a firm's corporate governance choices impacts how CSP outcomes affect firm risk. Our empirical strategy is unique in combining the following two considerations. First, we separately consider CSP strengths

[2] Some studies empirically reveal a positive CSP-firm value relation (e.g. Hillman and Keim, 2001; Servaes and Tamayo, 2013; Porter and Kramer, 2011), while other studies show a negative one (e.g. Brammer, Brooks, and Pavelin, 2006; Hong, Li and Minor, 2016; Kruger, 2015).

[3] See Chava (2014); Cheng, Ioannou and Serafeim (2014); El Ghoul, Guedhami, Kwok, and Mishra (2011); Goss and Roberts (2011); Lee & Faff (2009); Oikonomou, Brooks, and Pavelin (2014).

(henceforth labeled corporate social responsibility or CSR) and CSP weaknesses (henceforth labeled corporate social irresponsibility or CSI). As noted in several studies (e.g., Strike, Gao and Bansal, 2006), CSR and CSI represent theoretically different constructs. Importantly, CSR mostly arises through firm disclosures of policies or actions, whereas CSI mostly arises based on third-party assessments (e.g., media criticism by NGOs). Second, as noted above, we consider corporate governance measures as moderators of the CSR-risk and CSI-risk relations. The extensive literature suggests that governance measures provide information regarding a firm's shareholder orientation (e.g., Bebchuk, Cohen and Ferrell, 2009). The literature also shows direct links between governance measures and CSP (e.g., Ferrell, Liang, and Renneboog, 2016). Therefore, these measures can also provide information regarding a firm's CSP orientation and reputation (Lin-Hi and Muller, 2013). Governance measures are broadly considered by investors, so information conveyed by firms through governance choices should be widely known.[4] Our study, therefore, allows us to consider whether and how information regarding a firm's CSP orientation and reputation, as conveyed through firm governance choices, affect the CSR-risk and CSI-risk relations.

While providing information on an important mechanism through which CSP can impact firm risk, we believe our study can also shed light on the CSP-as-insurance theory, as clear predictions for the moderating effects of corporate governance on the CSI-risk relation emerges from that theory. If certain corporate governance choices enhance a firm's CSP reputation, then the effect of CSI on risk should be dampened for firms with those governance choices under the CSP-as-insurance hypothesis. An important distinction between CSR and CSI is the mechanisms through which they arise. CSR generally reflects purposeful decisions and actions taken and promoted by a firm. CSI represents firm missteps, purposeful (i.e., the consequence of decisions) or otherwise (e.g., accidents). CSI is generally uncovered and conveyed to market

[4] Relatedly, several studies note that governance measures reflect transparency (e.g., Ajinkya, Bhojaj and Sengupta, 2004).

participants by third parties. Kolbel et al. (2017), for example, argue that media coverage of CSI increases the chance of stakeholder sanctions, thereby increasing variability in financial performance. Any positive CSP reputation conveyed through governance choices should build goodwill that then dulls the negative impacts of CSI outcomes on firm risk.

An alternative hypothesis emerges relying on information intensity arguments, developed by Schuler and Cording (2006). They posit that the impact of CSP depends on its source (the firm or third parties), the degree of diffusion (i.e., how broadly it is known), and the alignment of information with expectations. Broadly observed information coming from third parties is likely to have more significant effects. Importantly, they argue that larger effects are likely to arise when negative CSP information arises for firms with stronger ex ante CSP reputations. Applying this logic to our setting, the positive impact of CSI on firm risk is likely to be enhanced for firms with stronger CSP reputation. If certain corporate governance choices enhance a firm's CSP reputation, then the effect of CSI on risk should be enhanced for firms with those governance choices relying on information intensity arguments.

Critical to these predictions, under the CSP-as-insurance and information intensity theories about the moderating effect of governance on the CSI - firm risk relation, is the condition that certain governance choices enhance a firm's CSP reputation. We, therefore, first consider the link between governance choices and CSP reputation by studying the moderating effect of governance choices on the *CSR*-firm risk relation. Under the null hypothesis that governance choices have no effect on CSP reputation, the moderating effects of governance measures on the CSR-risk relation should be insignificant. The alternative hypotheses, emerging from a number of different theories including CSP-as-insurance and information intensity, is that the CSR-risk relation should be stronger (i.e., more negative) for firms making certain governance choices if those choices enhance a firm's CSP reputation.

We empirically examine the moderating effects of corporate governance measures on the

CSR-risk and CSI-risk relations using 13,187 US firm-year observations for 1791 firms from 1992 to 2014. The dependent variable in our models is firm risk, measured as the annualized monthly standard deviation of a firm's stock return. We regress this risk measure on lagged (by one year) measures of CSR and CSI obtained from the MSCI ESG Stats (formerly KLD) database. Our CSR measure is the sum of strengths noted by MSCI ESG Stats, and our CSI measure is the sum of concerns. Among other controls, our models include several different corporate governance proxies. We include interactions between governance proxies and CSR/CSI measures to determine whether the CSR-risk and CSI-risk are magnified or dampened based on governance characteristics. We estimate our models using ordinary least squares and, to reduce concerns pertaining to endogeneity and reverse causality, an instrumental variables approach. Overall, we find that our core results are robust to the use of alternative estimation methods.

We first consider the moderating effects of corporate governance for the CSR-risk relation. When we interact measures of CSR standing with several governance measures, we find that this interaction has a *negative* impact on firm risk, with both statistical and economic significance. That is, the negative CSR-risk relation becomes stronger for firms making certain governance choices. Based on this evidence, we reject the null hypothesis that these governance choices do not affect a firm's CSP reputation. While we cannot confirm the alternative hypothesis that governance choices enhance a firm's CSP reputation, we believe the CSR-risk evidence enhances our confidence in the key conditions required for our alternative hypotheses regarding the moderating effect of governance on the CSI-risk relation.

When we interact measures of CSI standing with governance proxies found in our initial analysis to enhance CSP reputation, we find that this interactive effect is significantly *positive*. That is, the *positive* CSI-risk relation becomes *more positive* for firms with stronger governance. Where statistically significant, empirical relations uncovered are also economically meaningful.

For example, when firms have a sustainability committee, the positive effect of CSI on firm risk is 14% larger compared to firms without a sustainability committee. We believe these findings are not consistent with predictions of CSP-as-insurance theory. Governance choices that enhance a firm's CSP reputation do not dull the negative impacts on firm risk from CSI outcomes. The evidence is consistent with information intensity theory, however. The impact of CSI outcomes on risk are greater for firms that have a stronger CSP reputation based on governance choices.

Overall, we believe our study makes several contributions to the literature. First, we contribute to our understanding of the effect of CSP on firm risk by exploring the underlying mechanisms. By considering moderating effects of governance choices, we attempt to answer why and how CSP impacts risk. When CSP reputation arising from governance choices align with positive CSP outcomes, firm risk can be further reduced. However, if a firm builds a strong CSP reputation through governance choices and negative outcomes arise, the impact of those outcomes on subsequent risks is enhanced. Firms, therefore, need to be careful in the governance choices they make, recognizing that CSI can arise due to factors beyond a manager's control.

We also extend the literature by examining the theoretical counterpart of CSR: CSI (Godfrey, 2005). While the current literature mainly focuses on the insurance effect of CSR (Godfrey, 2005; Godfrey et al., 2009), the risk-generating effect of CSI is largely overlooked. We follow Kolbel et al. (2017) in complementing the extant theory. Our insights pertaining to the risk-generating effects of CSI enhance the theoretical understanding of the origins of firm risk, and imply that firms must consider additional strategies beyond directly investing in CSR as an act of goodwill. A mere signal of doing good does not lead to doing well, and may even cause more damage than good. Finally, we also contribute to the literature on the asymmetric effect of CSR versus CSI (Fu et al., 2020), which allows us to more thoroughly understand the

implications of corporate social performance.

The paper proceeds as follows. In the next section, we illustrate our theoretical underpinning and hypotheses development. Section 3 describes our data and variables, while our results are contained in Section 4. Section 5 provides additional tests and robustness checks, and Section 6 concludes.

2. Hypothesis Development

2.1 CSP (CSR and CSI) and Firm Risk – Theory and Evidence

Various theories, such CSP-as-insurance theory (Godfrey, 2005) and product differentiation theory (Albuquerque et al., 2019; Duanmu, Bu and Pittman, 2018), can be used to explain the effect of CSP on firm risk. The CSP-as-insurance theory proposes that CSP generates positive relationship-based intangible assets, or moral capital, and offers the firm insurance-like protection against negative reputational events (Godfrey, 2005). Lins, Servaes and Tamayo (2017) posit that CSR produces social capital because it embraces civic engagement, shared beliefs, and trust between a firm and its stakeholders (also see Sapienza, Toldra-Simats, and Zingales, 2013). The established moral capital and trust among stakeholders is associated with reduced volatility in firms' future cash flows because better stakeholder relationships not only grant firms better opportunities (e.g., more government contracts and loyal customers), but protect firms from negative stakeholder assessments when facing unexpected negative events (Godfrey et al., 2009). As such, the CSP-as-insurance theory argues that CSP reduces risk.

Extant studies focusing on firm risk have combined CSR and CSI into a single CSP measure (Orlitzky and Benjamin, 2001), even though CSR and CSI capture distinct constructs and information dynamics (Lange and Washburn, 2012). Scholars in the field of sustainability have recognized the value of breaking the CSP measure down into its positive and negative components (Hillman and Keim, 2001; Strike et al., 2006; Godfrey et al., 2009). The former

centers on voluntary firm activities serving people, communities, and the environment in ways that go beyond shareholder interests and legal requirements (McWilliams and Siegel, 2000 & 2001), while the latter centers on "the set of corporate actions that negatively affects an identifiable social stakeholder's legitimate claims in the long run" (Strike et al., 2006, page 852). As previously noted, an important distinction between CSR and CSI is that CSR generally reflects *purposeful* decisions and actions taken and promoted by a firm, whereas CSI represents firm missteps, whether indirectly purposeful (i.e., the consequence of decisions) or otherwise (e.g., accidents). CSR is based on firm disclosures, while CSI is generally uncovered and disseminated by third parties. MSCI ESG Research, the source of our data on CSR and CSI, assesses strength areas (CSR) based on publicly stated firm policies and initiatives. In contrast, their assessment of concerns (CSI) is mostly based on third-party assessments (e.g., media criticism by NGOs).

Kolbel et al. (2017) explore differences between how CSR and CSI impact risk under the CSP-as-insurance theory. While CSR can reduce risk by enhancing a firm's reputation for sustainability, thus reducing the chance a firm will face negative sanctions from negative behavior and outcomes, CSI has a much more direct impact on increasing risk. Consistent with this, some studies (Bhattacharya and Sen, 2004; Jia, Gao and Julian, 2020) find that market participants are more responsive to CSI than CSR. Therefore, the CSP-as-insurance theory argues that the CSI-risk relation is stronger than the CSR-risk relation.

While the CSP-as-insurance theory is arguably the leading explanation for the evidence linking CSP and firm risk, other theories exist. The product differentiation theory argues that CSP is a strategic investment to enhance product differentiation, which in turn leads to relatively less-elastic demand (Albuquerque et al., 2019). The lower demand elasticity results in lower firm risk, as economic shocks have less effect on firm performance. Therefore, the product differentiation theory also predicts a negative association between CSP and firm risk.

Arguments by Kolbel et al. (2107) regarding the asymmetric effects of CSR and CSI framed relative to CSP-as-insurance theory should similarly apply here. While CSR should enhance a firm's reputation and ability to differentiate, CSI would likely have a more significant effect in dismantling that reputation.

In line with the CSP-as-insurance and product differentiation theories, the empirical literature generally supports the negative effect of CSP standing on firm risk (Orlitzky and Benjamin, 2001; Luo and Bhattacharya, 2009; Lee and Faff, 2009; Jo and Na, 2012; Oikonomou, Brooks, and Pavelin, 2012; Kim, Li, and Li, 2014; Jiraporn, Jiraporn, Boeprasert, and Chang, 2014; Bouslah, Kryzanowski and M'Zali, 2013). Many studies have attempted to establish causality. For instance, by examining 178 unexpected negative legal/regulatory actions, Godfrey et al. (2009) find that the market reaction to such events is much less negative for firms with higher CSR standing. Several recent papers use instrumental variables to discover a causal relation (e.g., Becchetti, Ciciretti, and Hasan, 2015; Albuquerque et al., 2019).[5] Finally, several studies consider the distinct impacts of CSR and CSI on firm risk. Most studies show that CSI positively impacts risk more meaningfully than CSR reduces it (Chava, 2014; Goss and Roberts, 2011; Oikonomou, Brooks, and Pavellin, 2014), consistent with the CSP-as-insurance and CSP-as-differentiation theories.

2.2 CSR, CSI, Corporate Governance and Firm Risk

Previous research has posited that the effect of CSP on firm performance and risk is not universal or homogenous, and the evidence supports this view. For instance, prior studies demonstrate that the CSP-firm value relationship is heterogeneous, conditional on moderating variables such as corporate reputation (Schuler and Cording, 2006), stakeholder influence

[5] The studies noted above examine the relationship between measures of CSR and stock return volatility. A negative CSR-risk relation is also found when considering other indicators of risk. Attig, El Ghoul, Guedhami and Suh (2013), Jiraporn, et al. (2014), Jung, Herbohn and Clarkson (2018), Goss and Roberts (2011), and Oikonomou, Brooks and Pavelin (2014) study the impact of CSR on credit ratings or the cost of debt capital. Harjoto and Jo (2015), and El Ghoul, Guedhami, Kwak and Mishra (2011) examine the impact of CSR on the cost of equity capital.

(Barnett, 2007) and customer awareness (Servaes and Tamayo, 2013). Likewise, several studies show that the negative CSP-firm risk relationship is contingent on firms' advertising and R&D investment (Luo and Bhattacharya, 2009), product differentiation (Albuquerque et al., 2019), and firm leverage (Kim, Lee and Kang, 2021). Following this strand of research and building on their theories, we argue that CSP has heterogeneous effects on risk depending on a firm's corporate governance choices.

We focus on the moderating role of corporate governance for the CSP-risk relation for several reasons. First, good governance can enhance a firm's general reputation, transparency and information environment (Ajinkya et al., 2004, Klein, 2002; Carter, Simkins and Simpson, 2003; Miller and Triana, 2009), thus boosting long-term performance while decreasing volatility. Information transparency, especially when related to CSP decisions and outcomes, can help investors respond more efficiently. Also, information intensity (Schuler and Cording, 2006), as introduced previously, should be greater in firms with stronger governance. Second, corporate governance itself has direct implications on firm risk. For instance, Bernile, Bhagwat and Yonker (2018) conjecture that board diversity fosters decision moderation and thus lowers firm risk. Finally, only a few prior studies, such as Harjoto and Jo (2011) and Ferrell et al. (2016), have focused on the alignment of corporate governance, and CSP. Ferrell et al. (2016) suggest that well-governed firms that suffer less from agency concerns generally engage in more CSP initiatives. Based on this literature, it is plausible that certain governance choices can directly positively impact a firm's CSP reputation.

Nike is an example of an alignment of corporate governance and CSP. In terms of corporate governance, Nike was one of the earliest US firms to adopt a sustainability committee in 2001 (Harvard Business Review, 2014)[6] and has a good reputation for board diversity with 15%

[6] Please refer to "Sustainability in the Boardroom" (by Lynn, S. Paine, Harvard Business Review, 2014) https://hbr.org/2014/07/sustainability-in-the-boardroom

black members and 33% female members (Forbes, 2020)[7]. In line with strong governance, Nike demonstrates strong CSP engagements. For instance, Nike was the first U.S. firm to publicly disclose its supplier information for all finished goods, and it strives to enhance workforce engagements at the factory level.[8]

Building on the empirical literature, we consider a number of corporate governance measures in our analysis. We recognize that these measures have often been used to proxy for different constructs based on different theories. Some measures, such as board independence (the percentage of unaffiliated board members), emerged as a way to capture shareholder alignment. We also consider measures traditionally used to more directly capture CSP alignment and reputation. For example, we include measures of board diversity (e.g., gender diversity) in our analysis. Although greater diversity can reflect shareholder alignment (Carter et al., 2003), some research finds that diversity can directly lead to less risky firm choices (Bernile et al. 2018). Firms seeking to reduce risk may simultaneously pursue sustainability policies and have diverse boards to ensure checks on CEO power (as noted by Bernile et al., 2018, having unchecked CEOs may lead to greater financial volatility as poor decisions are more likely to move ahead). Board diversity, therefore, may simply represent CSP alignment and reputation. Similarly, we consider as a governance measure the presence of a sustainability committee to the board of directors. The existence of a sustainability committee can reflect shareholder orientation (if, as noted by Ferrell et al. 2016, CSP is driven by good governance), but can also directly reflect CSP orientation and reputation. For instance, Fu et al. (2020) find that the relationship between the presence of a chief sustainability officer and CSR engagement is stronger when the board has a sustainability committee. While many of our proxies have emerged in an attempt to consider different elements of governance, we take a more agnostic

[7] https://www.forbes.com/sites/shelleykohan/2020/06/12/adidas-lags-behind-nike-and-puma-in-terms-of-diversity-and-inclusion/#7e2ea93e79f6

[8] https://fdra.org/fdra-news/nikes-impact-report-shows-progress-on-diversity/

position. We simply consider a large number of governance proxies and let the data tell us which ultimately have a meaningful effect in driving CSP reputation.

To determine, empirically, whether governance choices enhance a firm's CSP reputation, we begin by examining the impact of corporate governance measures on the CSR-risk relation. As discussed earlier, CSR mainly arises as a result of firm choices and is generally conveyed voluntarily by the firm. Likewise, the corporate governance measures we consider arise voluntarily. The CSP-as-insurance and CSP-as-differentiation theories argue that investments in CSR can reduce risk by enhancing a firm's reputation for CSP, thus reducing the chance that a firm will face negative sanctions from negative outcomes. In both theories, the impact on risk from positive CSR outcomes depends in part on the firm's ex ante reputation. The risk reducing effect of CSR outcomes will be greater for firms with a greater established reputation. A similar prediction emerges from information intensity theory. Schuler and Cording (2006) argue that positive CSP information about a firm with an established reputation will have a "medium" level of intensity, while positive CSP information about a firm without such reputation will have a "low" level of intensity. They note that sincerity about the firm's positive social action is more questionable in that setting (see also Yoon, Gurhan-Canli and Schwarz, 2006). In either case, the arguments are inherently Bayesian. From an external stakeholder's perspective, for a given level of current positive information, the posterior probability that a firm is "good" should be larger if the prior probability is higher. Empirically, if some measure provides information regarding a firms CSP reputation, then the interaction of that variable and CSR outcomes should be significant. Formally, this leads to our first hypothesis:

H1 (CSR effects on risk): If a measure of a firm's corporate governance choice is positively related to its CSP reputation, then a variable interacting with that governance measure and CSR should have a significantly negative effect on subsequent firm risk.

In other words, the effect of CSR on reducing risk should be greater as CSP reputation

increases. The alternative (null) hypothesis is that there is no effect on risk for variables that interact CSR with governance measures.

As discussed previously, CSI reflects realizations of negative CSP outcomes and, therefore, has a much more direct impact on increasing risk. A key prediction of the CSP-as-insurance and CSP-as-differentiation theories is that the positive effect of CSI on risk should be smaller for firms perceived to have a greater CSP orientation. If governance choices positively impact a firm's CSP reputation, then the positive effect of CSI on risk should be lower for firms making those governance choices. Empirically, a variable that interacts with CSI and a measure capturing the governance should be significantly negative. Formally, these arguments lead to our second hypothesis:

H2 (CSI-risk relation under CSP-as-insurance and CSP-as-differentiation): Under the CSP-as-insurance and CSP-as-differentiation theories, the positive effect of CSI on firm risk is diminished when a firm's governance measures reflect greater CSP reputation.

The discussion above argues that if credible, CSP reputation driven by governance choices should help diminish the positive impact of CSI outcomes on firm risk. Alternatively, it is possible that investors will see attempts to establish CSP reputation through governance choices as insincere when CSI outcomes arise. As argued by Schuler and Cording (2006), "news reports about a company's actions that do not meet societal expectations will be particularly striking when the company under investigation has built a solid reputation for responsible social behavior. Consumers will revise their evaluations and expectation of the firm, and the firm may experience a backlash" (p. 548). Based on this, they posit that information intensity is greatest when a reputable firm "stumbles". Formalizing these points leads to our third hypothesis:

H3 (CSI-risk relation under information intensity theory): The positive effect of CSI on firm risk should be enhanced when a firm's governance measures reflect greater CSP

reputation .

3. Data, Measurement and Methods

3.1 Sample Selection

We retrieve our data from multiple sources. First, the board member data is collected from ISS (formerly Riskmetrics) and BoardEx databases. Second, the CSR data is gathered from MSCI ESG Stats (formerly the Kinder, Lyndenberg and Domini (KLD) database). The KLD database has been widely used in academic research (e.g. Deng, Kang and Low, 2013; Servaes and Tamayo, 2013; Lins et al., 2017**;** Dunbar, Li and Shi, 2020). Data on firm risk, CEO incentives, accounting information and institutional ownership is provided by CRSP, Execucomp, Compustat and 13F schedules. After merging all the datasets, the final sample consists of 13,187 firm-year observations for 1791 firms across the period 1996–2014.

3.2 Variable Measurement

3.2.1 Firm Risk

Firm stock risk is a key measure in finance (Hamilton, 1994). Firm stock price volatility is associated with the uncertainty of future cash flows, and is related to the cost of capital as well as long-term wealth creation. Following Bernile et al. (2018), we adopt firm stock return volatility as our proxy for firm risk. Firm total risk, or volatility, is measured as the annualized monthly standard deviation of a firm's return series (Orlitzky and Benjamin, 2001; Ding, Levine, Lin and Xie, 2020).

3.2.2 Corporate Social Responsibility

As in prior research (e.g., Flammer and Luo, 2016; Dunbar et al., 2020; Chen, Dong and Lin, 2020), we focus on five categories of CSP for our primary analyses: community activities, diversity, employee relations, environmental policies, and product development; however, in our robustness check we also follow Servaes and Tamayo (2013) and Lins et al. (2017) by excluding the product development category, and instead including human rights in our

measures of CSP. Our findings are unchanged with this measurement adjustment.

For each of the five dimensions we study, MSCI ESG Research assembles data on both strengths (CSR) and concerns (CSI). We construct a CSR score by counting strengths across dimensions. We similarly construct a CSI score by counting the number of concerns across dimensions. These CSR and CSI scores are key independent variables in our models (detailed definitions for all independent variables in this study are provided in Appendix A).

In sensitivity analyses, given that the total number of strengths and concerns for most CSP dimensions vary every year, we construct scaled CSR and CSI measures, similar to Deng et al. (2013) and Lins et al. (2017), by dividing the strength and concern scores for each dimension by the corresponding total number of strength and concern categories, to get scaled strength and concern scores. Robustness tests using this alternative CSP construct are reported and discussed in Section 5.3.

3.2.3 Corporate Governance Variables

To test our three primary hypotheses, we interact CSP variables with moderating corporate governance variables. As discussed previously, governance variables have been used to proxy for different constructs including shareholder alignment, information intensity/transparency, and/or sustainability orientation. In this section, we define all governance variables considered and highlight their initial constructs. While the variables can have different "meanings", we consider each because we believe all can plausibly be considered a measure of a firms CSP orientation and reputation.

We begin by discussing governance measures that were initially created to empirically capture shareholder orientation. INDEPENDENCE is the number of independent outside directors divided by board size (Klein, 2002; Ajinkya et al., 2004). Outside directors are argued to provide effective checks on management for shareholders. Boards with more independent members are likely to act more effectively in support of shareholders (Masulis and Zhang,

2019). FININDEX is the number of finance experts on the board divided by the number of board members. Since finance experts tend to be more aligned with shareholders and are more capable of enhancing financial performance to benefit shareholders, a board with more finance experts acts more effectively in support of shareholders. NUMBOARDS is the average number of other firms' boards each board member is on. Directors on multiple boards are likely to be more experienced in this role, bringing greater oversight in support of shareholders. While these variables were initially introduced to capture shareholder orientation, Ferrell et. al. (2016) find that such measures also have a positive effect on CSP outcomes. It is plausible, therefore, that these could help to capture CSP reputation.

We next introduce several measures that were introduced in the literature to reflect diversity. Diverse boards support information intensity/transparency, since board members bring information from diverse sources and backgrounds and enhance information exchange with less collusion (e.g., Hillman and Dalziel, 2003). For example, Upadhyay and Zeng (2014) find that bid-ask spreads are lower while analysts are following, and share turnovers are higher for firms with more diverse boards. We consider several diversity measures. BOARDDIVERSITY is a multidimensional index of board diversity in gender, age, ethnicity, financial expertise, and breadth of experience (Dunbar et al., 2020). ETHINDEX is a Herfindahl index based on the proportion of board members in different ethnic groups. PCT FEMALE is the percentage of female directors on the board. AGESTD is the standard deviation of board members' age. Finally, EDUINDEX is a Herfindahl index based on the proportion of directors with different education degree levels. More diverse boards may potentially be viewed as having a greater sustainability orientation. In fact, diversity is often considered a sustainability objective in its own right. Consistent with this view, as noted previously, Bernile et al. (2018) find that board diversity fosters decision moderation, and thus lowers firm risk. Adopting a risk-reducing sustainability initiative is one potential channel through which

diversity can lower risk. Based on a review of the literature, Rao and Tilt (2015) note a strong connection between board diversity measures and CSP. It is plausible, therefore, that these measures can help to capture CSP reputation.

The final category of governance variables attempts to more directly reflect sustainability orientation. SUSTAINABILITY is an indicator variable that takes on the value of one if a firm has a sustainability committee, and zero otherwise (Fu et al., 2020). Since this is the most direct indicator of sustainability orientation, it is plausible that this measure captures CSP reputation.

3.2.4 Other Control Variables

We control for a variety of firm and manager characteristics that are shown to impact firm risk: 1) DUALITY, an indicator variable taking on the value of one if the CEO is also the board chairman, and zero otherwise (Bernile et al., 2018); 2) TENURE, defined as the number of years the executive has been CEO at a firm (Bernile et al., 2018); 3) AGE, defined as the CEO's age (Bernile et al., 2018); 4) FEMALE, an indicator variable taking on the value of one if the CEO is a female, and zero if male (Dunbar et al., 2020); 5) RANDD, defined as the research and development expenditures over total assets (Luo and Bhattacharya, 2009); 6) CASH, defined as the ratio of cash and marketable securities over total assets (Albuquerque et al., 2019); 7) INSTHOLD, which is the percentage of institutional share ownership (Chen et al., 2020); 8) ROA, defined as operating income divided by total assets (Albuquerque et al., 2019); 9) LEVERAGE, defined as total liabilities over total assets (Luo and Bhattacharya, 2009); 10) CAPEX, which is capital expenditure expenses over total assets (Albuquerque et al., 2019); 11) Q, which is Tobin's Q and calculated as the sum of the book value of total assets, plus the market value of common stock, less book value equity, over the book value of assets (Albuquerque et al., 2019); 12) SIZE, defined as the log of total assets at the fiscal year end (Bernile et al., 2018); and 13) BOARDSIZE, the number of board directors (Bernile et al., 2018).

Formally, we estimate the following two models to test our core hypotheses:

$$VOLATILITY_{t+1} = \beta_0 + \beta_1 CSR_t + \beta_2 GOVERNANCE_t + \beta_3 (CSR * GOVERNANCE)_t + \beta_4 CONTROL_t + \text{Firm or Industry Fixed Effects} + \text{Year Dummies} + \varepsilon_t \quad (1)$$

$$VOLATILITY_{t+1} = \gamma_0 + \gamma_1 CSI_t + \gamma_2 GOVERNANCE_t + \gamma_3 (CSI * GOVERNANCE)_t + \gamma_4 CONTROL_t + \text{Firm or Industry Fixed Effects} + \text{Year Dummies} + \varepsilon_t \quad (2)$$

where $GOVERNANCE_t$ is the governance measures introduced above, and $CONTROL_t$ is a vector of control variables including $DUALITY_t$, $TENURE_t$, AGE_t, $FEMALE_t$, $RANDD_t$, $CASH_t$, $INSTHOLD_t$, ROA_t, $LEVERAGE_t$, $CAPEX_t$, Q_t, $SIZE_t$ and $BOARDSIZE_t$. Note that to mitigate the concern of endogeneity and omitted variables, we include fixed effects and lagged independent variables in all models we estimate. We also consider an instrumental variable approach to address endogeneity, as discussed in more detail below.

Hypothesis *H1 (CSR effects on risk)* predicts that while β_1 should be negative, β_3 should be positive if governance measures proxy for CSP reputation. If the governance measure provides no information regarding a firm's CSP reputation, then β_3 should be insignificantly different from zero. Hypothesis *H2 (CSI-risk relation under CSP-as-insurance and CSP-as-differentiation)* predicts that γ_1 should be positive, and γ_3 should be negative for governance variables established to be positively related to CSP reputation. Finally, hypothesis *H3 (CSI-risk relation under information intensity theory)* predicts that γ_1 should be positive with γ_3 also positive for governance measures established to be positively related to CSP reputation .

4. Empirical Evidence

4.1 Descriptive Statistics and Correlations

Table 1 presents descriptive statistics of our primary variables. Our variables include four dimensions: 1) CSR variables, 2) CEO variables, 3) firm-level variables and 4) board variables. While our main sample covers 13,187 firm-year observations, the sample with SUSTAINABILTY reduces to 10,530 observations. The mean value of CSR is 0.378, and the

standard deviation is 2.712, implying that substantial differences exist among firms in their CSR standings. The average value for VOLATILITY is 0.383, with a standard deviation of 0.176. This is comparable to the volatility score reported in other studies (e.g., Bernile et al., 2018).

For the corporate governance variables, our descriptive statistics report that 13.4% of our sample has a sustainability committee (SUSTAINABILITY), 74.4% of the board members are independent outside members (INDEPENDENCE), and the mean value of board diversity index is 20.943 *(*BOARDDIVERSITY).

In addition, our data reveals that 66.4% of the CEOs are also chairman of the board (DUALITY), the average age of CEOs is 56 (*AGE*), the average Tobin's Q is 2.009 (Q), and the average R&D expense over total assets is 2.9% (RANDD). Taken collectively, all these values are comparable to those of prior studies (Luo and Bhattacharya, 2009; Bernile et al., 2018).

Insert Table 1 Here

Table 2 reports Pearson correlation coefficients. Firms with higher *CSR* scores are associated with lower VOLATILITY, which is consistent with the literature. Further, firms with higher board diversity, more independent boards, a sustainability committee, and larger boards are associated with lower firm risk. In contrast, firms spending less on R&D expenses are more likely to have lower firm risk.

Insert Table 2 Here

4.2 The Effects of CSR and CSI on firm risk

We begin our analysis by replicating findings in previous studies using our data. Specifically, we estimate equations (1) and (2) without including any governance proxies. Table 3 presents the estimated equations. Columns (1) – (4) present results for equation (1) where CSR is the independent variable and columns (5) – (8) present results for equation (2) where

CSI is the independent variable. Columns (1) and (2) present OLS estimates of equation (1), differing only in terms of the fixed effects. Across both models, AGE, ROA, Q, SIZE, and BOARDSIZE have significantly negative impacts on firm risk, while CASH, LEVERAGE, and CAPEX have significantly positive effects. Consistent with the existing literature, CSR negatively impacts risk, but only significantly in the model using industry fixed effects. Columns (5) and (6) present OLS estimates of equation (2), differing only in terms of the fixed effects. Control variables have similar effects in these models as in columns (1) and (2). Consistent with the existing literature, CSI significantly positively affects risk. The coefficient on CSI in models (5) and (6) are three to five times larger than the absolute value of the coefficient on CSR in models (1) and (2), which is consistent with the asymmetric effects of CSR and CSI documented in the literature.

Insert Table 3 Here

To further alleviate the concern of endogeneity, we employ an instrumental variable (IV) approach offering exogenous variation to explain the impact of CSR and CSI on firm risk. Following the prior literature (Deng et al., 2013; Albuquerque et al., 2019), we adopt *BLUESTATE* as our IV for CSR and CSI (also refer to Hong and Kostovetsky, 2012; and Di Giuli and Kostovetsky, 2014). *BLUESTATE* takes on the value of one if a firm's headquarters is located in a blue (Democratic) state for the presidential election, and zero otherwise. Our data pertinent to red/blue states are retrieved from the US Electoral College. Prior studies demonstrate that this IV is primarily exogenous and has a significant impact on CSR, i.e., firms operating in blue states are more likely to take on CSR initiatives. In addition, we consider that it is less likely that Democratic states influence firm risks other than through CSR.

Columns (3) and (4) present results for our Two-Stage Least Square IV models (2SLS), where CSR is the independent variable. The first-stage model results reported in column (3) show that our IV (*BLUESTATE*) significantly explains our *CSR* regressor. Column (4) reports

second-stage models with instrumented CSR as an independent variable. Consistent with columns (1) and (2), the predicted *CSR* has a significantly negative effect on *VOLATILITY.* Columns (7) and (8) present results for our Two-Stage Least Square IV models (2SLS), where CSI is the independent variable. The first-stage model results reported in column (7) show that our IV (*BLUESTATE*) significantly explains our *CSI* regressor. Column (8) reports second-stage models with instrumented CSI as an independent variable. Consistent with columns (5) and (6), the predicted *CSR* has a significantly negative effect on *VOLATILITY.* Again, the effect of CSI on risk is larger than that of CSR.

4.3 The Moderating Effects of Board Governance

In this section, we present our main evidence related to hypotheses 1 through 3. Formally, we extend the models reported in Table 3, by adding governance variables and the interactions of these variables with our CSR and CSI measures. For every model considered, we apply OLS using fixed effects, and 2SLS using BLUESTATE as an instrument. To simplify our presentation, we only report second-stage model estimates for our IV models. In general, our findings are similar when using OLS and 2SLS. As we add interactions of CSR and CSI with governance measures, we need two first-stage models: the first to instrument CSR or CSI, and the second to instrument the interaction variable. In all cases, the BLUESTATE variable is significant after controlling for industry or firm fixed effects and a variety of control variables, and the Wu-Hausman exogeneity test suggests it is exogenous in our model.[9] To further simplify our presentation, we do not report the coefficient estimate for control variables. Across all models, these coefficients are similar in sign and significance to what is reported in Table 3.

Table 4 reports estimates of 2SLS models for equation (1), where the focus is on the moderating effects of governance variables in the negative CSR-risk relation. Hypothesis H1 (*CSR effects on risk*) predicts that the coefficient on the interaction of CSR and governance

[9] Estimates of first-stage models are available from the paper authors upon request.

measures that reflect CSP reputation should be positive. We find several cases where the interaction of governance measures and CSR does significantly negatively impact risk, including HDIVERSITY, HINDEPENDENCE, LETHINDEX, and HPCT_FEMALE. In every other case, the interactive variable is negative. In no case is the variable significantly positive. Overall, our interpretation of this evidence is that there exist several governance measures that can now plausibly be driving CSP reputation.

Insert Table 4 Here

Table 5 reports estimates of 2SLS models for equation (2), where the focus is on the moderating effects of governance variables in the positive CSI-risk relation. Hypothesis *H2 (CSI-risk relation under CSP-as-insurance and CSP-as-differentiation)* predicts that the coefficient on the interaction of the proxy for CSI and governance measures for CSP alignment and reputation should be negative. While Table 5 reports estimates for all governance measures, we will focus our discussion on models including HDIVERSITY, HINDEPENDENCE, LETHINDEX, and HPCT_FEMALE, as the evidence in Table 4 suggests that these measures in particular can reasonably be considered to be drivers of CSP reputation (see columns 1, 2, 4 and 7). For each of these variables, the coefficient on the interaction of each variable is significantly positive, inconsistent with H2. It is noteworthy that interactions of all governance measures and CSI have significantly positive effects on firms' risk. Overall, therefore, the evidence is not consistent with H2. Hypothesis H3 (*CSI-risk relation under information intensity theory)* argues that the positive effect of CSI on firm risk should be enhanced when a firm's governance reflects greater information intensity/transparency or sustainability orientation. The evidence in Table 5, therefore, strongly supports H3.

Insert Table 5 Here

We note that the coefficients on interactive variables in Table 5 are both statistically and economically very significant. For example, if a firm with a high percentage of female board

members, the absolute value of the coefficient of CSI on firm risk is larger by 0.003 compared to a firm with a low fraction of females on the board. This is an increase in magnitude by 7% from the absolute value of the coefficient of 0.046 for CSI for a firm with a lower fraction of females on the board.

5. Robustness Checks and Additional Analyses

5.1 The Asymmetric Effects of CSR and CSI

In this section, we examine the asymmetric effects of CSR versus CSI. As discussed previously, information intensity theory argues that effects should be more significant when "good firms do bad things"; that is, CSI should do more to diminish a firm's CSP reputation when that firm has a stronger perceived CSP orientation. In our context, the moderating effects of relevant governance measures in the CSI regression should be more significant than their moderating effects in the CSR regression. Formally, the absolute value of γ_3 in equation (2) should be larger than the absolute value of β_3 in equation (1).

Table 6 reports formal tests of equality for the variables in question, comparing coefficient estimates from Tables 4 and 5. Across virtually all governance measures, the estimates of γ_3 are larger in absolute value than the estimates of β_3. Focusing on the variables most significantly connected to CSP reputation (HDIVERSITY, HINDEPENDENCE, LETHINDEX, and HPCT_FEMALE) all the differences are statistically significant. Corporate governance associated with CSP reputation magnifies CSI's effect on risk much more strongly. We believe, therefore, that the negative relation between CSP and risk found in the literature, is most likely to be driven by the effect of CSI on risk through the channel of corporate governance.

Insert Table 6 Here

5.2 Subsample Analyses

To gain further insights on the moderating effect of board governance, we re-estimate

equations (1) and (2) for a different sample comprised of a fraction of the initial sample. More specifically, we partition the sample into four groups according to the quartiles of BOARDDIVERSITY and INDEPENDENCE (<25%, 25–50%, 50–75%, >75%). For SUSTAINABILITY, we partition the sample into two groups, i.e., firms with a sustainability committee and without a sustainability committee. The results on CSR, reported in Table 7 Panel A, reveal that for *BOARDDIVERSITY* the third and the fourth quartile samples drive the results, whereas for INDEPENDENCE the third and fourth quartile samples dominate the results. The fourth quartile generates the most significant results; CSR reduces risk most effectively under the most diversified and independent boards.

The results on CSI in Panel B suggest that the risk-enhancing effect of CSI is more pronounced for firms with diversified board, independent board, and sustainability committee. For the subsamples of SUSTAINABILITY, we find that the coefficient on CSI for firms with a sustainability committee is significantly larger (0.045) than for firms without a sustainability committee (-0.249). CSI negative events increases risk more significantly when firms have sent false signals of CSP alignment, such as having a sustainability committee.

Insert Table 7 Here

5.3 Using Scaled CSR

To check the robustness of the results, we follow Deng et al. (2013) and Lins et al. (2017) to use scaled CSP measures, given that the total number of strengths and concerns for most CSP dimensions vary every year. Specifically, we construct the scaled CSR score by dividing the strength scores for each dimension by the corresponding total number of strength categories. We similarly construct the scaled CSI score, by dividing the concern scores for each dimension by the corresponding total number of concern categories. We use the scaled CSR measure to replicate Table 4, and the scaled CSI score to replicate Table 5, and summarize the sensitivity checks in Table 8 and Table 9, respectively. As indicated in Table 8 and Table 9, all our main

findings are not sensitive to this variable adjustment.

Insert Table 8&9 Here

6. Conclusion

This paper examines the moderating effect of corporate governance on the CSR-risk and CSI-risk relations, based on the prevailing theories. We have several major findings. First, for firms with governance characteristics that indicate greater CSP alignment and reputation, CSR activities can lead to greater risk reduction; however, corporate governance characteristics that indicate greater CSP alignment and reputation also predict *greater* risks when firms realize CSI outcomes. The evidence is inconsistent with CSP-as-insurance or CSP-as-differentiation theories, as they argue that if governance choices lead to greater CSP reputation, firms making those governance choices should see risks increase *less* when they realize CSI outcomes. Our findings related to the CSI-risk relation are more consistent with predictions of information intensity theories. Firms that are creating a strong CSP reputation through governance choices, and then stumble, see subsequent risks increase most dramatically.

As noted earlier, the CSP-as-insurance and CSP-as-differentiation theories have received strong support in the literature. Our work raises questions about the practical implications of these theories for managers. For instance, firms that are naturally exposed to the risk of CSI outcomes (e.g., those in industries such as oil and gas transportation) should be careful in making decisions that could signal a positive CSP orientation, thinking signals regarding that positive orientation would help them reduce damage from negative events. Our evidence suggests that those investments could backfire, with negative events (CSI) leading to enhanced firm risk. Overall, our evidence indicates that firms which make choices to signal a positive CSP orientation through governance choices only see more material reductions to firm risk if corporate governance signals and CSP outcomes are aligned.

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Table 1
Descriptive Statistics

This table provides descriptive statistics for the variables used in our analysis over the sample period. The sample consists of 13,187 observations for 1,791 firms over fiscal years 1996 to 2014. All variables are defined in the Appendix.

	N	Mean	Median	Standard deviation	Minimum	Maximum
CSR Variables						
CSR	13,187	1.977	1	2.701	0	21
CSI	13,187	1.599	1	1.754	0	13
CEO Variables						
DUALITY	13,187	0.664	1	0.472	0	1
TENURE (years)	13,187	6.966	5	7.189	0	55
AGE	13,187	55.928	56	6.913	32	91
CONTRACT	13,187	0.053	0	0.224	0	1
FEMALE	13,187	0.025	0	0.153	0	1
Firm-Level Variables						
VOLATILITY	13,187	0.383	0.346	0.176	0.083	3.284
Q	13,187	2.009	1.608	1.264	0.414	16.14
INSTHOLD (%)	13,187	75.49	78.17	17.610	0.002	100
RANDD	13,187	0.029	0.001	0.051	0	0.679
CASH	13,187	0.147	0.084	0.164	0	1.284
ROA	13,187	0.148	0.139	0.093	-1.691	1.183
LEVERAGE	13,187	0.219	0.212	0.172	0	2.925
CAPEX	13,187	0.034	0.020	0.048	-0.370	0.558
SIZE	13,187	7.654	7.569	1.585	0.196	13.5
Board Variables						
BOARDSIZE	13,187	9.387	9	2.298	3	26
SUSTAINABILITY	10,530	0.134	0	0.341	0	1
INDEPENDENCE (%)	13,187	74.4	77.8	14.2	8.3	100
ETHINDEX	13,187	9.649	9.696	2.009	4.625	12.223
FININDEX	13,187	9.882	9.938	2.001	6.079	11.844
NUMBOARDS	13,187	10.396	10.227	1.974	7.476	23.934
PCT_FEMALE	13,187	10.074	10.039	1.914	7.844	20.187
AGESTD	13,187	9.800	9.555	1.898	4.415	18.909
EDUHINDEX	13,187	10.204	9.967	1.902	6.982	18.064
BOARDDIVERSITY	13,187	20.943	21.297	5.146	3.59	42.60

Table 2
Pearson Correlation

This table reports the Pearson correlation coefficients among variables for 13,187 observations for 1,791 firms for the period 1996-2014. See Appendix for variable definitions. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test), respectively.

	CSR	CSI	VOLATILITY	BOARDDIVERSITY	INDEPENDENCE	SUSTAINABILITY	BOARDSIZE	RANDD	CASH	INSTHOLD	ROA	LEVERAGE	CAPEX	Q	SIZE
CSR	1														
CSI	0.319***	1													
VOLATILITY	-0.208***	-0.135***	1												
BOARDDIVERSITY	0.235***	0.068***	-0.028***	1											
INDEPENDENCE	0.178***	0.141***	-0.082***	0.156***	1										
SUSTAINABILITY	0.307***	0.340***	-0.129***	0.095***	0.131***	1									
BOARDSIZE	0.386***	0.261***	-0.332***	0.131***	0.050***	0.302***	1								
RANDD	0.061***	-0.120***	0.222***	-0.033***	0.017*	-0.074***	-0.194***	1							
CASH	-0.040***	-0.166***	0.317***	-0.012	-0.023***	-0.142***	-0.328***	0.503***	1						
INSTHOLD	-0.188***	-0.086***	0.135***	0.057***	0.213***	-0.105***	-0.270***	0.045***	0.152***	1					
ROA	0.053***	-0.053***	-0.181***	0.051***	-0.058***	0.001	0.015*	-0.113***	0.004	0.019**	1				
LEVERAGE	0.079***	0.147***	-0.123***	-0.010	0.071***	0.128***	0.258***	-0.256***	-0.406***	-0.067***	-0.141***	1			
CAPEX	-0.072***	-0.094***	-0.042***	-0.019***	-0.118***	-0.057***	-0.063***	-0.048***	-0.052***	-0.012	0.198***	-0.058***	1		
Q	0.041***	-0.129***	-0.002	0.080***	-0.115***	-0.069***	-0.104***	0.284***	0.365***	-0.009	0.507***	-0.245***	0.102**	1	
SIZE	0.545***	0.478***	-0.362***	0.270***	0.152***	0.347***	0.595***	-0.247***	-0.456***	-0.201***	-0.045***	0.381***	-0.087***	-0.186***	1

Table 3
The Effects of CSR/CSI on Firm Risk

This table presents the results for the effects of corporate social responsibility (CSR) and corporate social irresponsibility (CSI) on firm risk, i.e., *VOLATILITY*. The dependent variable is leading volatility (i.e., $VOLATILITY_{t+1}$), where *VOLATILITY* is measured as the annualized monthly standard deviation of a firm's return series. *CSR* is the sum of strength scores, whereas *CSI* is the sum of concern scores, based on five categories of KLD rating data, i.e., community, diversity, employee relations, environment, and product. Columns (1)- (4) represent models measuring the effect of *CSR* on firm risk, whereas columns (5)-(8) represent models measuring the effect of *CSI* on firm risk. Column (3)& (4), and (7) &(8) employ instrumental model approach. In first stage models (3) and (7), we employ *BLUESTATE* as the instrument variable, which equals one if a firm's headquarters is located in a blue (democratic) state and zero otherwise. The dependent variable in the first stage is *CSR* (model (3) or *CSI* (model (7)). In second stage models (4) and (8), we use the predicted *CSR* and *CSI* values from the first stage as the independent variable. All other variables are defined in the Appendix. Coefficient estimates (*p*-values) are provided in the top (bottom) row. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test), respectively.

	Industry-fixed effect model (1)	Firm-fixed effect model (2)	CSR Score First Stage (3)	$VOLATILITY_{t+1}$ Second stage (4)	Industry-fixed effect model (5)	Firm-fixed effect model (6)	CSI Score First Stage (7)	$VOLATILITY_{t+1}$ Second stage (8)
Intercept	0.824***	0.931***	-3.389***	0.854***	0.841***	0.964***	-2.081***	0.736***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
BLUESTATE			**0.419*** **				**-0.089*** **	
			(0.00)				**(0.00)**	
CSR	**-0.002*** **	**-0.001**		**-0.014*** **				**0.054*** **
	(0.01)	**(0.40)**		**(0.00)**				**(0.00)**
CSI					**0.005*** **	**0.006*** **		
					(0.00)	**(0.00)**		
DUALITY	-0.003	0.008**	0.275***	-0.004	-0.004	0.007***	0.090***	-0.004
	(0.31)	(0.02)	(0.00)	(0.20)	(0.18)	(0.01)	(0.01)	(0.27)
TENURE	0.002	0.001	-0.123***	0.002	0.003*	0.002	-0.091***	0.002
	(0.22)	(0.43)	(0.00)	(0.21)	(0.09)	(0.28)	(0.00)	(0.28)
AGE	-0.050***	-0.071***	-0.273***	-0.048***	-0.052***	-0.074***	0.466***	-0.048***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
FEMALE	0.010	0.015	1.379***	0.009	0.009	0.015	-0.196**	0.009
	（0.25）	（0.14）	（0.00）	（0.31）	（0.31）	（0.13）	（0.04）	（0.39）
RANDD	0.280***	0.247***	5.506***	0.285***	0.277***	0.251***	-1.248***	0.285***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CASH	0.149***	0.166***	2.678***	0.150***	0.140***	0.157***	0.969***	0.150***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
INSTHOLD	0.001	0.001	-0.018***	0.001	0.002	0.001	-0.008***	0.001
	(0.42)	(0.59)	(0.00)	(0.27)	(0.11)	(0.51)	(0.00)	(0.34)
ROA	-0.328***	-0.328***	2.247***	-0.334***	-0.331***	-0.329***	-0.129	-0.334***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.49)	(0.00)
LEVERAGE	0.096 ***	0.086***	-0659***	0.097***	0.099***	0.089***	-0.294***	0.097***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CAPEX	0.212***	0.268***	0.600	0.212***	0.222***	0.280***	-2.269***	0.212***
	(0.00)	(0.00)	(0.17)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Q	-0.009***	-0.009***	0.031	-0.009***	-0.009***	-0.008***	-0.026*	-0.009***
	(0.00)	(0.00)	(0.14)	(0.00)	(0.00)	(0.00)	(0.08)	(0.00)
SIZE	-0.021***	-0.022***	1.051***	-0.022***	-0.025***	-0.027***	0.600***	-0.022***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
BOARDSIZE	-0.009***	-0.010***	0.118***	-0.009***	-0.009***	-0.009***	-0.021***	-0.009***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Fixed Effect	Year/Industry	Year/Firm	Year/Industry	Year/Industry	Year/Industry	Year/Firm	Year/Industry	Year/Industry
Adjusted R^2	0.39	0.22	0.44	0.37	0.39	0.22	0.35	0.31
# Observations	13,187	13,187	13,187	13,187	13,187	13,187	10,530	10,530

Table 4
The Moderating Effect of Board Governance on CSR

Table 4 presents the results for the moderating effect of board governance for the association between CSR and firm risk. In the first stage, we employ *BLUESTATE* as the instrument variable. *BLUESTATE* is a dummy variable, which equals one if a firm's headquarters is located in a blue (democratic) state and zero otherwise. For brevity, we do not report the first stage results in this table. The dependent variable is the leading Volatility ($VOLATILITY_{t+1}$) for all models. The governance variables include *HDIVERSITY* (one if *BOARDDIVERSITY* is greater than the median 21.297, and zero otherwise), *HINDEPENDENCE* (one if *INDEPENDENCE* is greater than the median 77.8%, and zero otherwise), *SUSTAINABILITY* (one if a firm has a sustainability committee in a given year and zero otherwise). *LETHINDEX (*one if *ETHINDEX* is below the median 9.696 and zero otherwise), *HFININDEX* (one if *FININDEX* is greater than the median 9.938 and zero otherwise*), HNUMBOARDS* (one if *NUMBOARDS* is greater than the median 10.277 and zero otherwise), *HPCT_FEMALE* (one if *PCT_FEMALE* is greater than the median 10.039 and zero otherwise), *HAGESTD* (one if *AGESTD* is greater than the median 9.555 and zero otherwise) and *LEDUHINDEX* (one if *EDUHINDEX* is below the median 9.967 and zero otherwise). All variables are defined in Appendix A. Coefficient estimates (*p*-values) are provided in the top (bottom) row. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test), respectively.

	HDIVERSITY	HINDEPENDENCE	SUSTAINABILITY	LETHINDEX	HFININDEX	HNUMBOARDS	HPCT_FEMALE	HAGESTD	LEDUHINDEX
Intercept	0.854***	0.850***	0.900***	0.854***	0.862***	0.863***	0.862***	0.843 ***	0.844 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CSR	-0.014***	-0.014***	-0.021***	-0.014***	-0.015***	-0.015***	0.013***	-0.012***	-0.014***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
HDIVERSITY	-0.004								
	(0.17)								
CSR* HDIVERSITY	-0.002***								
	(0.01)								
HINDEPENDENCE		-0.007**							
		(0.03)							
CSR*HINDEPENDENCE		-0.003***							
		(0.00)							
SUSTAINABILITY			0.003						
			(0.63)						
CSR*SUSTAINABILITY			-0.002						
			(0.17)						
LETHINDEX				-0.004					
				(0.25)					
CSR* LETHINDEX				-0.003***					
				(0.01)					
HFININDEX					-0.002				
					(0.73)				
CSR*HFININDEX					0.001				
					(0.48)				
HNUMBOARDS						0.006**			
						(0.05)			
CSR*HNUMBOARDS						-0.001			
						(0.22)			
HPCT_FEMALE							-0.011***		
							(0.00)		
CSR*HPCT_FEMALE							-0.001*		
							(0.07)		
HAGESTD								0.005	
								(0.11)	
CSR*HAGESTD								-0.0002	
								(0.98)	
LEDUHINDEX									-0.014***
									(0.00)
CSR*LEDUINDEX									-0.001
									(0.56)
All Control Variables	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED
Fixed Effect	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry
Adjusted R^2	0.38	0.37	0.35	0.38	0.37	0.37	0.39	0.37	0.37
# Observations	13,187	13,187	10,530	13,187	13,187	13,187	13,187	13,187	13,187

Table 5
The Moderating Effect of Board Governance on CSI

Table 4 presents the results for the moderating effect of board governance for the association between CSI and firm risk. In the first stage, we employ *BLUESTATE* as the instrument variable. *BLUESTATE* is a dummy variable, which equals one if a firm's headquarters is located in a blue (democratic) state and zero otherwise. For brevity, we do not report the first stage results in this table. The dependent variable is the leading Volatility ($VOLATILITY_{t+1}$) for all models. The governance variables include *HDIVERSITY* (one if *BOARDDIVERSITY* is greater than the median 21.297, and zero otherwise), *HINDEPENDENCE* (one if *INDEPENDENCE* is greater than the median 77.8%, and zero otherwise), *SUSTAINABILITY* (one if a firm has a sustainability committee in a given year and zero otherwise). *LETHINDEX (*one if *ETHINDEX* is below the median 9.696 and zero otherwise), *HFININDEX* (one if *FININDEX* is greater than the median 9.938 and zero otherwise*), HNUMBOARDS* (one if *NUMBOARDS* is greater than the median 10.277 and zero otherwise), *HPCT_FEMALE* (one if *PCT_FEMALE* is greater than the median 10.039 and zero otherwise), *HAGESTD* (one if *AGESTD* is greater than the median 9.555 and zero otherwise) and *LEDUHINDEX* (one if *EDUHINDEX* is below the median 9.967 and zero otherwise). All variables are defined in Appendix A. Coefficient estimates (*p*-values) are provided in the top (bottom) row. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test), respectively.

	HDIVERSITY	HINDEPENDENCE	SUSTAINABILITY	LETHINDEX	HFININDEX	HNUMBOARDS	HPCT_FEMALE	HAGESTD	LEDUHINDEX
Intercept	0.751***	0.753***	0.741***	0.753***	0.752***	0.759***	0.773***	0.742 ***	0.738 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CSI	0.052***	0.052***	0.059***	0.052***	0.052***	0.053***	0.046***	0.052***	0.053***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
HDIVERSITY	-0.014***								
	(0.00)								
CSI* HDIVERSITY	0.004***								
	(0.00)								
HINDEPENDENCE		-0.021***							
		(0.00)							
CSI*HINDEPENDENCE		0.005***							
		(0.00)							
SUSTAINABILITY			-0.026***						
			(0.00)						
CSI*SUSTAINABILITY			0.008***						
			(0.00)						
LETHINIDEX				0.005					
				(0.19)					
CSI* LETHINDEX				0.003**					
				(0.05)					
HFININDEX					-0.005				
					(0.34)				
CSI*HFININDEX					0.003**				
					(0.02)				
HNUMBOARDS						-0.003			
						(0.42)			
CSI*HNUMBOARDS						0.005***			
						(0.00)			
HPCT_FEMALE							-0.018***		
							(0.00)		
CSI*HPCT_FEMALE							0.003**		
							(0.03)		
HAGESTD								-0.003	
								(0.41)	
CSI*HAGESTD								0.005***	
								(0.00)	
LEDUHINDEX									-0.020***
									(0.00)
CSI*LEDUINDEX									0.003**
									(0.02)
All Control Variables	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED
Fixed Effect	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry
Adjusted R^2	0.31	0.30	0.29	0.31	0.30	0.30	0.32	0.31	0.31
# Observations	13,187	13,187	10,530	13,187	13,187	13,187	13,187	13,187	13,187

Table 6
The Asymmetric Effect of CSR versus CSI

This table compares the coefficients of CSR*governance variables (from Table 4) relative to CSI*governance variables (from Table 5), using F-tests. Governance variables include *HDIVERSITY* (one if *BOARDDIVERSITY* is greater than the median 21.297, and zero otherwise), *HINDEPENDENCE* (one if *INDEPENDENCE* is greater than the median 77.8%, and zero otherwise), *SUSTAINABILITY* (one if a firm has a sustainability committee in a given year and zero otherwise). *LETHINDEX (*one if *ETHINDEX* is below the median 9.696 and zero otherwise), *HFININDEX* (one if *FININDEX* is greater than the median 9.938 and zero otherwise*), HNUMBOARDS* (one if *NUMBOARDS* is greater than the median 10.277 and zero otherwise), *HPCT_FEMALE* (one if *PCT_FEMALE* is greater than the median 10.039 and zero otherwise), *HAGESTD* (one if *AGESTD* is greater than the median 9.555 and zero otherwise) and *LEDUHINDEX* (one if *EDUHINDEX* is below the median 9.967 and zero otherwise). All variables are defined in Appendix A. Coefficient estimates (*p*-values) are provided in the top (bottom) row. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test), respectively.

Governance Interactions	**CSR (1)**	**CSI (2)**	**F-Value (3)**
HDIVERSITY	-0.002***	0.004***	28.85***
	(0.00)	(0.00)	(0.00)
HINDEPENDENCE	-0.003***	0.005***	93.35***
	(0.00)	(0.00)	(0.00)
SUSTAINABILITY	-0.002	0.008***	58.70***
	(0.17)	(0.00)	(0.00)
LETHINDEX	-0.003***	0.003**	31.69***
	(0.01)	(0.05)	(0.00)
HFININDEX	0.001	0.003**	0.30
	(0.48)	(0.02)	(0.58)
HNUMBOARDS	-0.001	0.005***	9.90***
	(0.22)	(0.00)	(0.00)
HPCT_FEMALE	-0.001*	0.003**	20.64***
	(0.07)	(0.03)	(0.00)
HAGESTD	-0.0002	0.005***	14.73***
	(0.98)	(0.00)	(0.00)
LEDUHINDEX	-0.001	0.003***	4.33**
	(0.56)	(0.00)	(0.03)

Table7
Subsample Analyses

This table reports the second-stage results pertinent to the effect of CSR/CSI on firm risk, using subsample analyses. Panel A represents the results for *CSR* while Panel B reports the results for *CSI*. We partition *BOADRDIVERSITY* and *INDEPENDENCE* into four quartiles, respectively. The first quartile represents a subsample of firms with *BOARDDIVERSITY* and *INDEPENDENCE* scores below 25 percentile. The second quartile represents a subsample between 25 percentile and 50 percentile. The third quartile represents a subsample between 50 percentile and 75 percentile. The fourth quartile represents a subsample above 75 percentile. For *SUSTAINABILITY*, we partition the sample into firms with sustainability committees and firms without sustainability committees. The dependent variable in each regression is the leading volatility (i.e., $VOLATILITY_{t+1}$), where *VOLATILITY* is measured as the annualized monthly standard deviation of a firm's return series. Coefficient estimates (*p*-values) are provided in the top (bottom) row. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test), respectively.

Panel A: Subsample Analysis for the interacting effect of CSR and board governance

	BOARDDIVERSITY				**INDEPENDENCE**				**SUSTAINABILITY**	
	1ST quartile (1)	2nd quartile (2)	3rd quartile (3)	4th quartile (4)	1st quartile (5)	2nd quartile (6)	3rd quartile (7)	4th quartile (8)	With (9)	Without (10)
Intercept	1.078***	0.912***	0.618***	0.788***	0.691***	1.184***	0.648***	0.807***	0.738***	0.954***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
CSR	**-0.035***	**-0.008**	**-0.012****	**-0.014****	**-0.013**	**-0.003**	**-0.022*****	**-0.023*****	**-0.018*****	**-0.019*****
	(0.09)	**(0.51)**	**(0.03)**	**(0.04)**	**(0.23)**	**(0.64)**	**(0.01)**	**(0.01)**	**(0.00)**	**(0.00)**
Fixed Effect	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry
Adjusted R^2	0.38	0.41	0.38	0.35	0.38	0.39	0.37	0.35	0.35	0.35
# Observations	3,333	3,265	3,320	3,269	3,897	3,320	2,054	3,916	1,410	9,120

Panel B: Subsample Analysis for the interacting effect of CSI and board governance

	BOARDDIVERSITY				**INDEPENDENCE**				**SUSTAINABILITY**	
	1ST quartile (1)	2nd quartile (2)	3rd quartile (3)	4th quartile (4)	1st quartile (5)	2nd quartile (6)	3rd quartile (7)	4th quartile (8)	With (9)	Without (10)
Intercept	0.991***	0.890***	0.407	0.677***	0.621***	1.185***	0.464***	0.618***	1.505	0.856***
	(0.00)	(0.00)	(0.19)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.31)	(0.00)
CSI	**0.036***	**0.016**	**0.125**	**0.044***	**0.036**	**0.005**	**0.109**	**0.078****	**-0.249**	**0.045*****
	(0.07)	**(0.51)**	**(0.24)**	**(0.09)**	**(0.29)**	**(0.80)**	**(0.13)**	**(0.03)**	**(0.46)**	**(0.00)**
Fixed Effect	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry
Adjusted R^2	0.39	0.41	0.12	0.30	0.35	0.39	0.15	0.21	0.08	0.34
# Observations	3,333	3,265	3,320	3,269	3,897	3,320	2,054	3,916	1,410	9,120

Table 8
The Moderating Effect of Board Governance on CSR - Using Scaled CSR

Table 8 presents the results for the moderating effect of board governance for the association between CSR and firm risk, using instrumental variable for scaled CSR. Following Deng, Kang and Low (2013) and Lins, Servaes and Tamayo (2017), we construct scaled CSR measures by dividing the strength scores for each dimension by the respective number of strength and concern areas to obtain scaled strength scores for that dimension and adding the scaled strength scores based on five categories of KLD rating data, i.e., community, diversity, employee relations, environment, and product. In first stage model, we employ *BLUESTATE* as the instrument variable, which equals one if a firm's headquarters is located in a blue (democratic) state and zero otherwise. The dependent variable in the first stage is scaled CSR. In second stage models, we use the predicted *CSR* values from the first stage as the independent variable. For brevity, we do not report the first stage results in this table. The dependent variable is the leading Volatility ($VOLATILITY_{t+1}$) for all models. Coefficient estimates (*p*-values) are provided in the top (bottom) row. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test), respectively.

	HDIVERSITY	HINDEPENDENCE	SUSTAINABILITY	LETHINDEX	HFININDEX	HNUMBOARDS	HPCT_FEMALE	HAGESTD	LEDUHINDEX
Intercept	0.862***	0.855***	0.906***	0.849***	0.856***	0.857***	0.857***	0.838 ***	0.834 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CSR	-0.085***	-0.087***	-0.128***	-0.093***	-0.010***	-0.093***	-0.081***	-0.095***	-0.095***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
HDIVERSITY	-0.011								
	(0.17)								
CSR* HDIVERSITY	-0.011***								
	(0.00)								
HINDEPENDENCE		-0.007*							
		(0.02)							
CSR*HINDEPENDENCE		-0.018***							
		(0.00)							
SUSTAINABILITY			-0.009						
			(0.18)						
CSR*SUSTAINABILITY			-0.002						
			(0.17)						
LETHINDEX				0.001					
				(0.95)					
CSR* LETHINDEX				-0.015***					
				(0.00)					
HFININDEX					-0.001				
					(0.78)				
CSR*HFININDEX					0.002				
					(0.62)				
HNUMBOARDS						0.006**			
						(0.04)			
CSR*HNUMBOARDS						-0.005			
						(0.21)			
HPCT_FEMALE							-0.011***		
							(0.00)		
CSR*HPCT_FEMALE							-0.008*		
							(0.06)		
HAGESTD								0.005	
								(0.11)	
CSR*HAGESTD								-0.001	
								(0.87)	
LEDUHINDEX									-0.014***
									(0.00)
CSR*LEDUINDEX									-0.003
									(0.47)
All Control Variables	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED
Fixed Effect	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry
Adjusted R^2	0.38	0.37	0.35	0.38	0.37	0.37	0.38	0.37	0.37
# Observations	13,187	13,187	10,530	13,187	13,187	13,187	13,187	13,187	13,187

Table 9
The Moderating Effect of Board Governance on CSI - Using Scaled CSI

Table 8 presents the results for the moderating effect of board governance for the association between CSI and firm risk, using instrumental variable for scaled CSI. Following Deng, Kang and Low (2013) and Lins, Servaes and Tamayo (2017), we construct scaled CSI measures by dividing the strength scores for each dimension by the respective number of strength and concern areas to obtain scaled strength scores for that dimension and adding the scaled strength scores based on five categories of KLD rating data, i.e., community, diversity, employee relations, environment, and product. In first stage model, we employ *BLUESTATE* as the instrument variable, which equals one if a firm's headquarters is located in a blue (democratic) state and zero otherwise. The dependent variable in the first stage is scaled CSR. In second stage models, we use the predicted *CSR* values from the first stage as the independent variable. For brevity, we do not report the first stage results in this table. The dependent variable is the leading Volatility ($VOLATILITY_{t+1}$) for all models. Coefficient estimates (*p*-values) are provided in the top (bottom) row. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels (two-tailed test), respectively.

	HDIVERSITY	HINDEPENDENCE	SUSTAINABILITY	LETHINDEX	HFININDEX	HNUMBOARDS	HPCT_FEMALE	HAGESTD	LEDUHINDEX
Intercept	0.735***	0.730***	0.728***	0.727***	0.718***	0.722***	0.741***	0.705 ***	0.697 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CSI	0.277***	0.282***	0.299***	0.288***	0.287***	0.294***	0.257***	0.281***	0.292***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
HDIVERSITY	-0.014***								
	(0.00)								
CSI* HDIVERSITY	0.019***								
	(0.01)								
HINDEPENDENCE		-0.021***							
		(0.00)							
CSI*HINDEPENDENCE		0.020***							
		(0.00)							
SUSTAINABILITY			-0.025***						
			(0.00)						
CSI*SUSTAINABILITY			0.031***						
			(0.00)						
LETHINDEX				-0.012***					
				(0.01)					
CSI* LETHINDEX				0.018***					
				(0.00)					
HFININDEX					-0.007				
					(0.24)				
CSI*HFININDEX					0.016***				
					(0.01)				
HNUMBOARDS						-0.004			
						(0.43)			
CSI*HNUMBOARDS						0.024***			
						(0.00)			
HPCT_FEMALE							-0.018***		
							(0.00)		
CSI*HPCT_FEMALE							0.011**		
							(0.04)		
HAGESTD								-0.003	
								(0.46)	
CSI*HAGESTD								0.020***	
								(0.00)	
LEDUHINDEX									-0.021***
									(0.00)
CSI*LEDUINDEX									-0.014**
									(0.03)
All Control Variables	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED	INCLUDED
Fixed Effect	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry
Adjusted R^2	0.27	0.27	0.25	0.26	0.26	0.26	0.28	0.26	0.26
# Observations	13,187	13,187	10,530	13,187	13,187	13,187	13,187	13,187	13,187

Appendix A
Variables Definition and Data Sources

Variables	Definition
CSR Variables from KLD Database:	
CSR	The sum of all strength scores, based on five categories of KLD rating data, i.e., community, diversity, employee relations, environment, and product
CSI	The sum of all concern scores, based on five categories of KLD rating data, i.e., community, diversity, employee relations, environment, and product
COMS	Net score of CSR rating (total strengths subtracting total concerns) based on the community category
DIVS	Net score of CSR rating on diversity
EMPS	Net score of CSR rating on diversity
ENVS	Net score of CSR rating on environment
PROS	Net score of CSR rating on product
HUMS	Net score of CSR rating on human rights
CEO Charateristics from ExecuComp Database:	
DUALITY	1 if the CEO is also the board Chairman, and 0 otherwise
TENURE	The number of years the executive has been CEO at this firm
AGE	CEO's age
FEMALE	1 if the CEO is a female, 0 if CEO is a male
Board Characteristics from ISS (formerly Riskmetrics) Database:	
ETHINDEX	Herfindahl index of ethnicity (categorized as White/Caucasian, African American, Asian, Hispanic, and other)
FININDEX	The number of finance experts divided by the number of directors
NUMBOARDS	The average number of outside board seats
PCT_FEMALE	Percentage of female directors in the board
AGESTD	Age standard deviation of board members
BOARDSIZE	The number of directors in the board
INDEPENDENCE	The number of independent outside directors divided by the board size
SUSTAINABILITY	One if a firm has a sustainability committee, and zero otherwise
EDUINDEX	The Herfindahl index of the number of directors in each firm-year by their education level
BOARDDIVERSITY	A multidimensional index of board diversity in gender, age, ethnicity, financial expertise and breadth of experience
Other Variables from Compustat Database:	
CASH	The ratio of cash and marketable securities over total assets
Q	Tobin's Q, the sum of the book value of total assets plus the market value of equity less the book value of equity over the book value of assets
INSTHOLD	Percentage of institutional share ownership
ROA	Return on assets
LEVERAGE	Total liabilities over total assets
CAPEX	Capital expenditures over total assets
SIZE	Log of total assets at the end of the fiscal period
R&D	Research and development expenditures over total assets
INDUSTRY	Industry dummies, petroleum (SIC codes 13, 29), consumer durables (SIC codes 30, 36, 37, 50, 55, 57), basic industry (SIC codes 8, 10, 12, 14, 24, 26, 28, 33), food and tobacco (SIC codes 20, 21, 54), construction (SIC codes 15, 16, 17, 32), capital goods (SIC codes 34, 35, 38, 39), transportation (SIC codes 40, 41, 42, 44, 45, 47), textiles and trade (SIC codes 22, 23, 51, 53, 56, 59), services (SIC codes 7, 73, 75, 80, 82, 83, 87, 96), leisure (SIC codes 27, 58, 70, 79), unregulated utilities (SIC code 48), regulated utilities (SIC code 49), and financials (SIC codes 60, 61, 62, 63, 65, 67).

Appendix B
Corporate Social Responsibility Categories

Category	Strength	Concern
Community	Charitable giving	Investment controversies
	Innovative giving	Community impact
	Support for housing	Tax disputes
	Non-US charitable giving	Other concerns
	Volunteer programs	
	Community engagement	
	Other strengths	
Diversity	CEO- gender or minority	Workforce diversity
	Promotion	Non-representation
	Board of directors	Board of directors – minorities
	Work-life benefits	Board of directors – gender
	Women and minority contracting	Other concerns
	Employment of the disabled	
	Gay and lesbian policies	
	Employment of underrepresented groups	
	Other strengths	
Employee Relations	Union relations	Union relations
	No-layoff policy	Employee health and safety
	Cash profit sharing	Workforce reductions
	Employee involvement	Retirement benefits concern
	Retirement benefits strength	Supply chain concern
	Health and safety strength	Child labor
	Supply chain policies, programs and initiatives	Labor-management relations
	Compensation and benefits	
	Employee relations	
	Professional development	
	Human capital management	
	Other strengths	
Environment	Beneficial products and services	Hazardous waste
	Pollution prevention	Regulatory compliance
	Recycling	Ozone depleting chemicals
	Clean energy	Toxic spills and releases
	Property, Plant and Equipment	Agriculture chemicals
	Management system strength	Climate change
	Water stress	Impact of products and services
	Biodiversity and land use	Biodiversity and land use
	Raw material sourcing	Operational waste
	Other strengths	Supply chain management
		Water management
		Other concerns
Product	Quality	Product quality and safety
	R&D innovation	Marketing and advertising
	Benefits to economically disadvantaged	Anticompetitive practices
	Access to capital	Customer relations
	Other strengths	Other concerns