

The Impact of Corporate Social Responsibility (CSR) on Financial Performance and Distress Risk in a Highly Mobile Workforce

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Abstract

We find that Corporate Social Responsibility (CSR) engagement by U.S. S&P 1500 firms over the 2002-2015 period is positively (negatively) related to firm financial performance (firm distress risk). Further, these effects are more pronounced in companies with a highly mobile workforce, which suggests that employees play an essential role in CSR investment policy decision-making. Our results support the view that high labor mobility may further discipline managers from improper CSR investment, and mitigate agency problems related to CSR engagement. Overall, we reveal that CSR engagement is beneficial to firms and promotes CSR-related stakeholder theory.

Keywords: CSR; Financial Performance; Firm Distress Risk; Labor Mobility

1. Introduction

McWilliams and Siegel (2001) define Corporate Social Responsibility (CSR) as the contribution of an organization to society that go beyond legal requirements. McCarthy et al. (2017) add that CSR focuses on an enterprise's voluntary activities that mirror ethical values and legal commitments, where the aim is to improve social conditions and the environment. Crane et al. (2008) highlight that the effect of CSR investment and reporting on corporate policy decisions and performance outcomes spans multiple core business areas such as marketing, management, and finance. In particular, our study focuses on the role of employees in CSR investment policy decision-making and its effect on the impact of CSR on firm financial performance and distress risk.

Currently, literature proposes two competing theories that focus on the firm performance outcomes of CSR. Proponents of CSR argue that CSR engagement aligns with both shareholders' benefits and other stakeholders' interests. The stakeholder theory presented in Freeman (1984) supports the view that firms with better CSR performance are likely to be rewarded by stakeholders. Studies show that CSR acts as a vehicle which connects a firm and its stakeholders. For example, consumers may prefer to choose products produced by socially responsible firms. From this standpoint, those socially irresponsible firms may have a worse market performance since they lose their stakeholders' support. From the perspective of stakeholder theory, CSR engagement helps firms to get rewards from its stakeholders.

Critics of CSR include Milton Friedman, who argued that "the only responsibility of corporations is to make profits" (Friedman, 1970, p.122). The following literature which extends Friedman's claim show that CSR is, in fact, a manifestation of managerial agency problems. According to Jensen and Meckling's (1976) agency theory, agency problems arise due to the separation of ownership and management. In line with agency theory, Barnea and Rubin (2010) present evidence that managers may use CSR opportunistically to pursue personal benefits. Besides, Hemingway and Maclagan (2004) mention that managers may cover up their misbehavior by adopting CSR, raising concerns related to the sincerity and trustworthiness of CSR engagement. Overall, this research strand posits that managers have an incentive to invest in CSR to extract benefits for themselves, such as building their reputation, at the expense of shareholders.

Studies on the effect of CSR on firm performance remain inconclusive. In fact, Kim et al. (2014) argue that empirical evidence supports the stakeholder theory and the agency theory of CSR in different contexts. Some CSR-related corporate policies can generate positive outcomes consistently with stakeholder theory, while others can be value-destroying when CSR engagement is incentivized by the self-interests of managers.

The motivation for our study is three-fold. First, we investigate whether CSR has a positive impact on firm performance. As CSR becomes an important business activity, it is of great importance for both practitioners and researchers to have a deeper understanding of the outcomes of CSR engagement. Particularly, investors show great interest in whether CSR engagement can bring positive financial performance to a firm. Previous studies, however, have shown different views on the effect of CSR on firm outcomes based on the implications of two competing theories. Stakeholder theory predicts a positive relationship between CSR engagement and firm financial performance while agency theory argues that firm financial performance is negatively related to CSR engagement.

Second, our study examines the relationship between CSR and the default risk of a firm. We are motivated by the loss aversion theory in behavioral finance, which indicates that investors will react more to the losses when facing equivalent gains and losses. Therefore, investors not only focus on the firm's ability to generate profits but also pay more attention to firm distress risk. Meanwhile, understanding how CSR impacts firm distress risk is beneficial to firm risk management. Several studies pay attention to the relation between CSR and firm risk. Stakeholder theory expects that firms with better social performance have lower default risk. Based on this theory, Godfrey (2005) and Attig et al. (2013) show that CSR increases the stability of the company's operation, improves firm credit ratings, and generates insurance-like assets to protect the firm from default. In contrast, agency theory predicts that firm distress risk is positively related to CSR engagement; for example, Barnea and Rubin (2010) argue that managers may increase in their individual prestige through engaging in CSR, and Hemingway and Maclagan (2004) suggest that managers may cover up their misbehavior by adopting CSR. Consistent with the above argument, Kim et al. (2014) reveal that CSR leads to higher crash risk when managers decide to invest in CSR to cover up bad news or extract private benefits. That is, agency

theory argues that CSR would be related to higher distress risk due to the negative view on managerial motivations for pursuing CSR.

Third, we explore the role of labor mobility in governing corporate decision-making (defined in our study as the CSR decisions made by managers). Lajili and Zéghal (2006) and Hass et al. (2018) argue that given the growing importance of human capital in the current knowledge-based economy, understanding the role of employees in governing corporate decision-making is essential. We follow the definition of labor mobility in Donangelo (2014), where ex-ante labor mobility refers to workers' flexibility to walk away from an industry in response to better opportunities. Donangelo (2014) suggests that the labor supply of an industry will be less mobile if more industry-specific labor skills are required. For example, the labor mobility of the wholesale industry is higher than that of the medical care industry.

Agency theory argues that managers may not undertake CSR out of a genuine desire to be socially responsible, instead extracting private benefits through CSR engagement. In addition, Goss and Roberts (2011) reveal that like other corporate decisions, the success of CSR engagement relies largely on managers' motivations. Prior studies show that institutional investors can help to mitigate the agency problems related to CSR engagement. Aghion et al. (2013) illustrate that institutional investors can significantly impact corporate decision-making. In the same vein, Kim et al. (2019) show that investors can choose to liquidate their shares if they notice that managers making decisions that might harm the firm's long-term development and destroy the firm financial performance. In turn, managers' decisions to invest in CSR for self-serving purposes can be constrained, mitigating the agency concerns related to CSR activities.

Analogous to the role of institutional investors, employees might influence managerial CSR investment decisions in a similar way. Gloßner (2019) points out that when the ownership and control of firms are separated, shareholders receive less corporate information than managers. Comparatively, as internal stakeholders and one of the most important stakeholders of firms, employees might know more than shareholders and have less difficulties in distinguishing managers' motivations for engaging in CSR spending. The present study cannot directly test the effect of employees on managers' improper investment in CSR. However, this study does employ ex-ante labor mobility to examine the role of

employees in mitigating the possible agency problem related to CSR. Freeman (1980) reveals that, similar to investors, employees have two alternative choices when facing undesirable situations, namely, “voice” and “exit”. Faced with uncertainty or dissatisfaction over the decisions being made by management, employees can raise their concerns to top management or leave if they become concerned about the firm’s viability. Moreover, Hass et al. (2018) argue that the extent to which employees can impact corporate decision-making will be determined by their “liquidity,” which is employees’ flexibility to freely move between jobs. Labor economics literature has clearly revealed that high labor turnover rate can lead to many unnecessary costs such as hiring costs and training costs for a firm. In turn, managers might have more incentives to focus on genuine CSR engagement to avoid the unnecessary costs related to employees’ exits. In this way, the role of labor force might be to help to inhibit managers’ misbehavior by employees threatening to leave firms.

To sum up, poorly monitored managers may participate in CSR activities that can generate more benefits to themselves rather than to firm owners. If employees believe that managers are extracting private benefits through CSR engagement and destroying the firm future performance, they will re-evaluate the firms’ ability to fulfill their explicit and implicit commitments and find jobs elsewhere. Therefore, employees may help to alleviate the possible CSR-related agency problems and we should expect CSR participation can improve firm financial performance and decrease firm distress risk. Furthermore, the ability of employees to leave when they are concerned about management’s improper decisions should further dissuade managers from engaging in CSR to extract private benefits. Supporting the above argument, we test the conjecture that the positive (negative) effect of CSR on firm performance (firm distress risk) is more pronounced for high labor mobility firms.¹

There are four main findings in our study. First, we find that increasing engagement can increase firm financial performance indicated by return on assets. Our result is consistent with stakeholder theory. Particularly, a one-standard-deviation increase in CSR is associated with a rise of 0.37 percent in ROA, which is an indicator of firm financial performance. Second, our findings document that CSR can be viewed as a tool to mitigate firm distress risk. That is, firm distress risk is negatively related to

¹ High labor mobility firms refer to firms in a specific industry that require less industry-specific skills, where employees have more outside job opportunities.

CSR engagement. We find that a one-standard-deviation increase in CSR level would induce a 2.56% decrease in firm distress risk. The above two findings present a relatively comprehensive view of CSR on firm outcomes, providing implications for firm earning and risk management. Meanwhile, we also notice that identifying CSR's effect on firm financial performance and firm distress risk can be challenging due to the endogenous CSR variable. On the one hand, there may exist omitted variables that can drive firm performance and CSR performance simultaneously. On the other hand, some may argue that firms tend to engage in CSR more since they have better financial performance. To mitigate endogenous CSR concerns, we use a two-stage least squares (2SLS) regression analysis. Following Boubaker et al. (2020) and Bae et al. (2019), we use two instruments for CSR: the average CSR for industry peers using the two-digit standard industrial classification (SIC) codes and the lagged one-year CSR. After testing the validity of the two instruments, we show robustness that CSR helps improve firm financial performance and reduce distress risk, which is in line with the CSR-related stakeholder theory that supports the view that firms can do well by doing good.

Third, we find that CSR's positive effect on enhancing firm financial performance and reducing firm distress risk is more pronounced in firms with a highly mobile labor force. The above finding reflects that the threat of the labor force' exit and its associated costs can mitigate the CSR-related agency costs. The above findings are consistent with Dyck et al. (2010), which suggest that employees are more effective in identifying and reporting managers' misconduct because corporate information are more accessible to the employees of a firm.

Finally, in a sub-sample analysis, we investigate the effect of CSR on firm financial performance and distress risk in high labor mobility firms over the period of the 2008–2009 global financial crisis. We find that only after the financial crisis is firm financial performance positively and significantly associated with CSR engagement. In addition, CSR engagement is shown to significantly reduce firm distress risk after the crisis period. We, therefore, provide a possible explanation in line with González and Martínez (2004) and Lins et al. (2017). González and Martínez (2004) document that firms face external pressures from their stakeholders to comply with sustainability norms. We argue that such external pressure intensified after the 2008–2009 global financial crisis. In addition, Lins et al. (2017)

suggest that stakeholders are more likely to reward those firms with higher CSR after realizing the importance of trust for both well-functioning markets and financial stability.

We also perform robustness tests to show that our results are consistent across different variable construction or sample selection criteria. Rather than dividing the sample into two groups and treat labor mobility as a dummy variable, we use the labor mobility as a continuous variable. We reveal that the CSR effect on increasing profitability and decreasing firm distress risk is more pronounced as labor mobility increases. The results remain robust when we exclude firms in the utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) industries.

This study contributes to the following literature gaps. First, it contributes to the literature on the effect of CSR on firm performance. Second, we extend our study to investigate the association between CSR and firm distress risk, which adds to the current research on the relationship between CSR and firm risk. The above two findings present a relatively comprehensive view of CSR on firm outcomes, providing implications for firm earning and risk management. Third, we add to the literature investigating how rank-and-file employees can impact on corporate decision-making. Prior studies investigate the monitoring role of institutional investors in mitigating the agency problem of CSR engagement. Ferrell et al. (2016) document that if managers are not adequately motivated, they have a higher tendency to extract private benefits through CSR spending. In this case, the CSR implemented by those managers will harm shareholders' benefits, making the firms exposed to more agency problems. Our study differs extends prior studies by focusing on how labor mobility may curtail CSR-related agency problems.

The rest of our study is organized as follows. Section 2 presents the literature and develops the hypotheses. Section 3 discusses the study's data sources and empirical design. Section 4 presents the empirical results, including robustness tests. Section 5 outlines the conclusions.

2. Hypothesis Development

2.1. CSR and Firm Financial Performance

There is a dichotomous view of the association between a firm's CSR policy and its financial performance. Stakeholder theory documents that a company's primary function is to create value for

both its shareholders as well as other stakeholders (Freeman, 1984, 2002; Dervitsiotis, 2003). Freeman (1984) discusses business ethics in organizational management and proposes that managers consider different stakeholders' needs. Titman (1984) demonstrates that the interest of stakeholders related to firm-specific investments impacts corporate financing decisions. Cornell and Shapiro (1987) document that a firm's value can be enhanced by actively engaging in CSR. In particular, stakeholders such as consumers, employees, and suppliers are more likely to reward firms that actively engage in CSR. Roman et al. (1999) also show that firms can *do well* (improve firm performance) by *doing good* (engaging in CSR). Navarro (1988) presents that CSR contributes to revenue enhancement through advertising strategy. In addition, CSR helps to decrease firm costs by reducing the expected expenses of government regulatory actions because when a firm devotes itself to conducting social responsibility, it may be less likely to be affected by litigation costs. Porter and Kramer (2006) document that shareholders are concerned about CSR-related issues such as labor working conditions and global warming. Also, firms are required to report their social responsibility conduction by government regulations. Ignoring stakeholders' expectations of firm CSR engagement may expose the company to worse performance. Moreover, Harjoto and Jo (2011) show evidence that CSR activities ensure corporate sustainability by providing more information transparency to their stakeholders. Stakeholder theory indicates that CSR is used to resolve conflicts between firms and their stakeholders, and thereby increase firm performance.

In contrast, agency theory predicts that CSR engagement presents a diversion of firm valuable resources and negatively affects firm performance. Levitt (1958) proposes concerns about the dangers of social responsibility and the view that CSR is destructive towards a firm's valuable resources. Thus, a firm should focus on two responsibilities: (1) participate in face-to-face civilities such as honesty and good faith and (2) seek material gain. This follows Friedman's (1970) suggestion that the only social responsibility of an enterprise is to generate profits while complying with the basic principles of society. Barnea and Rubin (2010) and Masulis and Reza (2015) both show evidence that there are incentives for managers to engage in CSR to increase their personal reputations as good global citizens. Agency theory stresses that CSR will not benefit firm owners but will lead to agency problems between managers and shareholders.

Given the two diverging theoretical views on the impact of CSR on firm financial performance, we formulate our hypothesis as follows:

Hypothesis 1: Increasing engagement in CSR improves firm financial performance.

2.2. CSR and Firm Distress Risk

Based on stakeholder theory, one should expect that firms with better social performance have lower default risk. Godfrey (2005) shows that positive moral capital can be gained through increasing CSR engagement and moral capital can provide insurance-like protection to firm owners and enhance shareholders' benefits. Godfrey et al. (2009) find that the revenue is less affected by companies with active CSR engagement due to fewer accusations. Moreover, Attig et al. (2013) find that credit rating agencies are likely to award comparatively high ratings to firms with favorable social performance. Similarly, Cheng et al. (2014) show that advanced performance on social responsibility strategies attracts better access to finance. In summary, CSR increases the stability of the company's operation, improves firm credit ratings, and generates insurance-like assets to protect the firm from default. Thus, stakeholder theory suggests that firms with superior social performance have lower default risk.

According to agency theory, the association between CSR and firm distress risk should be positive. When managers engage in CSR for their private benefits, the firm may have a higher distress risk, especially facing an industry shock or an economic downtime. The default risk literature shows that a sufficient cash reservoir may ease business operations and prevent companies from getting into trouble (e.g., D'Aveni & Ilinitich, 1992). As noted by Masulis et al. (2009), when excessive cash reserves exist, the possibility of managers to do empire building and to extract private benefits increases. Baron (2009) and Barnea and Rubin (2010) show evidence that when managers extract rents by engaging in CSR to increase their personal prestige, the inefficient spending of cash and ultimately harming share value.

Moreover, based on agency theory, Hemingway and Maclagan (2004) suggest that managers may cover up their misbehavior by adopting CSR. For instance, Volkswagen Group was widely esteemed as a model for its CSR engagement and received several national awards for its contribution to society and the environment. However, in 2015, the U.S. Environmental Protection Agency (EPA) issued a notice of violation of the Clean Air Act to the German automaker Volkswagen Group. The

EPA found that Volkswagen deliberately only met the emission standards during regulatory testing, but the emissions exceeded the standards by as much as 40 times in real-world driving. The scandal severely damaged the trust between Volkswagen and its stakeholders and caused a huge loss for its future development. If the decision-makers view CSR as a tool to conceal the bad news, CSR would be related to higher distress risk since the negative news will be finally exposed to the public. The above arguments show that CSR can be translated into greater risk for firm owners by making corporate failure more likely.

Given the two diverging theoretical views on the impact of CSR on firm distress risk, we formulate our second hypothesis as follows:

Hypothesis 2: Increasing engagement in CSR decreases firm distress risk.

2.3. Labor Mobility on CSR and Firm Financial Performance

Goss and Roberts (2011) illustrate that similar to other corporate decisions, the success of CSR engagement relies heavily on the managers' motivation. However, managers' motivation to engage in CSR is not measurable and unobserved. Based on the current two mainstreaming theories towards CSR, people cannot determine whether CSR is beneficial to firms or not. We argue that employees can affect managers' decisions and firms' operating activities (e.g., Freeman, 1980; Hass et al., 2018). As unsecured creditors, employees have incentives to engage in a firm's decision-making process in order to mitigate managers' propensity to invest in CSR because of self-interest. Fauver and Fuerst (2006) show that employees have a crucial impact on constraining managers' misbehavior. As such, employees can protect long-term investors' benefits and increase firm financial performance. In short, we argue that employees might inhibit managers' misbehavior. When managers intend to tarnish their reputations through CSR engagement at the cost of shareholders, employees have an incentive to stop managerial abuse, mitigating the possible agency costs.

Donangelo (2014) indicates that labor mobility is an observable industry characteristic. The labor supply of an industry will be more mobile if less industry-specific labor skills are required. For example, the labor supply of the wholesale trade industry is more mobile than that of the health care industry. Donangelo (2014) also shows that employees who have more general labor skills, such as salespeople and operations managers, have a higher probability of moving to other industries than those who have

less general labor skills but more industry-specific skills, such as medical doctors and pilots. Since the pool of potential new jobs is larger for mobile employees, they more easily can find jobs in other industries.

Donangelo (2014) explains that human capital is not owned but rented by a business as one of the most crucial production factors. Employees provide their labor skills to help companies produce products or provide services; in turn, companies pay employees corresponding wages as compensation. Since human capital is such a vital factor for firm production, it is not difficult to conclude that high employee turnover has negative consequences. Labor economics studies show that an increase in the number of employees exiting is detrimental to a company.

First, high labor mobility can worsen firm performance through increasing costs related to employee exit. For instance, Shaw et al. (2005) point out that a high labor turnover rate leads to the interruption of the organization's routine work, resulting in a decline in performance. Cahuc et al. (2014) indicate that separation costs are estimated to be 25% of the annual wage for less qualified workers and over 100% for that of highly skilled workers. The costs of hiring new employees (hiring costs) to replace resigned workers are even greater. According to the U.S. Department of Labor,² the cost of replacing an employee equals one-third of a new worker's annual wage. After a firm has incurred separation costs and hiring costs, it still faces additional costs to train the new employees (training costs). Further, when employing high mobility workers, companies should not neglect opportunity costs. A high labor turnover rate will bring high opportunity costs. Here, the opportunity costs refer to the business costs that a firm may lose due to a lack of human resources to complete all the work. For example, insufficient telemarketing to potential customers may result in losses in realized revenue. Although these opportunity costs are difficult to measure, they are real. Above all, low retention rates and high labor turnover rates negatively affect firm performance due to the additional operational costs, including separation, hiring, and training costs. Additionally, a firm should consider a reduction in productivity (opportunity costs) due to the resignation of current employees.

² More information can be viewed at <https://www.dol.gov>.

Corporate decisions made by managers can affect the employees' job security and job satisfaction. Employees' job security will be put at risk when managers frequently make inappropriate decisions (e.g., investing in CSR for self-interested purposes) that will be disadvantageous to the firm's bottom line. Also, employees care about firms' future ability to meet their obligations. Meanwhile, as high-proximity stakeholders of a company, employees may notice these bad decisions and can probably jump ship when they believe that these decisions will eventually harm the firm's performance. Notably, employees with more outside opportunities have a higher tendency to leave, which will cause many unnecessary costs (e.g., hiring cost, training cost) for a firm. In turn, high labor mobility might further discipline the managers' improper CSR investment, and mitigate agency problems related to CSR engagement.

When employees engage fully in the decision-making process, firm owners' long-run interests are possibly better-served (e.g., Blair & Stout, 1999; Roberts & Van den Steen, 2000). Studies also show evidence that employees can affect managers' decisions. Freeman (1980) was the first to propose that the exit-voice tradeoff exists in the labor market. Employees can voice their concerns about a firm's inappropriate decisions to top management. Alternatively, they can threaten to leave the firm if they question the decisions made by top management and worry about the firm's future conditions. Prior studies indicate that managers take this into account. For example, Bae et al. (2011) find that companies that care more about their employees are likely to reduce their leverage. Hass et al. (2018) illustrate that the essential role played by human capital in the increasingly knowledge-based economy has resulted in the increasing importance of the role of employees in corporate decision-making. They show evidence of employees have a disciplining effect on managers' myopic behavior such as cutting R&D expenditures or overproducing. As such, we predict that CSR positively impacts firm performance, and this effect strengthens when labor mobility is high. We formulate the following third hypothesis:

***Hypothesis 3:** The positive impact of CSR on firm financial performance is strengthened when labor mobility is high.*

2.4. Labor Mobility on CSR and Firm Distress Risk

According to stakeholder theory, CSR engagement is beneficial to decrease firm distress risk by increasing the stability of operation and improving firm credit ratings, generating insurance-like assets

to protect the firm from default. In contrast, agency theory argues that managers have an incentive to increase their reputation through investing in CSR at the expense of shareholders. As such, CSR leads to an agency problem and additional agency costs, making the firm financial condition more volatile and increasing a firm's distress risk. We argue that employees may constrain managers' ability to invest in CSR opportunistically.

Further, firms with high mobility of workers amplify its risk of default. Donangelo (2014) illustrates that labor mobility makes firm owners more susceptible to extra labor supply fluctuations. High labor mobility makes wages less sensitive and operating cash flows more susceptible to industry shocks. When mobile employees depart a firm, they can take organizational capital away from the firm. The valuable organizational capital is built over time through training, experience, and skills gained within the firm. Therefore, an open labor market may increase cash flow risk and amplify the firm's business risk. Haushalter et al. (2007) show that cash holdings have significant implications for corporate investment and financing decisions. Overall, high labor mobility may lead to high distress risk due to an increase in cash flow uncertainty emerging from the potential loss of valuable human capital. Hence, in high labor mobility firms, the threat of employees leaving the firm and the associated costs should further inhibit managers from using CSR to extract rents (e.g., advancing their careers or pursuing other private benefits). Therefore, we formulate our fourth hypothesis as follows:

Hypothesis 4: The negative impact of CSR on firm distress risk is exacerbated when labor mobility is high.

3. Data and Methodology

3.1. CSR Data

Our CSR sample is sourced from the Refinitiv database and covers U.S. S&P 1500 firms from 2002 to 2015³. According to Refinitiv (2020), ESG scores are updated weekly, reflecting the latest corporate social responsibility performance from multiple sources such as NGO websites, firms' annual reports, and stock exchange filings.

³ The sample period is restricted because of the availability of Refinitiv ESG and labor mobility data.

Refinitiv ESG scores measure a firm's commitment and effectiveness across ten main categories, including Emissions, Environmental Product Innovation, Resources Use, Human Rights, Workforce, Community, Product Responsibility, Management, CSR strategy, and Shareholders. More information related to the definition of various ESG categories is shown in Appendix 1. To ensure the quality of ESG data, Refinitiv uses both algorithmic and human processes to measure firms' ESG performance.

It should be noted that, in addition to the Refinitiv ESG database, there is another popular source of data called MSCI KLD, which also measures firm CSR engagement. However, Chatterji et al. (2009) indicate that MSCI KLD ESG ratings are not using publicly available data optimally. Also, they argue that it is not reasonable to summarize individual categories, such as emissions as one or zero indicator variables. By contrast, rather than translate each category as one or zero indicator variables, Refinitiv (2020) documents that they produce a score between 0–100 to eliminate hidden layers of calculations.

Refinitiv ESG provides a transparent, data-driven assessment of firms' relative social performance and capacity to integrate and account for firm size biases. Also, Refinitiv ESG uses industry and country benchmarks at the data point-scoring level to facilitate comparative analysis within peer groups. Considering the advantages of the Refinitiv ESG database and the comparison with the KLD ESG database, we employ Refinitiv ESG combined scores in our study and use it as a good proxy for a firm's commitment to CSR.

In our study, following Buchanan et al. (2018) and Boubaker et al. (2020), we use firm-level ESG (Environment; Social; Corporate Governance) combined scores as a proxy for firm overall CSR performance (when referred to as a data series, this will be indicated in the text with italics, as in *CSR*). Following Boubaker et al. (2020) and Verwijmeren and Derwall (2010), our main explanatory variable corporate social responsibility ($CSR_{i,t}$) is the natural logarithm of ESG Combined Score from Refinitiv ESG Database for firm i at time t .

3.2. Labor Mobility Data

Labor mobility data are obtained from Andres Donangelo's website⁴ and capture the level of interindustry dispersion of workers across occupations. Labor mobility is determined by "the nature of

⁴ Andres Donangelo's website: <https://faculty.mcombs.utexas.edu/donangelo/>

labor skills required by the productive technology common to all firms in the industry” (Donangelo, 2014, p.1322).

In the area of labor economics, estimating labor mobility is a challenge because industry-level labor mobility is not directly observable. To overcome this problem, Donangelo (2014) uses data that is largely drawn from the Occupation Employment Statistics (OES) program of the Bureau of Labor Statistics (BLS) and proposes an indirect ex-ante measure of labor mobility in two stages. First, Donangelo (2014) measures the concentration of workers in different occupations across industries. Second, the mobility of an industry's labor force as the average mobility of the occupations it employs is calculated. Appendix 2 presents a list of the bottom 15 and top 15 ranked labor mobility industries in 2011.

Using ex-ante labor mobility data constructed by Donangelo (2014) helps eliminate the endogenous impact of employee mobility. If we use ex-post observed labor turnover, the following endogeneity problems will occur. Firstly, there will be a reverse causality problem since the company's performance or distress risk will also affect the company's employee turnover rate. When a firm has poor financial performance or faces a high risk of bankruptcy, employees are more inclined to leave, increasing the labor turnover rate. In this way, we cannot figure out whether labor mobility leads to poor performance/high distress risk or the reversal relation.

Secondly, using ex-ante labor mobility helps to avoid the possible omitted variable problem. Specifically, the ex-ante expected labor mobility data we use is at the industry level and, therefore, eases concern about firm-level omitted correlated variables. Meanwhile, since labor mobility is calculated based on job-level occupational mobility, we do not expect it to be correlated with other industry characteristics. In short, using ex-ante labor mobility data makes it easier for us to conduct our research on key issues.

Donangelo's (2014) labor mobility measurement is the first to concentrate on workers' flexibility to move in and out of a particular industry and is specific to the supply side of labor. Additionally, this measure is directly related to the degree of segmentation of the industry's labor market. Given that the measure of labor mobility is at the industry level, we assign labor mobility to each firm by industry code proxied by NAICS for a given year. Also, we attempt to closely follow Donangelo (2014) and use

the lagged 18-month of labor mobility to divide the high and low labor mobility samples in our analysis. However, the mobility data available on Andres Donangelo’s website is annual rather than monthly. Therefore, we use the average value of lagged 1-year labor (*Lagged 1-year LM*) and lagged 2-year labor mobility (*Lagged 2-year LM*) to split our samples. We also provide robustness checks by using labor mobility (*Average LaggedLM*) as a continuous variable.

3.3. Firm Financial Performance and Distress Risk Data

Our study includes two main dependent variables: firm financial performance and firm distress risk. We collect the firm-level financial performance data from Compustat via Wharton Research Data Services (WRDS). We use firm profitability proxied by income before extraordinary items over total assets to indicate firm financial performance (*ROA*). As for firm distress risk, we follow a common and standard accounting-based measure which is *Zscore* (Altman, 1968). Broad literature uses accounting and market-based measures to predict financial distress (e.g., Tykvvová & Borell, 2012). Using a large sample of the international dataset, Agarwal and Taffler (2008) document that the Altman *Zscore* model, one of the accounting-based models, performs better than the market-based models from the perspective of predicting firm failure. Additionally, Altman et al. (2017) verify the effectiveness of *Zscore* as a predictor of distress risk through a more recent longitudinal analysis. Thus, in our study, we use Altman *Zscore* to measure firm financial distress risk. Based on Altman (1968), a high *Zscore* is associated with low firm distress risk, indicating a low probability of bankruptcy. We calculate the *Zscore* by using the data from Compustat. The following formula is the calculation of the *Zscore* (Altman, 1968)

$$\mathbf{Zscore} = 1.2 \frac{WC}{TA} + 1.4 \frac{Ret\ Earnings}{TA} + 3.3 \frac{EBIT}{TA} + 0.6 \frac{MV}{TL} + 0.99 \frac{SAL}{TA} \quad (1)$$

Specifically, WC is Working Capital; TA is Total Assets; Ret Earnings is Retained Earnings; EBIT is Earnings Before Interest and Taxes; MV is the market value of equity (Common Shares Outstanding times Price Close-Annual); TL is Total Liabilities; SAL is Sales.

3.4. Control Variables

Following Albuquerque et al. (2019), we control for factors that affect firm financial performance, such as firm cash holdings, firm size, capital expenditures, leverage, advertising intensity,

R&D intensity, and earnings variability. Firm cash holding (*Cash*) is defined as the ratio of cash and marketable securities to total assets net of cash and marketable securities (Opler et al., 1999; Albuquerque et al., 2019). Firm size (*Size*) is measured as the log of total assets. Capital expenditure (*CAPEX*) is defined as capital expenditures over total assets. Firm leverage (*Leverage*) is defined as long-term debt over total assets. Advertising is defined as advertising expenditures over total assets. Firm R&D intensity (*R&D*) is defined as R&D expenditure over total assets. We set missing values of Advertising and R&D to zero following Albuquerque et al. (2019). Earnings variability is measured as the standard deviation of income before extraordinary items per share using a five-year rolling window.

We add three more control variables following Boubaker et al. (2020) in our analysis of CSR on firm distress risk. The first additional control is the market-to-book ratio (*MTB*) which is the ratio of the market value of equity to the book value of equity. The literature uses the market-to-book ratio as an indicator of firm growth opportunities. Hsu et al. (2015) find that investors are more likely to invest in companies with higher growth opportunities. Therefore, we expect firms with higher growth opportunities to better access external finance and lower financial constraints. Thus, a negative relation between market-to-book ratio and firm distress risk is expected.

The second control variable is depreciation and amortization (*Depreciation*). We measure this variable as the ratio of total depreciation to total assets. Verwijmeren and Derwall (2010) show that firms with higher depreciation ratios generally have more available funds, which lower their dependence on outside financing. Therefore, we predict that there is a negative relation between depreciation ratio and firm distress risk.

The final control variable is *Tangibility*. This variable is the ratio of total fixed assets to total assets. Based on Sharpe and Stadnik (2007), the more tangible assets a firm has, the higher the firm's ability to collateralize its debt. In this way, a firm with more tangible assets may have a higher probability to increase its debt ratio. Thus, we propose that tangibility is positively related to firm distress risk. Appendix 3 provides descriptions of all control variables.

3.5 Methodology

We employ the following multivariate regression specifications to gauge the effect of labor mobility on the relation between CSR and firm financial performance/ distress risk.

$$ROA_{i,t} = \alpha + \beta_1 CSR_{i,t} + \beta_2 Controls_{i,t-1} + Firm\ FE + Year\ FE + \varepsilon_{i,t} \quad (2)$$

$$Zscore_{i,t} = \alpha + \beta_1 CSR_{i,t} + \beta_2 Controls_{i,t-1} + Firm\ FE + Year\ FE + \varepsilon_{i,t} \quad (3)$$

$$ROA_{i,t} = \alpha + \beta_1 CSR_{i,t} * Avg\ HighLM_{i,t-1} + \beta_2 CSR_{i,t} + \beta_3 HighLM_i + \beta_4 Controls_{i,t-1} + Firm\ FE + Year\ FE + \varepsilon_{i,t} \quad (4)$$

$$Zscore_{i,t} = \alpha + \beta_1 CSR_{i,t} * Avg\ HighLM_{i,t-1} + \beta_2 CSR_{i,t} + \beta_3 HighLM_i + \beta_4 Controls_{i,t-1} + Firm\ FE + Year\ FE + \varepsilon_{i,t} \quad (5)$$

Specifically, $ROA_{i,t}$ measures firm profitability for firm i at time t . $Zscore_{i,t}$ is the indicator for firm financial distress risk for firm i at time t . Following Boubaker et al. (2020) and Verwijmeren and Derwall (2010), our main explanatory variable corporate social responsibility ($CSR_{i,t}$)⁵ is the natural logarithm of ESG Combined Score from Refinitiv ESG Database for firm i at time t . As we mentioned above, we attempt to closely follow Donangelo (2014) and use the lagged 18-month of labor mobility in our analysis. However, the mobility data available on Andres Donangelo's website is annual rather than monthly. Therefore, we use the average value of lagged 1-year (*Lagged 1-year LM*) and lagged 2-year labor mobility (*Lagged 2-year LM*) in any fiscal year. $Avg\ HighLM_{i,t-1}$ is the dummy variable which equals one for firms whose labor mobility is above the sample median, and zero otherwise. We also provide robustness checks by using labor mobility (*Average LaggedLM*) as a continuous variable. Control variables include firm cash holdings, firm size, capital expenditures, leverage, advertising intensity, R&D intensity, and earnings variability in Equation (2) and (4). As for Equation (3) and (5), we add additional controls including market-to-book ratio, depreciation, and amortization and tangibility. We add firm fixed effects and year fixed effects to test our four hypotheses. We cluster the standard errors at the firm level. We winsorize all these variables at the 1% level. After merging all key variables, our sample size contains 7,903 observations.

⁵ We use the ESG combined score at time t , arguing that the CSR engagement is closely related to the firm financial performance or firm distress risk in the same year. Our choice is consistent with most of the CSR literature (e.g., Verwijmeren and Derwall, 2010; Boubaker et al., 2020). We later use the instrumental variables to solve the possible endogeneity issues.

4. Empirical Results

Table 1 presents descriptive statistics for our sample firms, which The average *ROA* value is 0.048 with a standard deviation of 0.084. The average *Zscore* is 1.707 with a standard deviation of 1.327. Our key independent variable is the *CSR*, whose mean equals to 3.692 with a standard deviation of 0.333. In the following subsections, our empirical results will be presented following the sequence of our hypothesis development.

[INSERT TABLE 1 ABOUT HERE]

4.1. The Impact of CSR on Firm Financial Performance

Table 2 presents the results surrounding the impact of CSR on firm financial performance. Column 4 of Table 2 provides the results of fixed-effect panel regressions for CSR on firm financial performance. The results show that corporate CSR performance is positively related to firm financial performance at the significance level of 5% ($\beta_{CSR} = 0.011$). Economically speaking, *ROA* would increase by 7.6% ($=0.011 * 0.333 / 0.048$) given a one-standard-deviation increase in *CSR*. This result supports our first hypothesis and substantive prior CSR studies advocating stakeholder theory (e.g., Cornell and Shapiro, 1987; Roman et al., 1999). Specifically, we show that CSR engagement has a positive impact on improving firm financial performance.

Further, the signs of control variables are consistent with empirical evidence on firm profitability. For instance, Consistent with Albuquerque et al. (2019), Column 4 shows that firms' cash holding ($\beta_{Cash} = 0.022$, $p\text{-value} < 0.05$) is positively related to firm financial performance while the firm size ($\beta_{Size} = -0.039$, $p\text{-value} < 0.01$) is negatively related to the firm profitability. Overall, the results in all columns in Table 2 suggest that the effect of *CSR* is significantly positive on firm profitability, supporting the stakeholder theory that *CSR* benefits outweigh CSR costs.

[INSERT TABLE 2 ABOUT HERE]

4.2. The Impact of CSR on Firm Distress Risk

Table 3 provides the results of fixed-effect panel regressions for the effect of CSR on firm distress risk. Agarwal and Taffler (2008) document that the Altman's *Zscore* model has advantages in predicting firm failure. We use the formula in Altman (1968) to calculate *Zscore* to predict the firm financial

distress risk. Notably, a higher *Zscore* is associated with lower firm distress risk (or probability of default). Column 4 of Table 3 shows a positive relationship between *CSR* and *Zscore* ($\beta_{CSR} = 0.077$) at the 10% significance level after controlling firm-level variables, year, and firm-fixed effects. This supports the assumption that CSR engagement decreases firm distress risk. Economically, the coefficient of *CSR* in Column 4 shows that a one-standard-deviation increase in the level of *CSR* would induce a 1.5% ($=0.333 \times 0.077 / 1.707$) decrease in firm distress risk.

Also, the signs of the coefficients of the control variables are consistent with prior literature on firm distress risk (e.g., Boubaker et al., 2020). In Column 4, both firm size ($\beta_{Size} = -0.288$, $p\text{-value} < 0.01$) and leverage ratio ($\beta_{Leverage} = -0.921$, $p\text{-value} < 0.01$) have a negative relation with *Zscore* and hence positively correlated with the firm distress risk. Moreover, capital expenditures ($\beta_{CAPEX} = 1.261$, $p\text{-value} < 0.1$), advertisement expenditure ($\beta_{Advertising} = 5.097$, $p\text{-value} < 0.01$), and market-to-book ratio ($\beta_{MTB} = 0.007$, $p\text{-value} < 0.01$) are positively (negatively) associated with *Zscore* (firm distress risk). In sum, our findings in Table 3 show that corporate CSR engagement is negatively associated with the firm default risk, supporting the second hypothesis in line with the stakeholder theory.

[INSERT TABLE 3 ABOUT HERE]

4.3. Accounting for Endogeneity

One concern with this paper is endogeneity. First, omitted variables could affect corporate CSR performance and be correlated with the error terms. Second, it might be affected by the reverse causality. Specifically, firms with better financial performance may have more resources to invest in CSR. Also, firms facing less default risk can have better access to finance, and therefore, they are more likely to increase their engagement in CSR. Therefore, the ordinary least squares (OLS) coefficients could be biased.

To address the endogeneity issues mentioned above, we use the two-stage least squares (2SLS) instrumental variable method. In terms of the choice of instruments, we base our study on Jiraporn et al. (2014) and Cheng et al. (2014), who show that firms follow their industry peers in CSR-related policies (*Relevance Condition*). Following Boubaker et al. (2020), our first instrumental variable is the average CSR for industry peers (*Average CSR Industry Peer (2-digit SIC)*). In other words, a firm's CSR is impacted by the CSR of other firms within the same industry. We exclude the *CSR* of the firm

itself and calculate the mean value of *CSR* within the same industry-year defined by two digits of SIC codes. In addition, to ensure that the industry-year mean *CSR* is not biased toward outliers, our study requires that each industry-year contain at least four firms. Furthermore, we follow Bae et al. (2019) and use *Lagged 1-year CSR* value as our second instrumental variable since firms' *CSR* policies tend to be sticky and affected by the previous level (*Relevance Condition*). Moreover, it is not expect that the average *CSR* for industry peers and lagged 1-year *CSR* value have direct impacts on firm financial performance and distress risk (*Exclusion Restriction*).

The first-stage regressions are reported in Columns 1 and 3 of Table 4, , we show that *Average CSR Industry Peer*, as well as *Lagged 1-year CSR*, are both positively related to *CSR* under the significance level of 1%, which validates the choice of instrumental variables. Additionally, the p-values of Cragg–Donald (1993)'s Wald F-test for weak instruments are both 0.000 as shown in Columns 1 and 3, rejecting the null hypothesis of weak instruments.

In the second-stage regressions, the results in Columns 2 and 4 are qualitatively consistent with those shown in Tables 2 and 3. That is, increases in *CSR* lead to improved financial performance of firms, measured by *ROA*, as well as decreasing firm distress risk, measured by *Zscore*. The p-values of Hansen's J overidentification test are 0.630 and 0.647 in Column 2 and Column 4, separately, indicating valid instruments that are uncorrelated with the error term (Hansen, 1982).

[INSERT TABLE 4 ABOUT HERE]

4.4. Labor Mobility on CSR, Firm Financial Performance and Distress Risk

To test against the third hypothesis regarding the incremental effect of the labor mobility, we sort the sample into high- and low-mobility firms. Firstly, we compute the average lagged labor mobility for a specific firm by averaging the lagged 1-year and 2-year labor mobility for the corresponding firm in a specific year. We then sort our sample into two groups based on average lagged labor mobility. *Avg HighLM* is a dummy variable which equals 1 if the firm's average lagged labor mobility is above the median value and zero otherwise.

In Column 2 of Table 5, we find that when firms are facing high labor mobility, a one-standard-deviation increase in *CSR* increases the firm financial performance by 0.008 unit ($=0.025*0.333$), which is comparably higher than the previous result of a 0.004-unit increase in firm financial performance in

the full sample (shown in Column 4 of Table 2). The results confirm that the positive CSR effect on firm financial performance is more pronounced in high labor-mobility firms. That is, labor mobility has a disciplinary impact on corporate decisions, strengthening the links between corporate CSR performance and profitability.

[INSERT TABLE 5 ABOUT HERE]

To test whether the incremental effect of the labor mobility on the relationship between CSR and firm-level financial distress risk, we estimate Equation (5) in Table 6. We conjecture that employees can monitor and mitigate the wasteful CSR engagement motivated by managers' self-serving purpose, and therefore, the impact of CSR on firm financial distress risk should be strengthened in high labor mobility firms. After adding firm-fixed effects in Column 2, we show that in industries with high labor mobility, the higher CSR is significantly associated with lower distress risk ($\beta_{CSR*Avg\ HighLM}=0.292$, $p\text{-value}<0.01$). As Column 4 of Table 3 indicates, a one-standard-deviation increase in *CSR* increases *Zscore* by 0.026 units. Comparatively, in Column 2 of Table 6, we show that for high labor mobility firms, a one-standard-deviation increase in *CSR* increases *Zscore* by 0.097 units ($=0.292*0.333$). This indicates that the positive CSR effect on reducing firm distress risk is more pronounced in high labor mobility firms, which supports the fourth hypothesis. In sum, results in Tables 5 and 6 imply that the exit options of employees might monitor the managerial use of CSR, mitigate potential agency costs, and hence enhance the value-creating impact of CSR on firm financial performance and risk management.

[INSERT TABLE 6 ABOUT HERE]

4.5. Sub-sample Analysis: The Financial Crisis

In this section, we explore whether the CSR effect on firm financial performance in high labor mobility firms differs in different periods. Following Lins et al. (2017), we define 2008 and 2009 as "During Financial Crisis." The years before 2008 belong to the "Before Financial Crisis" period, and the years after 2009 refer to the "After Financial Crisis" period.

Evidence from prior studies (e.g., Lins et al., 2017; Dyck et al., 2019) shows that both firms and their stakeholders care more about the corporate social performance following the financial crisis because the financial crisis stressed the importance of trust in both a well-functioning and financially

stable market. Therefore, after the crisis, firms can build up more trust among stakeholders by engaging in more investments in CSR. In turn, stakeholders are more likely to reward these firms with higher CSR. Lins et al. (2017) suggest three channels (consumers, employees, and investors) through which CSR can impact firm performance surrounding the financial crisis. For example, they show that higher sales growth can reflect the willingness of customers to support firms engaging in more CSR. In line with this argument, we should expect that the incremental effect of the labor mobility on the relationship between CSR and corporate financial performance is more pronounced after the crisis.

Our findings in Table 7 based on the sub-sample analysis are consistent with our prediction. We show that before and during the financial crisis, firm financial performance is not significantly related to CSR in high labor mobility firms. However, when social trust between firms and stakeholders became more critical after the financial crisis, increasing CSR engagement helped firms to improve their financial performance for the high labor-mobility firms ($\beta_{CSR*Avg\ HighLM}=0.036$, $p\text{-value}<0.05$).

[INSERT TABLE 7 ABOUT HERE]

Similarly, we predict that in high labor mobility firms, CSR aids in the reduction of firm distress risk after the financial crisis. In Column (3) of Table 8, after the crisis, the regression coefficient ($\beta_{CSR*Avg\ HighLM}=0.363$, $p\text{-value}<0.01$) supports our predictions of greater disciplinary effects of labor mobility. Overall, Tables 7 and 8 suggest that the positive incremental effect of labor mobility on the value-creating impacts of CSR is more pronounced after the financial crisis due to higher stakeholder recognition of CSR engagement.

[INSERT TABLE 8 ABOUT HERE]

4.6. Robustness Test: Labor Mobility as a Continuous Variable

Table 9 reports the robustness check of the incremental effect of labor mobility on the relation between CSR and firm financial performance and between CSR and firm financial distress risk in Panels A and B, respectively. Instead of categorizing firms into high or low labor mobility firms, we treat labor mobility as a continuous variable in Table 9.

[INSERT TABLE 9 ABOUT HERE]

In Panel A, we calculate the average labor mobility for a specific firm by averaging the lagged 1-year and 2-year labor mobility for the corresponding firm in a base year, and we define the average

labor mobility as *Average LaggedLM*. *Average LaggedLM* is a continuous variable rather than a dummy variable, and our results remain consistent. For instance, in Column 1 of Panel A, we show that when labor mobility is higher, the positive effect of *CSR* on firm profitability (*ROA*) is more pronounced. In addition, Column 2 of Panel A shows that the positive effect of *CSR* on decreasing firm distress risk is more pronounced with the increase in labor mobility. Likewise, we separately use lagged 1-year and 2-year labor mobility in Panels B and C. Results are shown to remain robust.

4.7. Robustness Test: Excluding Utility Firms and Financial Firms

Table 10 reports regressions of our study after excluding utility (SIC codes 4900-4999) firms and financial (SIC codes 6000-6999) firms. In utility firms and financial firms, the leverage and regulatory criteria are different from firms in other sectors. In Columns 1 and 2, we show that increasing *CSR* improves firm financial performance ($\beta_{CSR}=0.012$, $p\text{-value}<0.05$) and decreases firm distress risk ($\beta_{CSR}=0.088$, $p\text{-value}<0.1$), consistent with the findings in Tables 2 and 3. In Columns 3 and 4, we further show that incremental effects of labor mobility shown in Tables 5 and 6 would not diminish after excluding utility and financial firms.

[INSERT TABLE 10 ABOUT HERE]

5. Conclusion

Our study supports explanations underpinned by the stakeholder theory and documents that firm financial performance is positively associated with *CSR* engagement while firm distress risk is negatively associated with the corporate *CSR* performance. Economically, firm profitability, measured by *ROA*, would increase by 7.6% given a one-standard-deviation increase in *CSR* and firm distress risk, measured by *Zscore*, tend to decrease by 1.5% given a one-standard-deviation increase in *CSR*. To address potential endogeneity concerns of omitted variable biases and reversed causality, we use the 2SLS instrumental variables approach to re-examine our hypothesis, and our results remain robust.

Further, we show the disciplinary effect of labor mobility on corporate *CSR* expenditure, and we find that the positive (negative) impact of *CSR* on financial performance (distress risk) become more pronounced in firms with a highly mobile labor force. This suggests that exit options of employees might monitor the managerial use of *CSR*, mitigate potential agency problems related to *CSR* engagement, which eventually contributes to improved profitability and reduced firm distress risk.

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Table 1. Sample description

This table reports the descriptive statistics of our sample, which covers the period from 2002 to 2015. *ROA* refers to income before extraordinary items over total assets; we follow Altman (1968) to generate *Zscore* of which the detail calculation formula is provided in Section 3. *CSR* is the log value of ESG combined score from Refinitiv. We use the *Labor Mobility* data from Andres Donangelo's website. *Cash* is defined as the ratio of cash and marketable securities to total assets net of cash and marketable securities. *Size* is measured as the log of total assets. *CAPEX* is defined as the capital expenditures over total assets. *Leverage* is defined as long-term debt over total assets. *Advertising* is defined as advertising expenditures over total assets. *R&D* is defined as R&D expenditure over total assets. *Earnings variability* is measured as the standard deviation of income before extraordinary items per share using a five-year rolling window. *MTB* which is the ratio of the market value of equity to the book value of equity. *Depreciation* is the ratio of total depreciation to total assets. *Tangibility* is the ratio of total fixed assets to total assets. All continuous variables are winsorized at the 1st and 99th percentiles. We report the numbers of observations, means, standard deviations (SD), 25 percentiles, medians and 75 percentiles for the variables used in our study.

VARIABLES	Observations	Mean	SD	P25	Median	P75
<i>Dependent Variables</i>						
<i>ROA</i>	7,903	0.048	0.084	0.016	0.045	0.087
<i>Zscore</i>	6,465	1.707	1.327	0.898	1.662	2.484
<i>Independent Variables</i>						
<i>CSR</i>	7,903	3.692	0.333	3.473	3.691	3.916
<i>Labor Mobility</i>	7,903	-0.057	0.867	-0.780	-0.137	0.670
<i>Firm Characteristics</i>						
<i>Cash</i>	7,903	0.203	0.323	0.031	0.089	0.230
<i>Size</i>	7,903	9.093	1.408	8.078	8.919	9.962
<i>CAPEX</i>	6,511	0.050	0.047	0.020	0.037	0.064
<i>Leverage</i>	7,872	0.219	0.171	0.086	0.194	0.318
<i>Advertising</i>	7,903	0.009	0.023	0.000	0.000	0.005
<i>R&D</i>	7,903	0.023	0.044	0.000	0.000	0.025
<i>Earnings variability</i>	7,812	1.494	2.062	0.440	0.815	1.610
<i>MTB</i>	7,902	3.250	5.284	1.475	2.321	3.863
<i>Depreciation</i>	7,509	0.036	0.025	0.019	0.033	0.047
<i>Tangibility</i>	7,728	0.253	0.243	0.058	0.168	0.388

Table 2. CSR and Firm Profitability

This table reports the effect of CSR on firm profitability. The sample covers the period from 2002 to 2015. Our dependent variable is *ROA*, which refers to income before extraordinary items over total assets. *CSR* is the log value of ESG combined score from Refinitiv. *Cash* is defined as the ratio of cash and marketable securities to total assets net of cash and marketable securities. *Size* is measured as the log of total assets. *CAPEX* is defined as the capital expenditures over total assets. *Leverage* is defined as long-term debt over total assets. *Advertising* is defined as advertising expenditures over total assets. *R&D* is defined as R&D expenditure over total assets. *Earnings variability* is measured as the standard deviation of income before extraordinary items per share using a five-year rolling window. In the first two regressions, we do not add firm-level controls. We use the lagged one-year controls in the last two regressions. The reported t-statistics are based on robust standard errors adjusted for clustering at the firm level. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

VARIABLES	(1) <i>ROA</i>	(2) <i>ROA</i>	(3) <i>ROA</i>	(4) <i>ROA</i>
<i>CSR</i>	0.010*** (4.64)	0.012** (2.56)	0.016*** (3.31)	0.011** (2.45)
<i>Cash</i>			0.028*** (2.77)	0.022** (2.31)
<i>Size</i>			-0.003 (-1.53)	-0.039*** (-7.21)
<i>CAPEX</i>			-0.038 (-0.91)	0.035 (0.41)
<i>Leverage</i>			-0.071*** (-4.66)	-0.013 (-0.91)
<i>Advertising</i>			0.453*** (4.75)	0.063 (0.41)
<i>R&D</i>			-0.167** (-2.29)	-0.057 (-0.34)
<i>Earnings variability</i>			-0.004*** (-3.81)	0.001 (0.62)
Intercept	YES	YES	YES	YES
Firm Fixed Effects	NO	YES	NO	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	5,105	5,077	5,105	5,077
Adjusted R-squared	0.025	0.408	0.095	0.431

Table 3. CSR and Firm Financial Distress Risk

This table reports the effect of CSR on firm financial distress risk. The sample covers the period from 2002 to 2015. Our dependent variable is *Zscore*, which is an indicator for firm distress risk. The higher *Zscore*, the lower firm distress risk. *CSR* is the log value of ESG combined score from Refinitiv. *Cash* is defined as the ratio of cash and marketable securities to total assets net of cash and marketable securities. *Size* is measured as the log of total assets. *CAPEX* is defined as the capital expenditures over total assets. *Leverage* is defined as long-term debt over total assets. *Advertising* is defined as advertising expenditures over total assets. *R&D* is defined as R&D expenditure over total assets. *Earnings variability* is measured as the standard deviation of income before extraordinary items per share using a five-year rolling window. *MTB* which is the ratio of the market value of equity to the book value of equity. *Depreciation* is the ratio of total depreciation to total assets. *Tangibility* is the ratio of total fixed assets to total assets. In the first two regressions, we do not add firm-level controls. We use the lagged one-year controls in the last two regressions. The reported t -statistics are based on robust standard errors adjusted for clustering at the firm level. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

VARIABLES	(1) <i>Zscore</i>	(2) <i>Zscore</i>	(3) <i>Zscore</i>	(4) <i>Zscore</i>
<i>CSR</i>	0.165*** (5.11)	0.086*** (4.05)	0.349*** (3.82)	0.077* (1.78)
<i>Cash</i>			-0.132 (-0.72)	0.064 (0.70)
<i>Size</i>			-0.125*** (-3.40)	-0.288*** (-4.61)
<i>CAPEX</i>			2.837*** (2.83)	1.261* (1.81)
<i>Leverage</i>			-2.680*** (-9.16)	-0.921*** (-5.58)
<i>Advertising</i>			8.348*** (5.52)	5.097*** (3.29)
<i>R&D</i>			-8.052*** (-6.34)	-1.597 (-0.87)
<i>Earnings variability</i>			-0.058*** (-3.27)	-0.007 (-0.67)
<i>MTB</i>			0.028*** (4.65)	0.007*** (3.81)
<i>Depreciation</i>			-2.246 (-1.05)	-3.138 (-1.58)
<i>Tangibility</i>			-1.277*** (-5.34)	-0.602 (-1.57)
Intercept	YES	YES	YES	YES
Firm Fixed Effects	NO	YES	NO	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	4,944	4,917	4,944	4,917
Adjusted R-squared	0.004	0.852	0.282	0.862

Table 4. Endogeneity Tests: 2SLS Regressions

This table reports the results of our two-stage least squares (2SLS) regression analysis. We use the average CSR score for industry peers as the first instrumental variable based on Boubaker et al. (2020). In addition, following Bae et al. (2019), we use lagged one-year CSR as one of our instrument variables. We also present the p-values of Cragg–Donald’s Wald F-test for weak instruments as well as the Hansen J overidentification test. The reported t-statistics are based on robust standard errors adjusted for clustering at the firm level. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

VARIABLES	(1) First stage CSR	(2) Second stage ROA	(3) First stage CSR	(4) Second stage Zscore
<i>Average CSR Industry Peer (2-digit SIC)</i>	0.163*** (4.73)		0.148*** (4.21)	
<i>Lagged 1-year CSR</i>	0.601*** (35.47)		0.600*** (35.72)	
CSR		0.019** (2.36)		0.472*** (2.93)
<i>Cash</i>	-0.041*** (-2.85)	0.027** (2.55)	-0.037** (-2.50)	-0.162 (-0.87)
<i>Size</i>	0.023*** (6.36)	-0.003 (-1.53)	0.022*** (5.96)	-0.130*** (-3.38)
<i>CAPEX</i>	0.016 (0.17)	-0.047 (-1.05)	-0.201 (-1.42)	3.219*** (2.94)
<i>Leverage</i>	-0.061** (-2.10)	-0.078*** (-4.96)	-0.074** (-2.43)	-2.728*** (-8.91)
<i>Advertising</i>	-0.015 (-0.07)	0.470*** (4.85)	0.014 (0.07)	8.405*** (5.97)
<i>R&D</i>	0.337*** (3.41)	-0.178** (-2.39)	0.358*** (3.37)	-7.951*** (-6.17)
<i>Earnings variability</i>	-0.003* (-1.85)	-0.003*** (-3.24)	-0.004* (-1.89)	-0.049** (-2.57)
<i>MTB</i>			0.000 (0.19)	0.028*** (4.45)
<i>Depreciation</i>			0.140 (0.53)	-3.112 (-1.36)
<i>Tangibility</i>			0.054* (1.75)	-1.372*** (-5.29)
Firm Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Intercepts	YES	YES	YES	YES
p-value of Cragg–Donald’s Wald F-test for weak instruments	0.000		0.000	
p-value of Hansen J overidentification test		0.630		0.647
Observations	4,658	4,658	4,653	4,507
Adjusted R-squared	0.414	0.073	0.414	0.279

Table 5. Labor Mobility on CSR and Firm Profitability

This table reports the results of labor mobility on the relation between CSR and firm profitability. The sample covers the period from 2002 to 2015. Our dependent variable is *ROA*, which refers to income before extraordinary items over total assets. *CSR* is the log value of ESG combined score from Refinitiv. We first calculate the average labor mobility for a specific firm by averaging the lagged 1-year and lagged 2-year labor mobility for the corresponding firm in a based year. We then sort our sample into two groups based on the level of average labor mobility. *Avg HighLM* is a dummy variable which refers to 1 if the firm's average lagged labor mobility is above the median value, otherwise equals to zero. *CSR* Avg HighLM* refers to the interaction term of *CSR* and *Avg HighLM*. The unlisted controls are as the following variables. *Cash* is defined as the ratio of cash and marketable securities to total assets net of cash and marketable securities. *Size* is measured as the log of total assets. *CAPEX* is defined as the capital expenditures over total assets. *Leverage* is defined as long-term debt over total assets. *Advertising* is defined as advertising expenditures over total assets. *R&D* is defined as R&D expenditure over total assets. *Earnings variability* is measured as the standard deviation of income before extraordinary items per share using a five-year rolling window. The reported t-statistics are based on robust standard errors adjusted for clustering at the firm level. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

VARIABLES	(1) ROA	(2) ROA
<i>CSR</i>	0.005 (0.61)	-0.003 (-0.31)
<i>Avg HighLM</i>	-0.054 (-1.42)	-0.094** (-2.35)
<i>CSR* Avg HighLM</i>	0.019* (1.91)	0.025** (2.46)
Controls	YES	YES
Intercept	YES	YES
Firm Fixed Effects	NO	YES
Year Fixed Effects	YES	YES
Observations	4,230	4,162
Adjusted R-squared	0.100	0.452

Table 6. Labor Mobility on CSR and Firm Distress Risk

This table reports the results of labor mobility on the relation between CSR and firm financial distress risk. The sample covers the period from 2002 to 2015. Our dependent variable is *Zscore*, which is an indicator for firm distress risk. *CSR* is the log value of ESG combined score from Refinitiv. We first calculate the average labor mobility for a specific firm by averaging the lagged 1-year and lagged 2-year labor mobility for the corresponding firm in a based year. We then sort our sample into two groups based on the level of average labor mobility. *Avg HighLM* is a dummy variable which refers to 1 if the firm average labor mobility is above the median value, otherwise equals to zero. *CSR* Avg HighLM* refers to the interaction term of *CSR* and *Avg HighLM*. The unlisted controls are as the following variables. *Cash* is defined as the ratio of cash and marketable securities to total assets net of cash and marketable securities. *Size* is measured as the log of total assets. *CAPEX* is defined as the capital expenditures over total assets. *Leverage* is defined as long-term debt over total assets. *Advertising* is defined as advertising expenditures over total assets. *R&D* is defined as R&D expenditure over total assets. *Earnings variability* is measured as the standard deviation of income before extraordinary items per share using a five-year rolling window. *MTB* which is the ratio of the market value of equity to the book value of equity. *Depreciation* is the ratio of total depreciation to total assets. *Tangibility* is the ratio of total fixed assets to total assets. In the first two OLS regressions, we do not add firm-level controls. The reported t-statistics are based on robust standard errors adjusted for clustering at the firm level. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

VARIABLES	(1) <i>Zscore</i>	(2) <i>Zscore</i>
<i>CSR</i>	0.214 (1.42)	-0.102 (-1.50)
<i>Avg HighLM</i>	-0.163 (-0.24)	-1.077*** (-3.44)
<i>CSR* Avg HighLM</i>	0.178 (0.99)	0.292*** (3.49)
Controls	YES	YES
Intercept	YES	YES
Firm Fixed Effects	NO	YES
Year Fixed Effects	YES	YES
Observations	4,094	4,028
Adjusted R-squared	0.304	0.868

Table 7. CSR, Labor Mobility and Firm Profitability: Sub-sample of Financial Crisis

This table reports the results of labor mobility on the relation between CSR and firm financial performance before, during and after financial crisis. Following Lins et al. (2017), we define 2008 and 2009 as “During Financial Crisis”. The years before 2008 belong to “Before Financial Crisis” period and the years after 2009 refer to “After Financial Crisis” period. Our dependent variable is *ROA*, which refers to income before extraordinary items over total assets. *CSR* is the log value of ESG combined score from Refinitiv. We first calculate the average labor mobility for a specific firm by averaging the lagged 1-year and lagged 2-year labor mobility for the corresponding firm in a based year. We then sort our sample into two groups based on the level of average labor mobility. *Avg HighLM* is a dummy variable which refers to 1 if the firm average labor mobility is above the median value, otherwise equals to zero. *CSR* Avg HighLM* refers to the interaction term of *CSR* and *Avg HighLM*. The unlisted controls are as the following variables. *Cash* is defined as the ratio of cash and marketable securities to total assets net of cash and marketable securities. *Size* is measured as the log of total assets. *CAPEX* is defined as the capital expenditures over total assets. *Leverage* is defined as long-term debt over total assets. *Advertising* is defined as advertising expenditures over total assets. *R&D* is defined as R&D expenditure over total assets. *Earnings variability* is measured as the standard deviation of income before extraordinary items per share using a five-year rolling window. The reported t -statistics are based on robust standard errors adjusted for clustering at the firm level. We also report p-values provided are based on Chow’s test. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

VARIABLES	(1) Before Financial Crisis <i>ROA</i>	(2) During Financial Crisis <i>ROA</i>	(3) After Financial Crisis <i>ROA</i>
<i>CSR</i>	0.005 (0.22)	-0.002 (-0.10)	-0.007 (-0.53)
<i>Avg HighLM</i>	0.002 (0.02)	-0.087 (-0.70)	-0.151** (-2.58)
<i>CSR* Avg HighLM</i>	-0.002 (-0.08)	0.037 (1.16)	0.036** (2.40)
Controls	YES	YES	YES
Intercept	YES	YES	YES
Firm Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Observations	997	580	2,437
Adjusted R-squared	0.610	0.638	0.500
p-value (Before Financial Crisis-During Financial Crisis)		0.328	
p-value (Before Financial Crisis-After Financial Crisis)		0.171	
p-value (During Financial Crisis-After Financial Crisis)		0.996	

Table 8. CSR, Labor Mobility and Financial Distress Risk: Sub-sample of Financial Crisis

This table reports the results of labor mobility on the relation between CSR and firm financial distress risk before, during and after financial crisis. Following Lins et al. (2017), we define 2008 and 2009 as “During Financial Crisis”. The years before 2008 belong to “Before Financial Crisis” period and the years after 2009 refer to “After Financial Crisis” period. Our dependent variable is *Zscore*, which is an indicator for firm distress risk. *CSR* is the log value of ESG combined score from Refinitiv. We first calculate the average labor mobility for a specific firm by averaging the lagged 1-year and lagged 2-year labor mobility for the corresponding firm in a based year. We then sort our sample into two groups based on the level of average labor mobility. *Avg HighLM* is a dummy variable which refers to 1 if the firm average labor mobility is above the median value, otherwise equals to zero. *CSR* Avg HighLM* refers to the interaction term of *CSR* and *Avg HighLM*. The unlisted controls are as the following variables. *Cash* is defined as the ratio of cash and marketable securities to total assets net of cash and marketable securities. *Size* is measured as the log of total assets. *CAPEX* is defined as the capital expenditures over total assets. *Leverage* is defined as long-term debt over total assets. *Advertising* is defined as advertising expenditures over total assets. *R&D* is defined as R&D expenditure over total assets. *Earnings variability* is measured as the standard deviation of income before extraordinary items per share using a five-year rolling window. *MTB* which is the ratio of the market value of equity to the book value of equity. *Depreciation* is the ratio of total depreciation to total assets. *Tangibility* is the ratio of total fixed assets to total assets. The reported t -statistics are based on robust standard errors adjusted for clustering at the firm level. P-values provided are based on Chow’s test. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

VARIABLES	(1) Before Financial Crisis <i>Zscore</i>	(2) During Financial Crisis <i>Zscore</i>	(3) After Financial Crisis <i>Zscore</i>
<i>CSR</i>	0.107 (0.94)	0.007 (0.05)	-0.179 (-1.55)
<i>Avg HighLM</i>	0.372 (0.69)	-1.011 (-1.34)	-1.419*** (-2.95)
<i>CSR* Avg HighLM</i>	-0.131 (-1.05)	0.267 (1.31)	0.363*** (2.87)
Controls	YES	YES	YES
Intercept	YES	YES	YES
Firm Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Observations	957	568	2,355
Adjusted R-squared	0.932	0.905	0.885
p-value (Before Financial Crisis-During Financial Crisis)		0.083	
p-value (Before Financial Crisis-After Financial Crisis)		0.001	
p-value (During Financial Crisis-After Financial Crisis)		0.679	

Table 9. Robustness Test: Labor Mobility as a Continuous Variable

This table reports the robustness test results of labor mobility on the relation between CSR and firm financial performance / firm financial distress risk. The sample covers the period from 2002 to 2015. Our dependent variables are ROA, which refers to income before extraordinary items over total assets, and *Zscore*, an indicator for firm distress risk. *CSR* is the log value of ESG combined score from Refinitiv. In Panel A, we calculate the average labor mobility for a specific firm by averaging the lagged 1-year and lagged 2-year labor mobility for the corresponding firm in a based year and we define the average labor mobility as *Average LaggedLM*. Rather than sort the firms into two groups based on their average labor mobility as we do in the above tables, we use *Average LaggedLM* here. *Average LaggedLM* is a continuous variable rather than a dummy variable. *CSR* Average LaggedLM* refers to the interaction term of *CSR* and *Average LaggedLM*. In Panel B, we use lagged 1-year labor mobility. *Lagged 1-year LM* is a continuous variable rather than a dummy variable. *CSR* Lagged 1-year LM* refers to the interaction term of *CSR* and *Lagged 1-year LM*. In Panel C, we use lagged 2-year labor mobility. *Lagged 2-year LM* is a continuous variable rather than a dummy variable. *CSR* Lagged 2-year LM* refers to the interaction term of *CSR* and *Lagged 2-year LM*. The unlisted controls used in the three panels are as the following variables. *Cash* is defined as the ratio of cash and marketable securities to total assets net of cash and marketable securities. *Size* is measured as the log of total assets. *CAPEX* is defined as the capital expenditures over total assets. *Leverage* is defined as long-term debt over total assets. *Advertising* is defined as advertising expenditures over total assets. *R&D* is defined as R&D expenditure over total assets. *Earnings variability* is measured as the standard deviation of income before extraordinary items per share using a five-year rolling window. When *Zscore* is the dependent variable, we also add the additional controls as follows. *MTB* which is the ratio of the market value of equity to the book value of equity. *Depreciation* is the ratio of total depreciation to total assets. *Tangibility* is the ratio of total fixed assets to total assets. The reported t -statistics are based on robust standard errors adjusted for clustering at the firm level. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Panel A: Average Lagged Labor Mobility

VARIABLES	(1) <i>ROA</i>	(2) <i>Zscore</i>
<i>CSR</i>	0.010* (1.89)	0.054 (1.15)
<i>Average LaggedLM</i>	-0.057** (-2.12)	-0.510** (-2.50)
<i>CSR*Average LaggedLM</i>	0.016** (2.27)	0.135*** (2.64)
Controls	YES	YES
Intercept	YES	YES
Firm Fixed Effects	YES	YES
Year Fixed Effects	YES	YES
Observations	4,162	4,028
Adjusted R-squared	0.452	0.868

Panel B: Lagged 1-Year Labor Mobility

VARIABLES	(1) <i>ROA</i>	(2) <i>Zscore</i>
<i>CSR</i>	0.009** (1.99)	0.065 (1.49)
<i>Lagged 1-year LM</i>	-0.042* (-1.86)	-0.244 (-1.37)
<i>CSR*Lagged 1-year LM</i>	0.012** (2.18)	0.076* (1.72)
Controls	YES	YES
Intercept	YES	YES
Firm Fixed Effects	YES	YES
Year Fixed Effects	YES	YES
Observations	5,077	4,917
Adjusted R-squared	0.432	0.862

Panel C: Lagged 2-Year Labor Mobility

VARIABLES	(1) <i>ROA</i>	(2) <i>Zscore</i>
<i>CSR</i>	0.010* (1.86)	0.053 (1.12)
<i>Lagged 2-year LM</i>	-0.054** (-2.11)	-0.486** (-2.51)
<i>CSR*Lagged 2-year LM</i>	0.016** (2.32)	0.135*** (2.71)
Controls	YES	YES
Intercept	YES	YES
Firm Fixed Effects	YES	YES
Year Fixed Effects	YES	YES
Observations	4,162	4,028
Adjusted R-squared	0.452	0.868

Table 10. Robustness Test: Excluding Utility Firms and Financial Firms

This table reports the robustness test results of our base regressions after excluding firms in the utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) industries. The sample covers the period from 2002 to 2015. Our dependent variables are *ROA*, which refers to income before extraordinary items over total assets, and *Zscore*, an indicator for firm distress risk. *CSR* is the log value of ESG combined score from Refinitiv. *Avg HighLM* is a dummy variable which refers to 1 if the firm average labor mobility is above the median value, otherwise equals to zero. *CSR* Avg HighLM* refers to the interaction term of *CSR* and *Avg HighLM*. We also control firm-level characteristics in the following regressions. The reported t -statistics are based on robust standard errors adjusted for clustering at the firm level. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

VARIABLES	(1) ROA	(2) Zscore	(3) ROA	(4) Zscore
<i>CSR</i>	0.012** (2.44)	0.088* (1.83)	-0.003 (-0.29)	-0.125 (-1.44)
<i>HighLM</i>			-0.093** (-2.01)	-1.149*** (-3.15)
<i>CSR*HighLM</i>			0.025** (2.08)	0.312*** (3.18)
Controls	YES	YES	YES	YES
Intercept	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	4,481	4,330	3,685	3,559
Adjusted R-squared	0.432	0.851	0.457	0.858

Appendix 1. ESG Component

Score	Definition
Resource Use Score	The Resource Use Score reflects a company's performance and capacity to reduce the use of materials, energy, or water, and to find more eco-efficient solutions by improving supply chain management.
Emissions Reduction Score	The Emission Reduction Score measures a company's commitment and effectiveness towards reducing environmental emissions in the production and operational processes.
Innovation Score	The Innovation Score reflects a company's capacity to reduce the environmental costs and burdens for its customers, thereby creating new market opportunities through new environmental technologies and processes or eco-designed products.
Workforce Score	The Workforce Score measures a company's effectiveness towards job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities and development opportunities for its workforce.
Human Rights Score	The Human Rights Score measures a company's effectiveness towards respecting the fundamental human rights conventions.
Community Score	The Community Score measures the company's commitment towards being a good citizen, protecting public health and respecting business ethics.
Product Responsibility Score	The Product Responsibility Score reflects a company's capacity to produce quality goods and services integrating the customer's health and safety, integrity, and data privacy.
Management Score	The Management Score measures a company's commitment and effectiveness towards following best practice corporate governance principles.
Shareholders Score	The Shareholders Score measures a company's effectiveness towards equal treatment of shareholders and the use of anti-takeover devices.
CSR Strategy Score	The CSR Strategy Score reflects a company's practices to communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes.

Appendix 2: Most Immobile and Most Mobile Industries

Panel A: Bottom 15 Industries by Labor Mobility

Occupation Title	Mobility
Rail Transportation	-1.71
Death Care Services	-1.70
Travel Arrangement and Reservation Services	-1.59
Building Equipment Contractors	-1.50
Scheduled Air Transportation	-1.44
Nonscheduled Air Transportation	-1.35
Junior Colleges	-1.31
General Medical and Surgical Hospitals	-1.21
Colleges, Universities, and Professional Schools	-1.26
Coal Mining	-1.24
Home Health Care Services	-1.20
Support Activities for Mining	-1.18
Traveler Accommodation	-1.16
Architectural, Engineering, and Related Services	-1.08
Radio and Television Broadcasting	-1.08

Panel B: Top 15 Industries by Labor Mobility

Occupation Title	Mobility
Cut and Sew Apparel Manufacturing	2.29
Gasoline Stations	1.99
Metal and Mineral (except Petroleum) Merchant Wholesalers	1.94
Wholesale Electronic Markets and Agents and Brokers	1.77
Chemical and Allied Products Merchant Wholesalers	1.76
Consumer Goods Rental	1.60
Tobacco Manufacturing	1.57
Metal Heat Treating	1.55
Paint, Coating, and Adhesive Manufacturing	1.48
Grocery and Related Product Merchant Wholesalers	1.44
Soap, Cleaning Compound, and Toilet Preparation Manufacturing	1.44
Electric Lighting Equipment Manufacturing	1.44
Audio and Video Equipment Manufacturing	1.43
Textile Furnishings Mills	1.41
Electrical and Electronic Goods Merchant Wholesalers	1.39

Appendix 3: Description of Control Variables

<i>ROA</i>	Income before extraordinary items over total assets from Compustat
<i>Zscore</i>	Detail calculation formula is provided in Equation (1)
<i>CSR</i>	The log value of ESG combined score from Refinitiv
<i>Labor Mobility</i>	Industry-level labor mobility data from Andres Donangelo's website
<i>Cash</i>	The ratio of cash and marketable securities to total assets net of cash and marketable securities from Compustat
<i>Size</i>	The log of total assets from Compustat
<i>CAPEX</i>	The capital expenditures over total assets from Compustat
<i>Leverage</i>	Long-term debt over total assets from Compustat
<i>Advertising</i>	Advertising expenditures over total assets from Compustat
<i>R&D</i>	R&D expenditure over total assets from Compustat
<i>Earnings variability</i>	The standard deviation of income before extraordinary items per share using a five-year rolling window from Compustat
<i>MTB</i>	The ratio of the market value of equity to the book value of equity from Compustat
<i>Depreciation</i>	The ratio of total depreciation to total assets from Compustat
<i>Tangibility</i>	The ratio of total fixed assets to total assets from Compustat
