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Corporate Sustainability

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Corporate Sustainability

A Dissertation

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy
in
Financial Economics

by

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Abstract

This dissertation consists of two essays that examine the role of corporate social responsibility (CSR) in finance. In the first essay, we examine the bondholder wealth effects of socially responsible firms. Using an extensive U.S sample from 2006 to 2016 and two methodologies – corporate yield spreads and bond credit ratings – we provide evidence that proactive environmental and social practices are reflected in the price of corporate bonds. Furthermore, we examine the impact of managerial ownership on the relationship between CSR and bondholder wealth effects. We postulate that higher equity ownership induces managers to take on more firm risk in the interest of shareholders, thereby increasing the company’s default risk. Empirical findings reveal that CSR plays a significant role in reducing the risk premium of corporate bonds and in assessing the credit quality of specific bond issues and that managerial ownership attenuates the negative relation between CSR and bondholder wealth. Results are robust to various controls for firm and bond specific factors, alternative model specifications, and industry membership.

The second essay identifies the factors that motivate organizations to invest in corporate social responsibility (CSR). Using a comprehensive sample of publicly traded, non-financial, U.S. domiciled firms for the period between 2006-2016, we identify and examine several firm and CEO characteristics that potentially explain the extent of firms’ devotion to corporate social investments. We find evidence that advertising intensive firms and financially stable firms are more likely to engage in socially responsible activities, while riskier firms demonstrate lower levels of CSR. Furthermore, we address the question of whether certain types of CEOs are more likely to invest in CSR by exploring the role of CEO attributes. Empirical results indicate that female CEOs are more intrinsically motivated to undertake long-term investments in socially responsible initiatives pertaining to environmental concerns and diversity issues. We also find support that the CEO compensation structure is more related to the employee relations and environmental concerns dimensions.

Keywords: corporate social responsibility, bond market, chief executive officer

CHAPTER 1: CORPORATE SUSTAINABILITY INITIATIVES AND THE CORPORATE BOND MARKET

I. Introduction

Corporate social responsibility (CSR) makes a connection between ethics and capitalism by aligning company social and environmental initiatives with business objectives and values to address the broader purpose of the firm. CSR is the commitment of business to take actions that are intended to have a positive social or environmental impact on society without compromising economic performance. Some of the most common examples of CSR practices include reducing the company's carbon footprint to mitigate climate change, improving labor policies and promoting fair trade, and participating in philanthropy and volunteer efforts within the community. The challenge that many corporations face is finding the right balance between CSR activities geared to the long-term benefits of stakeholders and short-term economic performance that complies with shareholder objectives.

Under the shareholder primacy, firms pursue only one objective, namely that of profit maximization (Jensen, 2001). This theory, which was advanced by economist Milton Friedman (1970) in his famous New York Times article, claims that shareholder interests should be prioritized over all other corporate stakeholders. A consideration of social or environmental issues would only produce unnecessary costs that would conflict with the objective of maximizing shareholder value. This includes the value of the equity as well as the market values of all other financial claims including debt, preferred stock, and warrants (Jensen, 2002). As the integration of corporate social responsibility in business practice becomes more prevalent nowadays, corporations are increasingly deviating from this neo-classical perspective. According to the latest

UN Global Compact – Accenture CEO study (2019), nearly all (99%) of the participant CEOs of the world’s largest companies consider CSR an important factor for corporate sustainability and future financial success¹.

Academic research in this trending area has also advanced, paralleling market development. A substantial part of the extant literature focuses on whether a company’s socially responsible behavior enhances firm value (Malik, 2015). Studies that address this issue focus on the relationship between corporate social performance (CSP) and corporate financial performance (CFP). Many of the studies that investigate this relationship view CSP as being potentially value creating or value destroying. A relatively small number of academic papers discuss the value-protective attributes of CSR in the form of reduced financial risks. We, hence, contribute to the emerging literature that explores the link between capital markets and socially responsible corporations and recognize CSR as a tool for implementing cost and risk reductions.

This paper contributes to the literature on corporate finance, particularly the literature on corporate financing and investment decisions and the literature on corporate social responsibility. We empirically test whether engaging in a certain level of environmental and social initiatives reduces the firm’s exposure to capital market risks, particularly the risks pertaining to corporate bonds. Using pooled OLS estimation, we analyze the impact of CSR on the cost of public debt financing for U.S. firms over the period of 2006-2016. We proxy for the cost of debt using bond yield spreads and test and confirm the robustness of the results by employing bond ratings as an alternative measure of the cost of debt.

¹ “The Decade to Deliver A Call to Business Action. UN Global Compact-Accenture CEO Study 2019” (https://www.accenture.com/_acnmedia/PDF-109/Accenture-UNGC-CEO-Study.pdf#zoom=50)

Despite the large amount of attention around this evolving corporate practice, the normative implications of research on corporate social responsibility are ambiguous. The fundamental question that remains unanswered is whether CSR is consistent with the wealth-maximizing interests of investors. Studies aimed at assessing the capital market benefits of CSR are mostly conducted from the perspective of the stock market (Menz, 2010). In this paper, we focus our analysis on the debt market, which is relatively understudied in the CSR literature and highly significant for the external financing of corporations. We argue that since the U.S. debt market is very large and dynamic and bonds are an important asset class, bond investors can have the quantitative potential as well as the incentive to pressure companies to exercise responsible behavior. Motivated by this, we investigate whether a firm's engagement in CSR is viewed favorably by bondholders. An important research question that we seek to answer is whether corporate environmental and social performance is priced into corporate bonds.

The relationship between CSR engagement and financial performance is typically affected by mediating variables, which are not always conscientiously considered by researchers (Peloza and Shang, 2011). We follow (Cooper and Uzun, 2015) and fill this gap in the literature by including managerial ownership as a moderating factor in our analysis of CSR and credit risk. This is executed to assess whether the effect of corporate social performance on cost of debt varies with the level of managerial ownership. We find evidence that firms characterized by higher levels of corporate social performance sustain lower borrowing costs in the bond market and that higher managerial ownership reduces the impact of CSR on the cost of debt.

The rest of the paper is structured as follows. We first provide the theoretical rationale and develop the hypotheses. We then describe the data, methodology, and empirical model used to test the hypotheses. We next present the results of the analysis and determine whether the findings

support our hypotheses. Lastly, we conclude by considering the implications of our findings for both academics and practicing managers.

II. Related literature and hypotheses development

A. Corporate social responsibility (CSR)

Whether and how corporate social responsibility affects firm value is a contentious topic. There is no consensus on whether CSR improves shareholder benefits or wastes firm resources. However, socially responsible firms are generally considered to be less risky (Ferrell et al., 2016). This provides corporations an incentive to integrate social and environmental issues in their business activities and in their interactions with various stakeholder groups. A substantial part of the CSR empirical literature is largely focused on the ex post effects of CSR. These studies focus on measuring shareholder reactions to CSR as captured by abnormal stock returns (Deng et al., 2013; Dimson et al., 2015; Dutordoir et al., 2018) or on the financial consequences of CSR spending (Porter and Kramer, 2002; Brammer and Millington, 2005; Lin et al., 2009; Griffin & Mahon, 1997; Harrison & Freeman, 1999; McWilliams & Siegel, 2000; Margolis et al., 2009; Cheng et al., 2014).

Dimson et al. (2015) examine shareholder reactions to CSR as proxied by abnormal stock returns. They use a private dataset to analyze 2,152 CSR engagements by a single investment firm with U.S. target companies. They find that successful engagements experience positive abnormal returns, while unsuccessful engagements generate zero abnormal returns. Deng et al. (2013) also examine shareholder reactions to CSR by analyzing a large sample of mergers in the US. They study the impact of CSR on acquiring firms' shareholders and find evidence that, in contrast to low CSR acquirers, high CSR acquirers realize higher merger announcement returns. Similarly, Dutordoir et al. (2018) investigate whether CSR creates shareholder value for seasoned equity issuers. They conduct an event study to analyze the impact of CSR on the stock price reaction to

SEO announcements and find that issuers with relatively high CSR scores have less negative stock price reactions to their SEOs.

One of the most controversial topics in CSR literature is the relation between CSR and firm performance (Malik, 2015). Several empirical studies in the extant literature demonstrate that CSR and firm performance are positively associated (Porter and Kramer, 2002; Brammer and Millington, 2005; Lin et al., 2009). Other papers show a negative relation or no association between CSR and company financial performance (Griffin & Mahon, 1997; Harrison & Freeman, 1999; McWilliams & Siegel, 2000). Margolis et al. (2009) conduct a meta-analysis and conclude that the overall relation between CSR and firm performance is positive.

Following these studies, Cheng et al. (2014) extend the literature by investigating whether differences in CSR ratings affect the firm's ability to access finance in capital markets. They conclude that high CSR firms are less affected by capital restrictions. They attribute this conclusion to the idea that stronger firm commitment to CSR builds up mutual trust with stakeholders and establishes a long-term relation.

B. Cost of debt

Credit risk assumes that if there is a higher level of perceived default risk, investors demand a higher rate of interest for their capital or they may forgo the investment. Therefore, higher levels of credit risk are associated with higher borrowing costs. Cost of debt refers to the company's cost of raising funds through debt financing. Yield spread is a measure of borrowing costs that can be used to infer credit risk levels based on assessments by market participants. The credit spread of a corporate bond represents a compensation for the risks incurred by the investor.

There are several proxies for cost of debt in the literature; common measures used among scholars include yield spread (Huang and Huang, 2012), yield to maturity (Khurana and Raman,

2003), and credit ratings on new bond issues (Sengupta, 1998; Shi, 2003). Yield spread is the most common measure used to capture the risk premium that bond issuers pay to bond investors to raise funds. In comparison to yield spreads, yield to maturity is not adjusted for general economic conditions and credit ratings have a discontinuous nature that results in a rough distribution of credit risk across borrowers (Wilson and Fabozzi, 1990). In this paper, we use yield spread as our main measure of cost of debt. We also employ bond credit ratings in sensitivity analyses to validate our results.

C. Link between CSR and cost of debt

Generally, there are two different views that describe the relationship between CSR ratings and borrowing costs (Schröder, 2014). The first view argues that firms with high CSR ratings experience better long-term financial performance and a lower susceptibility to extreme risk. As a result, this leads to the company enduring lower borrowing costs. The opposing view claims that CSR is detrimental to firm value as higher costs and lower profitability, caused by a firm's sustainability efforts, increases relative borrowing costs. The first view is in line with Milton Friedman's (1970) shareholder theory; the opposing view supports Edward Freeman's (1984) stakeholder theory.

Goss and Roberts (2011) examine the impact of corporate social responsibility on the cost of bank loans for 1,265 U.S. firms between 1991 and 2006. They find that companies with a below-average CSR rating pay slightly higher borrowing costs on their bank debt, namely 7-18 basis points higher. Kim et al. (2014) expand the geographic coverage of Goss and Robert's (2011) study and analyze the loan spreads of 513 firms in 19 different countries for the period 2003-2007. This study also finds evidence that the loan spread decreases as the borrowers' CSR rating improves. Oikonomou et al. (2014) examine the relationship between CSR and cost of debt capital

for U.S. firms. Contrary to Goss and Roberts (2014) and Kim et al. (2013) who analyze the cost of loans, Oikonomou et al. (2014), Ge and Liu (2015), and Cooper and Uzun (2015) analyze the costs of corporate bonds. They find that a higher CSR rating reduces the yield difference between corporate bonds and Treasury bonds. We follow these studies to examine the impact of CSR on the spreads and credit ratings of corporate bonds. The manner in which bondholders view CSR is an important topic because debt is the dominant source of capital structure and crucial for firms' activities. To test the relevance of CSR for bond investors, we use two variables that capture aspects of the corporate cost of debt and credit risk: yield spreads and credit ratings. We also examine the moderating effect of ownership on the relationship between CSR and cost of debt.

D. Hypotheses development

Superior corporate social performance can mitigate financial risk. The validity of this assertion can be tested in the framework of both equity and debt markets alike. We focus our analysis on the debt market and use two methodologies – corporate yield spreads and bond credit ratings – to estimate firms' ex ante cost of debt. We argue that companies with better CSR performance scores can raise capital in the corporate bond market more cheaply.

The level of financial risk that a firm is exposed to can have a profound effect on its cost of capital. We hypothesize that by effectively aligning environmental and social actions with corporate goals, firms can use corporate social responsibility as a strategic tool to mitigate business risk, and thus maximize shareholder value. Findings from this study can have significant implications for investors, asset managers, as well as corporate managers. Investors may reduce their level of exposed credit risk by investing in more stable corporations that offer lower costs of debt and higher credit quality issues. Asset managers may also benefit from lower default risk by choosing socially responsible companies to lend to during economic crises when uncertainty is

high. Corporate managers may adopt a socially responsible business mentality to attract funds from financial markets at a lower cost.

Bondholders generally assess the default risk of a company through yield spreads and credit ratings. Based on these methodologies, we develop the following two hypotheses:

H1: On average, firms with better CSR ratings issue lower risk premium bonds.

H2: On average, firm with better CSR ratings issue higher quality rating bonds.

III. Research design

First, we describe the data sources used to build our final data set. We then explain how the sample was constructed and describe the methodology used to test the empirical model.

A. Data Sources

We construct our sample using four databases: (1) MSCI KLD STATS Database, (2) Mergent Fixed Income Securities Database (FISD), (3) Compustat North America Database, and (4) ExecuComp Database. To construct the independent variable, we gather data from MSCI KLD STATS database. This measure is based on the company's multidimensional, stakeholder-defined assessment of its involvement in CSR activity. MSCI KLD STATS is an annual data set of positive and negative environmental, social, and governance (ESG) performance indicators applied to a universe of publicly traded companies. MSCI is an independent research center that uses both internal and external sources to conduct unbiased year-by-year assessments of the corporate social performance. The database is one of the longest continuous ESG data time series available and is among one of the most widely used tools in CSR research (Dhaliwal et al., 2011; Ghoul et al., 2011; Goss and Roberts, 2011). Firms are evaluated on strengths and concerns in seven different qualitative areas including environmental issues, community relations, employee relations, diversity issues, product safety and quality, corporate governance, and human rights. Within a

given qualitative area, MSCI provides a set of indicators for each strength and concern activity. Each category is rated following a binary scheme in that an indicator is given a score of “1” if a particular indicator is present in the firm or a score of “0” if otherwise.

We collect issuer yield spreads, credit ratings, and bond characteristics from Mergent Fixed Income Securities database (FISD). Mergent FISD is a comprehensive database of publicly offered U.S. bonds that includes total proceeds raised as well as other characteristics such as credit quality, yield to maturity, coupon rate, and maturity date. Following the industry convention and prior literature, we consider credit ratings of AAA through BBB- (or equivalent) as investment grade and BB+ through C (or equivalent) as below-investment (also called noninvestment or speculative) grade. We use annual fundamentals data from Compustat North America to control for firm-level characteristics and collect managerial ownership information from ExecuComp.

B. Sample Construction

Our final sample contains annual snapshots of environmental and social information on U.S. public firms from 2006 to 2016. The sample includes financial information on the corporate bonds that were issued by these firms as well as financial information on the bond issuers themselves. In constructing the CSR measure, we focus on the qualitative business issues that explicitly affect stakeholder groups (see Figure 1 in Appendix) as they are considered to have an impact on the social posture, profile, and activities of firms: i) Environmental issues, ii) Community relations, iii) Employee relations, iv) Diversity issues, and v) Product safety and quality (Hillman and Keim, 2001).

We merge the CSR data with corporate bond data from the Mergent FISD database. We also incorporate financial information and executive ownership information on the corporate bonds that were issued by the firms included in the sample, using Compustat and Execucomp, respectively.

In line with the conventional wisdom, we exclude financial (SIC codes 6000-6799) and utility (SIC codes 4000-4999) firms from the sample since these industries are highly regulated and tend to have different debt financing characteristics than industrial firms (Jiang, 2008; Khurana and Raman, 2003). Proceeding, we restrict the sample to bond issues with a fixed rate (Bessembinder et al., 2009; Oikonomou et al., 2014; Ge and Liu, 2014). For firms with multiple bond issues during a fiscal year, we follow Cooper and Uzun (2015) and keep only the bond issue with the largest offering amount to have only one issue per firm-year. Furthermore, we eliminate defaults and bond issues that lack environmental, social, or firm-level data. Following this elimination process, our final sample consists of a total of 1,699 firm-year observations spanning the years 2006 to 2016.

C. Methodology

The underlying premise of this research is to explore corporate social responsibility as a determinant of fixed-income securities. Three different panel econometric methods are in principle available for the empirical analysis (pooled ordinary least squares (OLS), fixed effects, and random effects model). Using pooled OLS, we regress cost of debt, as proxied by the logarithm of the bond spread, against corporate social responsibility and managerial ownership. Various explanatory variables are added to the empirical model to control for firm-specific and bond-specific characteristics. We lag firm-level control variables in order to reduce potential endogeneity issues. Furthermore, we estimate robust standard errors (White, 1980) and control for industry fixed effects and year fixed effects. Specifically, our base model is estimated using the following equation:

$$LnSpread_{it} = \alpha + \beta_1 * CSR_{it} + \gamma' \mathbf{X}_{it-1} + \delta' \mathbf{Z}_{it} + IFE_{it} + YFE_t + \varepsilon_{it} \quad (1)$$

where $LnSpread_{ijt}$ denotes the yield spread of firm i during year t ; CSR_{it} represents firm i 's CSR performance index measured at time t ; \mathbf{X}_{it-1} is a $(K \times 1)$ vector of the firm-level controls measured at time $t-1$ and \mathbf{Z}_{it} is a $(L \times 1)$ vector of bond-level controls measured at time t .

a. *Dependent Variables*

The first dependent variable, the yield spread, is a direct proxy for cost of debt. Yield spread is commonly used in the literature to capture the risk premium that bond issuers pay to bond investors to raise funds and is therefore considered a direct measure of the firm's incremental cost of public debt (Elton et al., 2001). A bond's yield relative to the yield of its benchmark is called a spread. The spread is used both as a pricing mechanism and as a relative value comparison between bonds and can be used to infer credit risk levels. In line with the extant literature, we calculate yield spread as the difference between the yield of the corporate bond minus the yield of the Treasury bond with comparable maturity. Missing values are computed as the difference between the offering yield and the corresponding treasury yield having the same maturity (contained in the Federal Reserve H-15 release for constant maturities.). We then take the logarithm to adjust for positive skewness in the yield spread distribution, as it is non-negative by definition and estimation.

As a robustness check, we employ a second dependent variable. We use bond ratings assigned by Standard & Poor's to assess the risk quality of the corporate bond. Bond rating is an indicator of the credit risk associated with a company; hence, we use it as an alternative measure of the cost of debt. Following a similar methodology as proposed by Becker and Milbourn (2011), we convert bond-level letter credit ratings to numerical ratings. Figure 1.2 in the appendix describes the credit rating categories and the corresponding numerical scale used to construct the bond credit rating variable. As with yield spread, bond rating can also be used to infer credit risk levels. The lower

the rating (numerical value) or higher the letter grade, the less likely a company is to default in debt payments. Credit ratings of AAA through BBB- are investment grade and BB+ through C are below-investment (also called non-investment or speculative) grade. We drop firms assigned ‘D’ and ‘SD’ from the sample because these ratings are assigned to firms currently in default on their financial obligations. We find that 65% of the corporate bonds in our sample are investment-grade bonds.

b. *Independent Variables*

We estimate our empirical model using three approaches to measuring socially responsible practices. Firm-level CSR performance indices are constructed from multiple indicators within five of KLD’s qualitative issue areas: environmental issues, community relations, employee relations, diversity issues, and product safety and quality. Following Servaes and Tamayo (2013), we first add the scores of the indicators that compose each dimension of positive or negative corporate actions and scale each sum by dividing by the number of relevant indicators.

The MSCI KLD database provides data on three major areas: Environmental, Social, and Governance (ESG). We exclude indicators from the governance dimension since they are irrelevant or indirectly relevant to stakeholder interests. Abeysekera and Fernando (2020) claim that the financial consequences of environmental policies of firms are considerably larger than other socially relevant corporate policies. Hence, we construct three distinct CSR measures based on the group in which the indicators correspond. The environmental CSR index is measured as the difference between the scaled strengths and scaled concerns, we previously constructed, of the environmental issue-area. Similarly, the social CSR index is constructed by taking the sum of the differences between the scaled strengths and scaled concerns of the issue-areas that compose the

social dimension: community, employee, diversity, and product. Lastly, we construct the aggregate CSR index by taking the sum of the environmental CSR index and the social CSR index. Following Di Giuli and Kostovetsky (2014), we standardize our CSR indices to have a mean of zero and a standard deviation of one in order to simplify the interpretation of the regression coefficients.

Given the impact of managerial ownership on the cost of debt (Shuto and Kitagawa, 2011), we extend the literature by examining the moderating role of managerial ownership on the relationship between CSR and cost of debt. Ortiz-Molina (2006), among others, examine the relation between managerial ownership and borrowing costs and provide evidence of a positive relation. As a proxy for how managerial ownership could impact corporate bond spreads, we look at the interaction between the CSR index and the number of the firm's shares held by the CEO as a percentage of total shares outstanding. We examine whether managerial ownership plays a role in increasing or decreasing the sensitivity of CSR effects and postulate that the risk-increasing impact of managerial stock ownership from the bondholders' perspective is likely to counterbalance the risk-reducing impact of CSR on bond yields.

c. Control Variables

In line with the prevalent research in the field of credit risk, ratings, and bond pricing (Ashbaugh-Skaife et al., 2006; Lee and Faff, 2009; Oikonomou et al., 2014), we utilize a series of control variables that account for bond-specific and firm-specific factors.

Firm-level controls include firm size, profitability, leverage, financial strength, and interest coverage. We measure firm size as the natural logarithm of the firm's total assets. Larger firms tend to face lower business and financial risks; hence, they have a lower default risk (Dang et al., 2018). We expect firm size to be negatively related to our cost of debt measure. Profitability is

proxied by the firm's ROA, which measures the ability of a firm to generate profit. We calculate it as the ratio of the firm's earnings before extraordinary items divided by its total assets. A higher value implies higher profitability and ability to cover debt obligations. Therefore, we expect ROA to be negatively related to cost of debt. Leverage is proxied by the firm's debt ratio and is defined as the ratio of the firm's total debt to its total assets. A firm that accumulates more debt has a higher leverage ratio. A higher value indicates higher default risk. Therefore, we expect debt ratio to be positively related to cost of debt. Following Ge and Liu (2014), we also control for financial strength by including Altman's (1968) z-score, which is based on five financial ratios: working capital to total assets, retained earnings to total assets, earnings before interest and taxes to total assets, market value of equity to total liabilities, and sales to total assets. Altman's z-score is used to assess the bankruptcy risk of a company. A higher value indicates a lower probability of bankruptcy. Therefore, we expect an inverse relation between z-score and cost of debt. We also control for interest coverage, which is the ratio of the firm's earnings before interest and taxes (EBIT) divided by its total interest expense. A higher interest coverage ratio is associated with lower default risk; hence, we expect interest coverage ratio to be negatively related to cost of debt.

The bond-level control variables that we account for include issue size, maturity, modified duration, and investment grade. Issue size represents the size of the bond issue. We estimate it as the natural logarithm of the size of the bond issue (in millions of dollars). Bond maturity is defined as the natural logarithm of the number of years until the bond matures. Bonds with longer maturities tend to be associated with greater risk due to the greater degree of unpredictability in forecasting the firms' solvency in the distant future. Therefore, we expect a positive association between bond maturity and cost of debt. The bond duration, measured in years, is used to control for differences in maturity and coupon rates. We include it in the empirical model to control for

the bond's interest rate risk. We calculate it as the present value of a bond's cash flows, weighted by the length of time to receipt and divided by the bond's current market value. We expect duration to be negatively related to yield spread.

Lastly, we include Fama and French's 30 industry indicators and year indicators to further control for potential differences in issuer and issue features across industries and over time, respectively (Fama and French, 1997).

IV. Results

C. Descriptive statistics

Table 1.1 presents the key descriptive statistics for the main variables in our analyses. The bond-level variables included in this table are yield spread (in percentage), bond rating score, maturity (in years), modified duration (in years), and issue size (in millions of dollars). Yield spreads have a mean value of approximately 2.64%, which is equivalent to 264 basis points. The median credit rating is 9, which indicates that more than half of bond issues are investment grade. The average bond has a maturity of 11.09 years and duration of 7.56 years.

We also provide descriptive statistics for several firm-level variables including the CSR measures, managerial ownership, firm size, return on assets, leverage, z-score, and interest coverage ratio. The average scores for the three CSR performance proxies – environmental CSR, social CSR, and aggregate CSR – are 0.062, -.04, 0.023, respectively. These averages imply that the firms in our sample have higher environmental performance scores than social performance scores. As for managerial ownership, a firm's CEO holds 1.26% of the firm's shares, on average. The average firm in our sample has total assets of approximately \$26.96 billion. The average ROA is 5.1%. and the average leverage ratio is 33.5%.

Table 1.1. Summary statistics of key variables

| | N | Mean | St.Dev | p25 | Median | p75 |
|------------------------------------|------|----------|----------|--------|----------|--------|
| <i>Bond-level variables</i> | | | | | | |
| Yield spread (%) | 1699 | 2.644 | 1.926 | 1.28 | 2 | 3.54 |
| Rating score assigned | 1699 | 9.53 | 3.496 | 7 | 9 | 12 |
| Maturity (in years) | 1699 | 11.085 | 7.223 | 8 | 10 | 10 |
| Duration (in years) | 1699 | 7.558 | 3.071 | 5.603 | 7.245 | 8.234 |
| Issue size (in millions) | 1699 | 682000 | 656000 | 300000 | 500000 | 800000 |
| <i>Firm-level variables</i> | | | | | | |
| Environmental CSR score | 1699 | .062 | .239 | 0 | 0 | .167 |
| Social CSR score | 1699 | -.04 | .522 | -.3 | 0 | .2 |
| Aggregate CSR score | 1699 | .023 | .648 | -.383 | 0 | .367 |
| CEO ownership (%) | 1673 | 1.256 | 4.174 | .112 | .301 | .923 |
| Firm size (in millions) | 1699 | 26961.26 | 59032.23 | 4098.1 | 8914.169 | 25614 |
| Return on assets (ROA) | 1699 | .051 | .083 | .027 | .056 | .087 |
| Leverage | 1698 | .335 | .161 | .221 | .309 | .425 |
| Z-score | 1614 | 2.154 | 1.239 | 1.457 | 2.155 | 2.791 |
| Interest coverage ratio | 1678 | 12.028 | 29.18 | 3.176 | 6.715 | 12.431 |

Table 1.2 provides statistics on average yield spreads by year. Generally, corporate bond spreads tend to widen during economic recessions since there is a higher likelihood of the company defaulting on its debt obligations during a time of economic contraction. This table reveals that in 2008 and 2009 firms had the highest average yield spreads.

Table 1.2. Yield spreads by year

| year | N | mean | sd | min | max |
|-------|------|----------|----------|--------|------|
| 2006 | 91 | 162.467 | 79.529 | 39 | 416 |
| 2007 | 116 | 195.566 | 117.786 | 12.5 | 886 |
| 2008 | 102 | 311.555 | 173.447 | 35 | 1034 |
| 2009 | 200 | 424.797 | 275.387 | 67 | 1654 |
| 2010 | 195 | 286.157 | 195.22 | 22 | 928 |
| 2011 | 146 | 238.034 | 176.596 | 33 | 1056 |
| 2012 | 223 | 277.463 | 203.722 | 3.8 | 981 |
| 2013 | 194 | 246.232 | 165.045 | 12 | 1008 |
| 2014 | 182 | 203.225 | 134.579 | 22.311 | 639 |
| 2015 | 169 | 232.211 | 140.038 | 28.537 | 881 |
| 2016 | 81 | 230.323 | 142.622 | 51.5 | 625 |
| Total | 1699 | 264.4448 | 192.6122 | 3.8 | 1654 |

Table 1.3 presents a Pearson correlation matrix of the main variables included in our analyses. This table illustrates that multicollinearity is not an issue in our sample. Consistent with our predictions, yield spread and rating score are negatively correlated with CSR. Managerial ownership is positively related to bonds spreads and ratings. Overall, most coefficients on the control variables are statistically significant and display the expected signs with the measures of cost of debt. Firm size, ROA, z-score, and interest coverage are all negatively correlated with yield spread and rating score. Also consistent with our predictions, we find leverage is positively correlated with bond spreads and ratings.

Table 1.3. Pearson correlation matrix

| Variables | Yield spread | Rating score | Ownership | Environmental CSR | Social CSR | Aggregate CSR | Firm size | ROA | Leverage | Z-score | Interest coverage | Issue size | Maturity | Duration |
|-------------------|--------------|--------------|-----------|-------------------|------------|---------------|-----------|-----------|-----------|----------|-------------------|------------|----------|----------|
| Yield spread | 1.000 | | | | | | | | | | | | | |
| Rating score | 0.677*** | 1.000 | | | | | | | | | | | | |
| Ownership | 0.168*** | 0.204*** | 1.000 | | | | | | | | | | | |
| Environmental CSR | -0.261*** | -0.256*** | -0.061** | 1.000 | | | | | | | | | | |
| Social CSR | -0.201*** | -0.225*** | -0.052** | 0.360*** | 1.000 | | | | | | | | | |
| Aggregate CSR | -0.258*** | -0.276*** | -0.065*** | 0.659*** | 0.939*** | 1.000 | | | | | | | | |
| Firm size | -0.231*** | -0.416*** | -0.089*** | 0.047* | 0.012 | 0.027 | 1.000 | | | | | | | |
| ROA | -0.435*** | -0.447*** | -0.081*** | 0.198*** | 0.157*** | 0.200*** | 0.054** | 1.000 | | | | | | |
| Leverage | 0.344*** | 0.447*** | 0.178*** | -0.018 | -0.053** | -0.049** | -0.137*** | -0.189*** | 1.000 | | | | | |
| Z-score | -0.354*** | -0.438*** | -0.036 | 0.125*** | 0.071*** | 0.103*** | -0.015 | 0.482*** | -0.368*** | 1.000 | | | | |
| Interest coverage | -0.222*** | -0.307*** | -0.055** | 0.102*** | 0.113*** | 0.129*** | 0.108*** | 0.283*** | -0.278*** | 0.250*** | 1.000 | | | |
| Issue size | -0.173*** | -0.318*** | -0.034 | 0.104*** | 0.093*** | 0.113*** | 0.537*** | 0.096*** | -0.053** | -0.033 | 0.156*** | 1.000 | | |
| Maturity | -0.211*** | -0.255*** | -0.072*** | 0.047* | 0.030 | 0.041* | 0.150*** | 0.139*** | -0.097*** | 0.066*** | -0.003 | 0.184*** | 1.000 | |
| Duration | -0.339*** | 0.330*** | -0.099*** | 0.109*** | 0.079*** | 0.104*** | 0.163*** | 0.192*** | -0.122*** | 0.112*** | 0.034 | 0.193*** | 0.950*** | 1.000 |

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

B. Empirical results

This section reports key results of the empirical analysis. Table 1.4 illustrates the effects of corporate social responsibility on bond yield spreads. We examine this effect using our three proxies for CSR – environmental CSR, social CSR, and aggregate CSR. We find that the coefficient of aggregate CSR and environmental CSR are negative and significant at the 10% level and 1% level, respectively. The coefficient of social CSR is negative but not statistically significant. We also interact managerial ownership with our three measures of CSR. We find that as managerial ownership increases, the risk-reducing effect of CSR on cost of debt diminishes. This is illustrated by the significantly positive relation between the interaction variable and yield spreads. Furthermore, this table reveals that the environmental dimension has a greater impact in reducing the risk premia associated with corporate bonds.

Table 1.4. The effect of CSR on bond yield spreads

| Variables | Prediction | (1) | | (2) | | (3) | |
|------------------------------|------------|------------------|-----------|------------------|-----------|------------------|-----------|
| | | DV: Yield Spread | | DV: Yield Spread | | DV: Yield Spread | |
| | | Coefficient | t-value | Coefficient | t-value | Coefficient | t-value |
| Aggregate CSR | – | -0.024 | -1.81* | | | | |
| Environmental CSR | – | | | -0.052 | -3.59*** | | |
| Social CSR | – | | | | | -0.008 | -0.67 |
| Ownership | + | 0.003 | 1.52 | 0.007 | 2.23** | 0.002 | 1.09 |
| Aggregate CSR* Ownership | | 0.010 | 2.79*** | | | | |
| Environmental CSR* Ownership | | | | 0.022 | 2.40*** | | |
| Social CSR* Ownership | | | | | | 0.006 | 2.22** |
| Firm size | – | -0.171 | -8.03*** | -0.166 | -7.84*** | -0.172 | -8.08*** |
| ROA | – | -0.951 | -3.76*** | -0.922 | -3.67*** | -0.980 | -3.86*** |
| Leverage | + | -0.003 | -0.03 | -0.012 | -0.12 | -0.007 | -9.07 |
| Z-Score | – | -0.088 | -3.06*** | -0.088 | -3.09*** | -0.087 | -3.04*** |
| Interest coverage | – | -0.001 | -2.45*** | -0.001 | -2.46*** | -0.001 | -2.45*** |
| Issue size | | 0.108 | 3.11*** | 0.109 | 3.13*** | 0.108 | 3.09*** |
| Maturity | + | 1.553 | 11.92*** | 1.541 | 11.91*** | 1.558 | 11.94*** |
| Duration | – | -0.229 | -10.16*** | -0.228 | -10.16*** | -0.230 | -10.18*** |

| | | | | | | | |
|---------------------|---|--------|----------|--------|----------|--------|----------|
| Investment grade | – | -0.483 | -9.74*** | -0.483 | -9.78*** | -0.486 | -9.79*** |
| Year indicators | | YES | | YES | | YES | |
| Industry indicators | | YES | | YES | | YES | |
| No. of observation | | 1,028 | | 1,028 | | 1,028 | |
| Adjusted R-squared | | 0.712 | | 0.714 | | 0.711 | |

To validate our findings from Table 1.4, we regress CSR against our alternative measure of cost of debt. Table 1.5 illustrates the effects of corporate social responsibility on bond credit ratings. Once again, we use OLS regressions to examine the relationship between CSR and cost of debt financing. We find that the coefficient of aggregate CSR, environmental CSR, and social CSR are negative and significant at the 1% level, 1% level, and 5% level, respectively. Consistent with Table 1.4, we find that the environmental dimension has the greatest impact in mitigating risk.

Table 1.5. The effect of CSR on bond ratings

| Variables | Prediction | (1) | | (2) | | (3) | |
|------------------------------|------------|------------------------|-----------|------------------------|-----------|------------------------|-----------|
| | | <i>DV: Bond Rating</i> | | <i>DV: Bond Rating</i> | | <i>DV: Bond Rating</i> | |
| | | Coefficient | z-value | Coefficient | z-value | Coefficient | z-value |
| Aggregate CSR | – | -0.230 | -2.87*** | | | | |
| Environmental CSR | – | | | -0.213 | -2.97*** | | |
| Social CSR | – | | | | | -0.171 | -2.27** |
| Ownership | + | 0.048 | 3.90*** | 0.056 | 3.15*** | 0.046 | 3.88*** |
| Aggregate CSR* Ownership | | 0.017 | 0.86 | | | | |
| Environmental CSR* Ownership | | | | 0.048 | 0.87 | | |
| Social CSR* Ownership | | | | | | 0.010 | 0.55 |
| Firm size | – | -1.445 | -15.48*** | -1.438 | -15.23*** | -1.454 | -15.60*** |
| ROA | – | -11.507 | -5.28*** | -11.555 | -5.39*** | -11.641 | -5.33*** |
| Leverage | + | 1.774 | 2.84*** | 1.716 | 2.77*** | 1.761 | 2.81*** |
| Z-Score | – | -1.417 | -6.60*** | -1.406 | -6.67*** | -1.415 | -6.54*** |
| Interest coverage | – | -0.012 | -1.70* | -0.013 | -1.69* | -0.012 | -1.69* |
| Issue size | | 0.308 | 2.16** | 0.303 | 2.09** | 0.302 | 2.12** |
| Maturity | + | 4.201 | 8.20*** | 4.200 | 8.21*** | 4.232 | 8.27*** |
| Duration | – | -0.753 | -8.70*** | -0.756 | -8.77*** | -0.758 | -8.74*** |
| Year indicators | | YES | | YES | | YES | |

| | | | |
|---------------------|-------|-------|-------|
| Industry indicators | YES | YES | YES |
| No. of observation | 1,028 | 1,028 | 1,028 |
| Pseudo R-squared | 0.259 | 0.259 | 0.258 |

Next, we re-estimate all regressions on separate sub-samples based on high versus low levels of CSR, high versus low z-score firms, and investment grade versus non-investment grade bonds. According to Table 1.6, the positive effect of CSR is more pronounced in the sub-sample of firms with high levels of CSR and high z-scores. CSR has an impact on yield spreads for high CSR firms, but has no effect on low CSR firms. Likewise, CSR impacts yield spreads for less financially distressed firms, but has a lower effect on firms with more financial constraints. Furthermore, Ge and Liu (2015) find that CSR has no impact on yield spreads for highly speculative-grade bonds. Contrary to their findings, we provide evidence that CSR hinders non-investment bonds as the association between CSR performance and cost of debt is positive.

Table 1.6. The effect of aggregate CSR on bond yield spreads: Subsample analyses

| Variables | CSR | | Z-score | | Bond rating | |
|--------------------------|-----------|-----------|-----------|-----------|------------------|----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | High | Low | High | Low | Investment grade | Non-investment grade |
| Aggregate CSR | -0.045* | -0.046 | -0.032* | -0.009 | - 0.021 | 0.074** |
| Ownership | 0.000 | -0.007 | 0.002 | 0.003 | -0.010 | 0.001 |
| Aggregate CSR* Ownership | 0.020** | -0.008 | 0.003 | 0.011*** | 0.016** | -0.001 |
| Firm size | -0.239*** | -0.154*** | -0.246*** | -0.100*** | -0.233*** | 0.012 |
| ROA | -1.437*** | -0.561** | -0.785** | -0.565** | -11.641 | -0.127 |
| Leverage | -0.081 | -0.161 | -0.120 | 0.020 | 1.761 | -0.261* |
| Z-Score | -1.417 | -6.60*** | -0.139** | -0.066* | -1.415 | -0.046 |
| Interest coverage | -0.001** | -0.002* | -0.001** | -0.002 | -0.012 | 0.002 |
| Issue size | 0.203*** | 0.032 | 0.097*** | 0.091 | 0.302 | -0.061 |
| Maturity | 1.117*** | 1.971*** | 1.356*** | 1.750*** | 4.232 | 2.846*** |
| Duration | -0.147*** | -0.302*** | -0.183*** | -0.288*** | -0.758 | -0.634*** |
| Investment grade | -0.600*** | -0.475*** | -0.585*** | -0.443*** | - | - |
| Year indicators | YES | YES | YES | YES | YES | YES |

| | | | | | | |
|---------------------|-------|-------|-------|-------|-------|-------|
| Industry indicators | YES | YES | YES | YES | YES | YES |
| No. of observation | 520 | 427 | 524 | 499 | 750 | 278 |
| Adjusted R-squared | 0.772 | 0.754 | 0.753 | 0.684 | 0.652 | 0.586 |

In sum, we use an extensive U.S. sample from 2006 to 2016 and find that CSR engagement of firms positively affects investors in the corporate bond market. Firms characterized by higher levels of corporate social performance sustain lower borrowing costs. The risk premiums associated with stronger CSR engagement suggests that firms regard corporate social responsibility as significantly value enhancing and risk reducing. CSR engagement is shown to reduce the risk premia associated with corporate bonds and therefore decrease the cost of corporate debt. These results support the risk mitigation perspective of CSR compliance showing that both investors and creditors may lower their expected returns because they find that CSR can mitigate potential business risk. Furthermore, we examine the moderating effect of managerial ownership. We find that when CEOs are more aligned with shareholders, firms issue bonds at a higher cost. Therefore, the positive effect of CSR on bond spreads is reduced when executive ownership is higher. Similar conclusions are drawn when we analyze the impact of CSR performance on the bond rating of a specific debt issue.

V. Conclusion

A greater amount of attention regarding improved sustainability considerations by corporations has been focused on equity shareholder interests and a company's associated firm value. Little research is devoted to analyzing the relationship between corporate social responsibility (CSR) and bondholders. We focus our analysis on the corporate debt market and confirm that CSR is associated with the credit quality and default risk of a company. We provide empirical support for the informational value of CSR on bondholders in the form of higher credit ratings and lower

default spreads. Moreover, we find that the effect of CSR on cost of debt depends on contextual factors such as managerial ownership. These results support the risk mitigation perspective of CSR compliance. Both investors and creditors may lower their expected returns because they find that CSR can mitigate potential business risk. Findings can be particularly useful and significant for corporate decision makers, who take a personal interest in knowing what factors may impact cost of debt financing and to what extent, as well as bondholders who generally tend to avoid significant risks to ensure their fixed contractual claims on the firm's present and future cash flows. The implication of the results supports the notion that how companies treat non-market stakeholders has tangible economic value for market-based stakeholders.

VI. References

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VII. Appendix

APPENDIX: Variable Descriptions

| Variable | Definition | Source |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| <i>Panel A. Dependent Variables</i> | | |
| Yield Spread | <p>The natural logarithm of the difference (in basis points) between the corporate bond yield at issuance and a Treasury bond yield with comparable maturity.</p> <p>Missing values are computed as the difference between yields and the corresponding treasury yield having the same maturity (contained in the Federal Reserve H-15 release for constant maturities).</p> | Mergent FISD <i>log(treasury_spread)</i> |
| Bond Rating | <p>The bond rating assigned by Standard & Poor's (S&P) to assess the risk quality of the bond. Bond ratings are converted sequentially to numbers with one assigned to the highest-rated bond (AAA) through 25 for the lowest-rated bond (C-). See figure 1.2.</p> <p>Whenever a bond rating changes during the course of a given year, its various rating scores are averaged and rounded to the nearest integer.</p> | Mergent FISD |
| <i>Panel B. Independent Variables</i> | | |
| CSR | <p>Firm-level CSR performance indices constructed from multiple indicators within five of KLD's qualitative issue areas: environmental issues, community relations, employee relations, diversity issues, and product safety and quality. We first add the scores of the indicators that compose each dimension of positive or negative corporate actions and scale each sum by dividing by the number of relevant indicators.</p> <ol style="list-style-type: none"> 1. <i>Environmental CSR</i> – the difference between the scaled strengths and scaled concerns of the environmental issue-area. 2. <i>Social CSR</i> – the sum of the differences between scaled strengths and scaled concerns of the issue-areas that comprise | MSCI KLD STATS |

| | | |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| | the social dimension: community, employee, diversity, and product. | |
| | 3. <i>Aggregate CSR</i> – the sum of the environmental CSR index and the social CSR index. | |
| Managerial Ownership | Fraction of the shares owned by the directors of a firm calculated as the number of the firm's shares held by the CEO as a percentage of total shares outstanding. | Compustat ExecuComp <i>shown_tot_pct</i> |
| <i>Panel C. Control Variables</i> | | |
| <i>Firm characteristics</i> | | |
| Firm Size | The natural logarithm of the firm's total assets. | Compustat <i>log(at)</i> |
| Profitability | The ratio of the firm's earnings before extraordinary items to total assets. | Compustat <i>ib/at</i> |
| Leverage | The ratio of the firm's total debt to total assets. | Compustat <i>(dltt+dlc)/at</i> |
| Altman Z-score | A measure of the firm's financial strength. It is based on five financial ratios: working capital to total assets, retained earnings to total assets, earnings before interest and taxes to total assets, market value of equity to total liabilities, and sales to total assets. | Compustat $1.2(wcap/at)+1.4(re/at)+3.3(ebit/at)+.6((ceq+pstk)/(at-ceq-pstk))+.999(sale/at)$ |
| Interest Coverage | The ratio of the firm's earnings before interest and taxes to total interest expense. | Compustat <i>ebit/xint</i> |
| <i>Bond characteristics</i> | | |
| Bond Issue Size | The natural logarithm of the size of the bond issue (in millions of dollars). | Mergent FISD <i>log(offering_amt)</i> |
| Bond Maturity | The natural logarithm of the number of years until the bond matures. | Mergent FISD <i>lnmaturity</i> |
| Bond Duration | The present value of a bond's cash flows, weighted by the length of time to receipt and divided by the bond's current market value. Bond duration measures the bond's interest rate risk. | Mergent FISD <i>modified_duration</i> |
| Investment Grade Indicator | An indicator variable that takes the value of 1 if the credit rating for the bond issue is from (AAA=1) to (BBB-=10), and 0 otherwise. | Mergent FISD <i>investgrade</i> |

Figure 1.1. Indicators of qualitative CSR issue areas of interest

| | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Environment Strengths</p> <ul style="list-style-type: none"> • Beneficial Products & Services (env_str_a) • Pollution Prevention (env_str_b) • Recycling (env_str_c) • Clean Energy (env_str_d) • Management Systems Strength (env_str_g) • Other Strengths (env_str_x) | <p>Community Strengths</p> <ul style="list-style-type: none"> • Charitable Giving (com_str_a) • Innovative Giving (com_str_b) • Community Engagement (com_str_h) • Other Strengths (com_str_x) | <p>Employee Strengths</p> <ul style="list-style-type: none"> • Union Relations (emp_str_a) • Cash Profit Sharing (emp_str_c) • Employee Involvement (emp_str_d) • Health & Safety (emp_str_g) • Other Strengths (emp_str_x) | <p>Diversity Strengths</p> <ul style="list-style-type: none"> • Promotion (div_str_b) • Board of Directors (div_str_c) • Family Benefits (div_str_d) • Women & Minority Contracting (div_str_e) • Other Strengths (div_str_x) | <p>Product Strengths</p> <ul style="list-style-type: none"> • Quality (pro_str_a) • R&D innovation (pro_str_b) • Benefits to Economically Disadvantaged (pro_str_c) • Other strengths (pro_str_x) |
| <p>Environment Concerns</p> <ul style="list-style-type: none"> • Regulatory Problems (env_con_b) • Substantial Emissions (env_con_d) • Climate Change (env_con_f) • Other Concerns (env_con_x) | <p>Community Concerns</p> <ul style="list-style-type: none"> • Negative Economic Impact (com_con_b) • Other Concerns (com_con_x) | <p>Employee Concerns</p> <ul style="list-style-type: none"> • Union Relations (emp_con_a) • Health & Safety (emp_con_b) • Supply Chain Controversies (emp_con_f) • Other Concerns (emp_con_x) | <p>Diversity Concerns</p> <ul style="list-style-type: none"> • Controversies (div_con_a) • Board Diversity (div_con_c) | <p>Product Concerns</p> <ul style="list-style-type: none"> • Product Safety (pro_con_a) • Marketing-Contracting Concern (pro_con_d) • Antitrust (pro_con_e) • Other concerns (pro_con_x) |

Figure 1.2. Bond-level Credit Rating Scale

Following a similar methodology as proposed by Becker and Milbourn (2011), we convert bond-level letter credit ratings to numerical ratings. This figure describes the credit rating categories and the corresponding numerical scale used to construct the bond credit rating dependent variable. Multiple numerical values for a single rating level represent the number assigned to ratings with a + qualifier, no qualifier, and a – qualifier. Bond-level credit ratings used in this study are extracted from Mergent FISD database.

| Standard and Poor's (S&P) Ratings Scale | | | |
|----------------------------------------------------|---------------------|----------------------------------|---------------------------------|
| Rating Group | Letter Grade | Capacity to Repay | Numerical Value Assigned |
| Investment Grade | AAA | Extremely strong | 1 |
| | AA+, AA, AA– | Very strong | 2,3,4 |
| | A+, A, A– | Strong | 5,6,7 |
| | BBB+, BBB, BBB– | Adequate | 8,9,10 |
| Non-Investment Grade | BB+, BB, BB– | Faces major future uncertainties | 11,12,13 |
| | B+, B, B– | Faces major uncertainties | 14,15,16 |
| | CCC+, CCC, CCC– | Currently vulnerable | 17,18,19 |
| | CC+, CC, CC– | Currently highly vulnerable | 20,21,22 |
| | C+, C, C– | Has filed bankruptcy petition | 23,24,25 |

(Source: [S&P Global Ratings Definitions](#))

CHAPTER 2: DETERMINANTS OF CORPORATE SOCIAL RESPONSIBILITY: THE ROLE OF CEO INCENTIVES AND CHARACTERISTICS

I. Introduction

Corporate social responsibility (CSR) is the efforts corporations make above and beyond the minimum requirements of legislation to balance the needs of stakeholders with the need to make a profit. Many firms are emphasizing the importance of their social performance or environmental practices as the concept has gained greater recognition among firm managers, investors, and scholars alike. CSR activity may signal a firm's underlying corporate character and can be used to inform stakeholders about the moral tone of a firm's decision-making. Firms that are proactively responsible in their interactions with society and the environment and that strive to balance the interests of their stakeholders as they pursue profit maximization may have a sustainable long-term competitive advantage that would limit their exposure to various business-related risks that can have detrimental effects on firm shareholder value, revenue, or operational, capital, and regulatory effectiveness.

Nowadays, corporations are expected to dedicate resources to socially responsible activities, such as energy conservation, climate change, human rights, employee relations, and support for diversity in the workplace. Organizations that promote and prioritize corporate social responsibility can reap the benefits of their good deeds in various ways. Studies show that CSR can play a significant role in enhancing firm value (Malik, 2015). Corporations can use CSR to reduce various operational risks that can impact profitability and overall firm sustainability (Waddock and Graves, 1997). Firms can also use CSR to increase employee morale, improve job satisfaction, and boost employee productivity (Lee et al., 2013). Socially responsible behavior can have a profound impact on a company's reputation, which reflects stakeholder groups' perceptions of how well the corporation's CSR initiatives are implemented to meet stakeholder expectations.

By adopting a stakeholder perspective, firms can potentially maximize shareholder value in the future.

For decades, there has been significant debate in the corporate finance literature on whether shareholders should be given priority over other important corporate constituencies (Friedman, 1970; Freeman, 1984). The shareholder perspective suggests that the only responsibility of managers is to use corporate resources to maximize shareholder wealth by pursuing profits (Friedman, 1970). Waddock and Graves (1997) argue that socially responsible behavior weakens short-term performance in pursuit of potentially higher long-term value. For instance, if a company contributes to the environment and invests in pollution-controlling equipment, it is obligated to pay the costs of this equipment immediately, which may reduce its short-term profits but at the same time reduce its probability of litigation in the future. Jensen (2002) argues that a firm cannot maximize long-term market value if it neglects the interests of its stakeholders. CSR activities geared to the long-term benefits of stakeholders may increase the level of trust between organizations and their stakeholders (Hosmer, 1994; Pivato et al., 2008; Lopatta et al., 2016), thereby enhancing firm value. Organizations that build strong relationships with their stakeholders that are built on trust, respect, and cooperation are more likely to meet their corporate business objectives.

Many corporations such as Google, Toms, and Lego have demonstrated good corporate citizenship while developing and maintaining legitimacy. Toms has made generous charitable donations that support physical and mental health as well as educational opportunities. Lego has invested millions of dollars in environmentally conscious efforts to address issues related to climate change and reduced waste. Google has also demonstrated its commitment to the environment by investing in renewable energy sources and sustainable offices. In addition to

environmental concerns, Sundar Pichai, CEO of Google, has focused on issues pertaining to the social dimension of CSR like discrimination in the workplace. Other prominent corporations known for their active role in CSR include Johnson & Johnson, Coca-Cola, Ford Motor Company, and Starbucks.

Lantos (2001) classifies CSR into three distinct categories: ethical, altruistic, and strategic. Ethical CSR consists of the legal and ethical issues required by a firm. Failure to address these issues can result in reputation risk or legal prosecution. Altruistic CSR exceeds the basic CSR requirements that a company must adhere to. It tends to have an indirect benefit to the company. Firms that employ this type of CSR voluntarily devote time, money, and energy towards addressing certain stakeholder concerns, even if committing these valuable resources sacrifices part of their profitability. Strategic CSR is carefully planned to have a direct and anticipated impact on the company. Werther and Chandler (2005) define strategic CSR as “the incorporation of a holistic CSR perspective within a firm’s strategic planning and core operations so that the firm is managed in the interest of a broad set of stakeholders to achieve maximum economic and social value over the medium to long term.”

Corporate managers may choose to invest in corporate social responsibility programs for various reasons. For one, consumers, especially younger generations, are demanding corporate responsibility. According to research by Cone Communications (2017), nearly 90% of consumers surveyed claim that they would purchase a product because a company supports an issue they care about, while 76% of those surveyed declared that they would refuse to purchase a company’s products or services granted that the company supports an issue that contradicts their beliefs. Managers that genuinely believe that they have a moral responsibility towards society may also implement socially responsible initiatives since they are perceived to have an ethical motivation

(Graafland, 2013). Other corporations may have an economic motivation to promote the firm's financial interests, or they may pursue CSR activities to enhance the organization's reputation. Despite the motive behind integrating CSR initiatives into a firm's business model, most CEOs acknowledge the significance of being socially responsible as the market rewards such behavior (Margolis and Walsh, 2001; Orlitzky et al., 2003).

Extensive research has been undertaken in the area of corporate sustainability within various business disciplines, not confined to finance. The majority of finance-related research analyzes the relationship between corporate social responsibility and financial performance (Coombs and Gilley, 2005). Relatively few studies devote attention to exploring whether corporations act in socially responsible ways and to whether certain factors lead them to behave in such ways. Most papers that do examine these factors address the determinants influencing the extent of CSR disclosure as opposed to the factors influencing CSR engagement. We extend the literature and investigate the factors that motivate firms to invest in CSR by examining various firm characteristics and CEO characteristics. Using a comprehensive sample of publicly traded, non-financial, U.S. domiciled firms for the period between 2006-2016, we find that advertising intensive firms and financially stable firms are more likely to engage in socially responsible activities, while riskier firms demonstrate lower levels of CSR. We also find evidence that female CEOs are more intrinsically motivated to undertake long-term investments in socially responsible initiatives pertaining to environmental concerns and diversity issues and that the CEO compensation structure is more related to the employee relations and environmental concerns dimensions.

To the best of our knowledge, this is the first paper to disaggregate the CSR measure into two indices that address internally-related CSR issues, or issues that directly pertain to the employees of the organization, and externally-related CSR issues, or issues that are external to the

firm that deal with the community and environment. We also assess the role of CEO incentives from a monetary and non-monetary perspective. Non-monetary incentives are those related to CEO personal attributes. Monetary incentives are concerned with CEO compensation structure. We postulate that non-monetary personal attributes such as age, gender, and tenure impact the CEO's decisions regarding corporate social responsibility, and therefore reinforce the effect of monetary incentives.

The paper proceeds as follows. First, we briefly review the literature on management's role in corporate social responsibility and develop our hypotheses. We then describe the data, methodology, and empirical model used to test the hypotheses. We then present the results of the analysis; and finally, we conclude.

II. Related literature and hypotheses development

A. Firm characteristics

The extant literature suggests that a firm's financial strength is indicative of its level of engagement in socially responsible corporate behavior (Margolis and Walsh, 2001; Orlitzky et al., 2003). According to slack resource theory, less profitable corporations have fewer resources to make use of for socially responsible initiatives than more profitable firms (Waddock and Graves, 1997). This implies that less financially stable firms are less inclined to engage in social initiatives that would increase their costs and put them in a situation of risking shareholder value. Campbell (2007) argues that the level of competition in the market also impacts a firm's propensity to participate in corporate social behavior. He claims that, under extreme competition, financially distressed firms with narrow profit margins may act in socially irresponsible ways just to survive. In contrast, when competition is normal and firm sustainability is not at risk, firms may be less

likely to behave irresponsibly towards society. In this case, management becomes more concerned with building the company's reputation through corporate social responsibility.

Based on literature on the firm in relation to corporate social responsibility, we develop the following hypotheses:

H1: Larger firms, profitable firms, and firms that generate higher cash have higher levels of CSR.

H2: Capital-intensive and advertising-intensive companies are more devoted to CSR activities.

H3: Higher-valued firms, less financially constrained firms, and firms that are less financially distressed are more likely to invest in CSR.

B. CEO characteristics

CEOs have decision-making power that allows them to make crucial corporate decisions and significantly influence their firm's level of corporate social responsibility. Essentially, they bear responsibility for the impact of CSR on the firm. Their role is to ensure that CSR is consistent with the firm's strategies and that it is financially sustainable. While it may be valuable for a firm to engage in socially responsible practices for various justifications, CSR is financially sustainable only if its benefits outweigh the costs. The traditional agency view, rooted from economist Milton Friedman's (1970) well-known shareholder theory, suggests that CEOs engage in CSR for their own interest at the expense of shareholders. In contrast, Edward Freeman's (1984) stakeholder theory argues that CEOs strategically implement corporate social responsibility in order to maximize long-term firm value.

Graafland et al. (2014) argue that there is an optimal level of CSR activity if the CEO is strategically motivated. The structure of executive compensation can be used as an effective tool to encourage managers to undertake socially responsible actions (Mahoney and Thorn, 2006).

Under shareholder theory, CEO incentives are intended to focus managerial attention upon short-term economic performance to comply with shareholder objectives. Typically, executive compensation consists of short-term incentive pay, such as base salary and annual bonus, and long-term incentive pay like long-term incentive payouts, restricted stock grants, restricted option grants, and other annual noncash compensation (See figure 2.1 in appendix). The allocation between these two categorical incentives, which vary substantially among CEOs, is what defines CEO performance interests (Jensen et al., 2004). Mahoney and Thorn (2009) report a negative effect of salary on CSR and a positive effect of stock options on CSR. This implies that short-term monetary incentives take a short-term orientation, while long-term monetary incentives take a long-term orientation. We can argue that equity-based compensation gives managers incentive to maximize long-term firm value and short-term pay aligns managerial interests with shareholder interest. As such, we develop the following hypotheses:

H4: Younger CEOs, female CEOs, and CEOs with a longer tenure are associated with higher levels of CSR.

H5: CEO short-term monetary incentives are negatively related to a firm's level of CSR, while long-term monetary incentives are positively related to CSR performance levels.

The objective of this paper is to investigate the conditions under which corporations are more likely to adopt proactive CSR initiatives. We address the question of whether executive incentives play a role in firms' engagement in CSR activity. We also explore whether certain types of CEOs are more inclined to invest in CSR. Understanding the relation between CEO compensation and CSR investments can help practitioners implement appropriate compensation policies that maximize shareholder value and comply with socially responsible behavior.

III. Methodology

The MSCI KLD database provides CSR information for more than 3,000 firms. This database accounts for 98 percent of the total market value of all public firms in the U.S (Barnea & Rubin, 2010). Firms are rated based on their strengths and weaknesses in various categories including environmental activities, community involvement, product qualities, employee relations, and diversity policies. We collect CSR data on publicly traded, non-financial, U.S. domiciled firms for the period between 2006-2016 and merge it with executive compensation data from the ExecuComp database. ExecuComp database contains top executives' salary, bonus, and stock option data since 1992. In addition to the compensation data we use Compustat North America for firm-level variables information.

Margolis and Walsh (2003) review the CSR literature from 1972 to 2002 and find that socially responsible corporate behavior is treated as the dependent variable only 15 percent of the time. This implies that relatively few papers examine the factors that influence CSR. In this paper, we deviate from most studies in the literature and treat CSR as the predicted variable in our empirical model. Based on the extant literature, CSR is expected to provide internal and external benefits to a firm (Branco and Rodrigues, 2006). Following this notion, we construct two CSR indices using dimensions pertaining to internal-related CSR issues and external-related CSR issues. Internal CSR is focused on building good relations with the employees of the company. External CSR is focused on building corporate reputation. A more satisfied and engaged workforce is more likely to enhance the organization's financial and productive performance. Internal benefits are concerned with fundamental intangible resources mainly associated with the employees of the company. Internal benefits resulting from investments in socially responsible activities can have an impact on the corporate culture of a company. External benefits are concerned with the firm's

community and environment. Firms that take an active role in integrating sustainable practices into their businesses have good social responsibility reputation and thus may enhance their relations with external parties.

Next, we disentangle CEO motives into monetary and non-monetary incentives (figure 2.1). We follow Rekker et al. (2014) and disaggregate CEO compensation into cash-based compensation and equity-based compensation. CSR activities are associated with stakeholder interests and thus have a long-term perspective. When CEO compensation is mostly comprised of short-term incentives, executives have a certain financial disincentive to engage in CSR activities (Deckop et al., 2006) since their objective is to maximize short-term performance. Therefore, we postulate that a short-term focus in CEO compensation is negatively related to the firm's level of CSR engagement. In contrast, an executive compensation plan that emphasizes long-term performance reduces the pressure on CEOs to maximize short-term performance. Hence, CEO compensation that is mostly comprised of long-term incentives provides motivation for CEOs to engage in socially responsible activities. Equity-linked compensation creates incentive to take actions that benefit stakeholders, which ultimately benefit shareholders in the long-run.

Using pooled OLS estimation, we analyze the impact of firm-level and CEO-level characteristics on corporate social responsibly performance for U.S. firms over the period of 2006-2016. We measure CSR using two indices consisting of internal CSR and external CSR dimensions. Our base model is a function of firm-level and CEO-level characteristics as well as industry and year indicators.

$$CSR = f(\text{firm characteristics, CEO characteristics, industry and year effects}) \quad (1)$$

where, firm characteristics include firm size, profitability, cash holdings, capital expenditures, advertising expenditures, Tobin's Q, Kaplan and Zingales (1997) index, and Altman z-score; CEO characteristics are comprised of CEO age, CEO tenure, CEO gender, cash compensation, and incentive compensation.

Considering that corporate investments in CSR vary widely among companies within the same industry (Borghesi et al., 2014), we control for industry effects. To reconcile any econometric challenges, we follow Erhemjamts et al. (2013) and cluster all standard errors at the firm level in order to mitigate concerns for serially correlated residuals. We also estimate robust standard errors to address the presence of arbitrary heteroskedasticity.

IV. Results

Table 2.1 provides the essential descriptive statistics for the key variables in our analyses. The average scores for our two CSR performance proxies – internal CSR and external CSR – are 0.025 and 0.024, respectively. These averages imply that the firms in our sample have higher external CSR performance scores than internal CSR performance scores. The average firm in our sample has total assets of approximately \$18.11 billion. The average operating profit margin is 8.6%. Cash holdings average 1.47%. Tobin's Q, KZ index, and Z-score average 1.87, 0.94, and 2.67 respectively. The mean level of capital expenditures is \$400 million, and the median is \$49.6 million. The mean level of advertising expenses is \$178 million, and the median is \$18.4 million. On average, 96% of CEOs in our sample are males. The average CEO is 56 years old and has held his position for approximately 12 years. Mean annual total compensation is about \$5.63 million, of which \$1.10 million comprises the total cash compensation component and \$4.53 comprises the incentive compensation component.

Table 2.1. Summary statistics of key variables

| | N | Mean | St.Dev | p25 | Median | p75 |
|----------------------------------------|-------|----------|----------|----------|----------|----------|
| <i>Firm-level variables</i> | | | | | | |
| Internal CSR score | 17805 | -.025 | .323 | -.15 | 0 | .2 |
| External CSR score | 17805 | .024 | .226 | 0 | 0 | 0 |
| Firm size (in millions) | 17801 | 18107.08 | 104000 | 832.8 | 2488.111 | 7913 |
| Profitability | 17674 | .086 | .108 | .038 | .078 | .128 |
| Cash holdings | 17701 | .147 | .162 | .029 | .086 | .209 |
| Capital expenditures (in millions) | 17658 | 400.202 | 1557.827 | 12.4 | 49.601 | 197.037 |
| Advertising expenditures (in millions) | 7966 | 178.446 | 584.652 | 3.9 | 18.394 | 92.3 |
| Tobin's Q | 17727 | 1.873 | 1.239 | 1.135 | 1.483 | 2.126 |
| Kaplan and Zingales index | 16607 | .936 | 2.743 | .358 | 1.016 | 1.648 |
| Altman Z-Score | 14576 | 2.67 | 2.763 | 1.578 | 2.569 | 3.761 |
| <i>CEO-level variables</i> | | | | | | |
| Age | 17674 | 56.162 | 7.447 | 51 | 56 | 61 |
| Tenure | 16375 | 12.401 | 7.948 | 7 | 11 | 16 |
| Gender (% CEO male) | 17805 | .962 | .191 | 1 | 1 | 1 |
| Salary (in thousands) | 17805 | 821.272 | 412.841 | 560 | 764.328 | 1000 |
| Bonus (in thousands) | 17805 | 278.34 | 1335.235 | 0 | 0 | 0 |
| Total compensation | 17782 | 5629.622 | 7078.436 | 1917.764 | 3808.917 | 7067.372 |
| Total cash compensation | 17805 | 1099.611 | 1444.967 | 625.961 | 855.036 | 1120.984 |
| Incentive compensation | 17782 | 4529.574 | 6554.597 | 1125.3 | 2833.328 | 5861.827 |

Table 2.2 presents a Pearson correlation matrix of the main variables included in our analyses. Based on the table, we have no concerns for multicollinearity. Consistent with our predictions, firm-level characteristics such as firm size, profitability, cash holdings, capital expenditures, advertising expenditures, and Tobin's Q are all positively correlated with the internal CSR and external CSR measures. This implies that a company's financial position plays a role in its decision to adopt socially responsible behavior.

| Table 2.2. Correlation matrix | | | | | | | | | | |
|-------------------------------|--------------------|--------------------|-----------|---------------|---------------|----------------------|--------------------------|-----------|-----------|--|
| Variables | Internal CSR score | External CSR score | Firm size | Profitability | Cash holdings | Capital expenditures | Advertising expenditures | Tobin's Q | KZ index | |
| Internal CSR score | 1.000 | | | | | | | | | |
| External CSR score | 0.189*** | 1.000 | | | | | | | | |
| Firm size | 0.136*** | 0.091*** | 1.000 | | | | | | | |
| Profitability | 0.030*** | 0.062*** | -0.053*** | 1.000 | | | | | | |
| Cash holdings | 0.006 | 0.082*** | -0.032*** | 0.056*** | 1.000 | | | | | |
| Capital expenditures | 0.095*** | -0.079*** | 0.234*** | -0.000 | -0.100*** | 1.000 | | | | |
| Advertising expenditures | 0.181*** | 0.252*** | 0.305*** | 0.048*** | -0.050*** | 0.579*** | 1.000 | | | |
| Tobin's Q | 0.036*** | 0.078*** | -0.077*** | 0.427*** | 0.400*** | -0.050*** | 0.018* | 1.000 | | |
| KZ index | 0.005 | -0.026*** | 0.036*** | -0.095*** | -0.181*** | 0.015* | 0.003 | -0.068*** | 1.000 | |
| Z-score | -0.042*** | 0.028*** | -0.077*** | 0.411*** | 0.106*** | -0.064*** | -0.042*** | 0.121*** | -0.126*** | |
| Age | -0.007 | -0.014* | 0.015* | 0.020*** | -0.088*** | 0.034*** | 0.021* | -0.065*** | -0.003 | |
| Tenure | -0.049*** | -0.078*** | -0.035*** | 0.003 | 0.031*** | -0.056*** | -0.098*** | -0.018** | -0.020** | |
| Gender | -0.075*** | -0.020*** | 0.011 | -0.009 | -0.003 | -0.005 | -0.026** | 0.006 | 0.000 | |
| Salary | 0.153*** | 0.094*** | 0.208*** | 0.075*** | -0.178*** | 0.307*** | 0.357*** | -0.061*** | 0.062*** | |
| Bonus | 0.034*** | 0.016** | 0.259*** | 0.008 | -0.013* | 0.137*** | 0.161*** | -0.025*** | 0.009 | |
| Total compensation | 0.153*** | 0.129*** | 0.212*** | 0.088*** | -0.038*** | 0.287*** | 0.330*** | 0.053*** | 0.033*** | |
| Cash compensation | 0.075*** | 0.042*** | 0.299*** | 0.029*** | -0.063*** | 0.214*** | 0.261*** | -0.041*** | 0.026*** | |
| Incentive compensation | 0.149*** | 0.130*** | 0.163*** | 0.089*** | -0.027*** | 0.263*** | 0.303*** | 0.066** | 0.030*** | |

*** p<0.01, ** p<0.05, * p<0.1

| Table 2.2. Pearson correlation matrix (continued) | | | | | | | | | | |
|---------------------------------------------------|-----------|----------|-----------|--------|----------|----------|--------------------|-------------------|------------------------|--|
| Variables | Z-score | Age | Tenure | Gender | Salary | Bonus | Total compensation | Cash compensation | Incentive compensation | |
| Internal CSR score | | | | | | | | | | |
| External CSR score | | | | | | | | | | |
| Firm size | | | | | | | | | | |
| Profitability | | | | | | | | | | |
| Cash holdings | | | | | | | | | | |
| Capital expenditures | | | | | | | | | | |
| Advertising expenditures | | | | | | | | | | |
| Tobin's Q | | | | | | | | | | |
| KZ index | | | | | | | | | | |
| Z-score | 1.000 | | | | | | | | | |
| Age | 0.036*** | 1.000 | | | | | | | | |
| Tenure | 0.096*** | 0.385*** | 1.000 | | | | | | | |
| Gender | -0.020** | 0.065*** | 0.081*** | 1.000 | | | | | | |
| Salary | -0.080*** | 0.209*** | 0.013* | 0.012 | 1.000 | | | | | |
| Bonus | -0.030*** | 0.018** | 0.041*** | 0.012* | 0.122*** | 1.000 | | | | |
| Total compensation | -0.066*** | 0.047*** | -0.040*** | -0.002 | 0.493*** | 0.336*** | 1.000 | | | |
| Cash compensation | -0.051*** | 0.077*** | 0.041*** | 0.015* | 0.399*** | 0.959*** | 0.451*** | 1.000 | | |
| Incentive compensation | -0.060*** | 0.034*** | -0.052*** | -0.006 | 0.445*** | 0.151*** | 0.980*** | 0.267*** | 1.000 | |

*** p<0.01, ** p<0.05, * p<0.1

Table 2.3 reports regression results using the internal-CSR index as the dependent variable. Following Borghesi et al. (2014), we estimate robust standard errors that are clustered at the firm level. Based on reported results from this table, we find that the level of CSR is positively related to firm size, cash holdings, capital expenditures, advertising expenditures, and Tobin's Q. This implies that: 1) larger firms invest more in employee-related issues within the organization, 2) firms that have more cash abundance invest in more internal CSR issues, 3) capital-intensive firms invest more in internal CSR, suggesting that manufacturing companies devote more attention to their employees' well-being, 4) advertising-intensive firms devote more resources to internal-CSR issues, and 5) firm value is positively related to internal-CSR engagement.. Consistent with Fisman et al. (2005), we find a positive correlation between advertising spending and CSR ratings. Contrary to Borgehsi et al. (2014), we find that CEO age does not have an influence on the CEO's willingness to invest in CSR. The inverse relation between CEO gender and internal CSR indicates that female CEOs are more willing to undertake long-term investments in socially responsible initiatives. Furthermore, CEO tenure has a negative effect on the level of internal-CSR investment, which is contrary to our expectations. As for CEO monetary incentives, our hypotheses are partially accepted. We find that the cash compensation component has no effect on CSR, whereas incentive compensation is negatively related suggesting that when CEO's private interests are aligned with shareholder's interests (i.e., maximizing firm value and increasing accounting performance) , the CEO is less likely to invest in internal-CSR.

Table 2.3. The effect of firm and CEO characteristics on internal corporate social investments

| Variables | Prediction | (1) | | (2) | | (3) | |
|---------------------------|------------|------------------|----------|--------------|----------|---------------|----------|
| | | DV: Internal CSR | | DV: Employee | | DV: Diversity | |
| | | Coefficient | t-value | Coefficient | t-value | Coefficient | t-value |
| Firm size | + | 0.235 | 7.96*** | 0.065 | 1.70* | 0.252 | 12.28*** |
| Profitability | + | 0.295 | 1.07 | 0.112 | 0.39 | 0.298 | 1.19 |
| Cash holdings | + | 0.076 | 4.08*** | 0.050 | 2.50*** | 0.064 | 3.51*** |
| Capital expenditures | + | 0.050 | 1.92** | -0.000 | -0.01 | 0.063 | 2.65*** |
| Advertising expenditures | + | 0.065 | 3.75*** | 0.049 | 2.59*** | 0.050 | 3.25*** |
| Tobin's Q | + | 0.178 | 2.89*** | 0.197 | 3.06*** | 0.101 | 1.85* |
| Kaplan and Zingales index | - | -0.013 | -2.47*** | -0.010 | -1.51 | -0.010 | -2.22** |
| Altman Z-Score | + | -0.004 | -0.82 | 0.000 | 0.05 | -0.006 | -1.19 |
| Age | - | -0.001 | -0.30 | -0.002 | -0.64 | 0.000 | 0.02 |
| Tenure | + | -0.007 | -1.96** | -0.001 | -0.29 | -0.008 | -2.57*** |
| Gender | - | -0.376 | -3.20*** | -0.058 | -0.50 | -0.433 | -4.52*** |
| Cash compensation | - | -0.060 | -1.14 | -0.079 | -1.39 | -0.026 | -0.59 |
| Incentive compensation | + | -0.031 | -2.21** | -0.040 | -2.77*** | -0.014 | -1.10 |
| Year indicators | | YES | | YES | | YES | |
| Industry indicators | | YES | | YES | | YES | |
| No. of observation | | 5,838 | | 5,838 | | 5,838 | |
| Adjusted R-squared | | 0.239 | | 0.170 | | 0.287 | |

In Table 2.4, we analyze the effect of firm-level and CEO-level characteristics on external corporate social investments related to the community and environment. Results indicate that larger firms invest more in technical and process-centric CSR-related issues, which are known to have a direct impact on a firm's community and environment. As in Table 2.3, we find a positive relation between advertising expenditures and external CSR. Capital intensity, however, is found to have no effect on a firm's level of external-CSR investments. Furthermore, we find a positive relation between firm value and external-CSR engagement. Consistent with our predictions, financially constrained firms and financially distressed firms devote less attention to external-CSR issues. As for CEO characteristics, reported results reveal that CEO age, tenure, and gender have no effect on a firm's level of external-CSR investments, which go against our predictions. Incentive compensation has no effect, but cash compensation is negatively related to CSR

suggesting that when CEO incentives are tied to the firm's short-term performance, the CEO is less likely to invest in external-CSR, or issue pertaining to the community and environment. For further analyses, we disaggregate the two CSR indices and consider the effect of the factors on each one of the individual categories. In sum, results illustrate that the CEO compensation structure is more related to the employee relations and environmental concerns dimensions.

Table 2.4. The effect of firm and CEO characteristics on external corporate social investments

| Variables | Prediction | (1) | | (2) | | (3) | |
|---------------------------|------------|-------------------------|----------|----------------------|---------|------------------------|----------|
| | | DV: <i>External CSR</i> | | DV: <i>Community</i> | | DV: <i>Environment</i> | |
| | | Coefficient | t-value | Coefficient | t-value | Coefficient | t-value |
| Firm size | + | 0.249 | 9.03*** | 0.101 | 3.34*** | 0.282 | 12.05*** |
| Profitability | + | -0.146 | -0.67 | -0.088 | -0.43 | -0.141 | -0.68 |
| Cash holdings | + | 0.045 | 2.62*** | -0.001 | -0.06 | 0.067 | 4.13*** |
| Capital expenditures | + | 0.029 | 1.50 | -0.018 | -0.92 | 0.058 | 2.93*** |
| Advertising expenditures | + | 0.049 | 2.96*** | 0.033 | 1.97** | 0.044 | 3.05*** |
| Tobin's Q | + | 0.177 | 3.15*** | 0.122 | 2.24** | 0.160 | 3.25*** |
| Kaplan and Zingales index | - | -0.016 | -2.42*** | -0.007 | -1.34 | -0.017 | -2.86*** |
| Altman Z-Score | + | 0.011 | 2.10** | 0.010 | 2.05** | 0.009 | 1.77* |
| Age | - | 0.001 | 0.39 | -0.002 | -0.83 | 0.003 | 1.18 |
| Tenure | + | -0.001 | -0.52 | 0.001 | 0.41 | -0.003 | -1.11 |
| Gender | - | -0.032 | -0.46 | 0.010 | 1.33 | -0.129 | -1.68* |
| Cash compensation | - | -0.089 | -2.23** | -0.031 | -0.69 | -0.104 | -2.98*** |
| Incentive compensation | + | -0.002 | -0.16 | 0.009 | 0.84 | -0.009 | -0.93 |
| Year indicators | | YES | | YES | | YES | |
| Industry indicators | | YES | | YES | | YES | |
| No. of observation | | 5,838 | | 5,838 | | 5,838 | |
| Adjusted R-squared | | 0.258 | | 0.107 | | 0.307 | |

V. Conclusion

The measurable payoff of CSR initiatives to organizations and their stakeholders can be reaped in various ways. In today's socially conscious environment, employees and customers tend to place a premium on working for and spending their money with companies that prioritize corporate social responsibility. This study explores the various factors that motivate managers to make socially responsible investments. We identify several firm-level characteristics that may incline

companies to engage in proactive CSR and investigate the role that CEO incentives may have on its level of investment. We find evidence that advertising intensive firms and financially stable firms are more likely to engage in socially responsible activities, while riskier firms demonstrate lower levels of CSR. We also find that female CEOs are more intrinsically motivated to undertake long-term investments in socially responsible initiatives pertaining to environmental concerns and diversity issues and that the CEO compensation structure is more related to the employee relations and environmental concerns dimensions.

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VII. Appendix

APPENDIX A: Variable Descriptions

| Variable | Definition | Source |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Panel A. Dependent Variable</i> | | |
| CSR | <p>Firm-level CSR performance indices constructed from multiple indicators within four of KLD's qualitative issue areas: environmental issues, community relations, employee relations, and diversity issues. we first add the scores of the indicators that compose each dimension of positive or negative corporate actions and scale each sum by dividing by the number of relevant indicators. For each dimension, we take the difference between scaled strengths and scaled concerns.</p> <ol style="list-style-type: none"> 1. <i>Internal CSR</i> – employee relations index plus diversity index 2. <i>External CSR</i> – community relations index plus environmental issues index | MSCI KLD STATS |
| <i>Firm characteristics</i> | | |
| Firm Size | The natural logarithm of the firm's total assets. | Compustat $\log(at)$ |
| Profitability | The ratio of the firm's earnings before interest and taxes (EBIT) to its total assets. | Compustat $ebit/at$ |
| Cash Holdings | The natural logarithm of the firm's cash and short-term investments divided by its total assets | Compustat che/at |
| Capital Intensity | The ratio of the firm's capital expenditures to its total assets. | Compustat $capint = capx/at$ |
| Advertising Intensity | The ratio of the firm's advertising expenses to its sales. | Compustat $xad/sale$ |
| Tobin's Q | The ratio of the firm's total market value to its total asset value. | Compustat $(at+(prcc_f* csho)-ceq)/at$ |
| Kaplan and Zingales (1997) index | <p>A measure of the firm's relative reliance on external financing. It is based on five financial ratios: cash flow to total assets, dividends to total assets, cash to total assets, debt ratio, and Tobin's Q ratio. A higher value indicates greater financial constraints.</p> | <p>Compustat</p> $1.002*cf_a - 39.368*div_a - 1.315*cash_a + 3.139*blev + 0.283*tobinq$ <p>where,</p> $cf_a = (dp+ib)/at$ $div_a = (dvc+dvp)/at$ $cash_a = (che)/at$ $blev = (dltt+dlc)/(dltt+dlc+seq)$ $tobinq = (at+(prcc_f* csho)-ceq)/at$ |

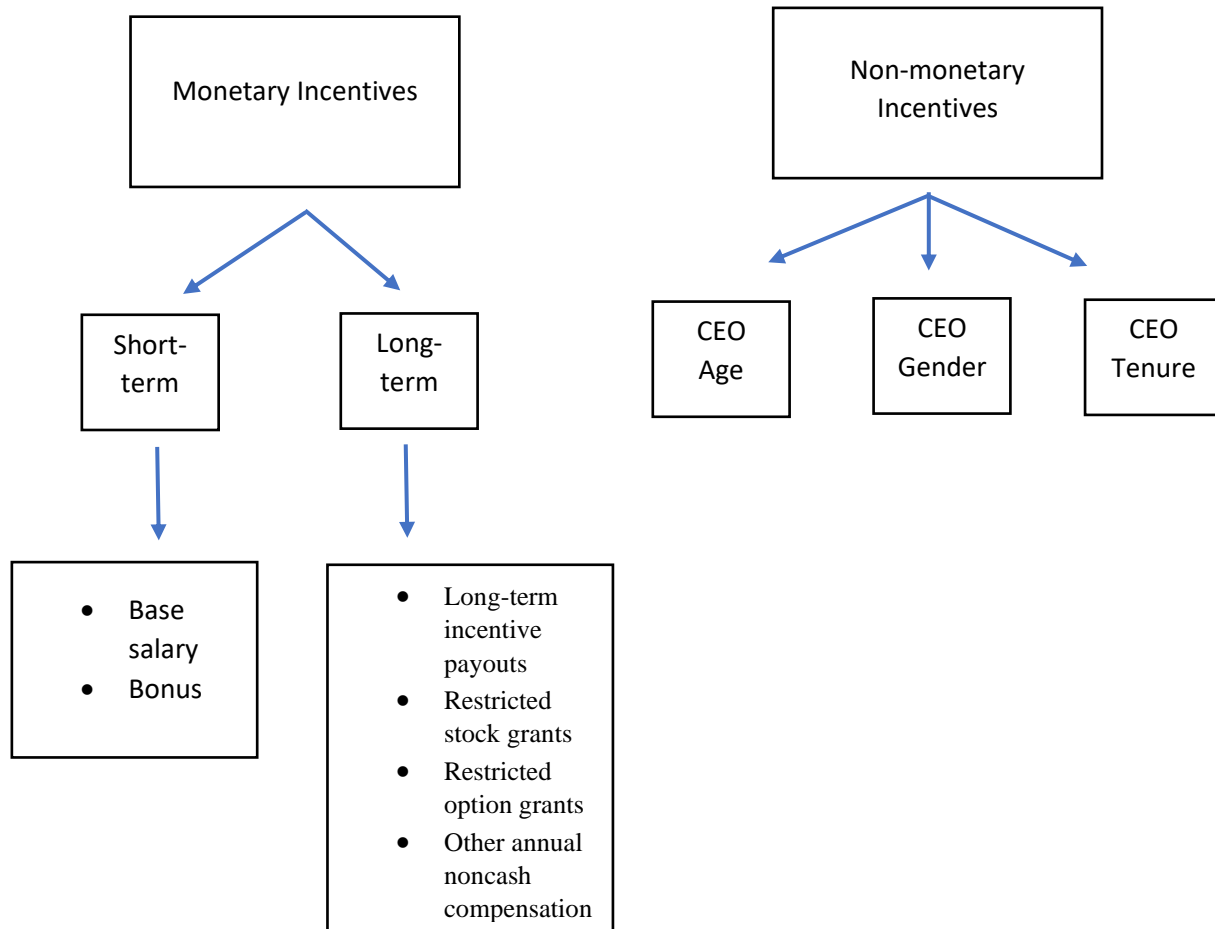
| | | |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Altman Z-score | A measure of the firm's financial strength. It is based on five financial ratios: working capital to total assets, retained earnings to total assets, earnings before interest and taxes to total assets, market value of equity to total liabilities, and sales to total assets. A higher value indicates a lower likelihood of default. | Compustat $1.2(wcap/at)+1.4(re/at)+3.3(ebit/at)+.6((ceq+pstk)/(at-ceq-pstk))+.999(sale/at)$ |
| <i>CEO characteristics</i> | | |
| CEO age | The CEOs age measured in years. | ExecuComp <i>age</i> |
| CEO tenure | The number of years in which a CEO has occupied the CEO position. | ExecuComp <i>ceotenure</i> |
| Gender indicator | An indicator variable that takes the value of 1 if the CEO is male, and 0 otherwise. | ExecuComp <i>gender_dummy</i> |
| Salary | The base salary (cash and non-cash) earned by the CEO during the fiscal year in thousands of dollars. | ExecuComp <i>salary</i> |
| Bonus | The bonus (cash and non-cash) earned by the CEO during the fiscal year in thousands of dollars. | ExecuComp <i>bonus</i> |
| Total compensation | The sum of salary, bonus, total value of restricted stocks granted, total value of stock options granted (using Black-Scholes), and long-term incentive payouts earned by the CEO in thousands of dollars. | ExecuComp <i>tdc1</i> |
| Total cash compensation | The natural logarithm of the CEO's base salary and bonus. | ExecuComp $tcc = salary + bonus$ $lntcc = \log(tcc)$ |
| Incentive compensation | The natural logarithm of the difference between the CEO's total compensation and total cash compensation, which is meant to capture the options and incentive components of total compensation and includes restricted stock grants, option grants, long-term incentive payouts, and other annual noncash compensation. | ExecuComp $incomp = tdc1 - tcc$ $lincomp = \log(incomp)$ |

APPENDIX B: CSR issue-areas from MSCI KLD STATS database

This table lists the specific strength and concern indicators that we use to construct the CSR indices.

| | Strengths | Concerns |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Panel A: External CSR categories</i> | | |
| Environment | <ul style="list-style-type: none"> • Beneficial Products & Services (env_str_a) • Pollution Prevention (env_str_b) • Recycling (env_str_c) • Clean Energy (env_str_d) • Management Systems Strength (env_str_g) • Other Strengths (env_str_x) | <ul style="list-style-type: none"> • Regulatory Problems (env_con_b) • Substantial Emissions (env_con_d) • Climate Change (env_con_f) • Other Concerns (env_con_x) |
| Community | <ul style="list-style-type: none"> • Charitable Giving (com_str_a) • Innovative Giving (com_str_b) • Community Engagement (com_str_h) • Other Strengths (com_str_x) | <ul style="list-style-type: none"> • Negative Economic Impact (com_con_b) • Other Concerns (com_con_x) |
| <i>Panel B: Internal CSR categories</i> | | |
| Diversity | <ul style="list-style-type: none"> • Promotion (div_str_b) • Board of Directors (div_str_c) • Family Benefits (div_str_d) • Women & Minority Contracting (div_str_e) • Other Strengths (div_str_x) | <ul style="list-style-type: none"> • Controversies (div_con_a) • Board Diversity (div_con_c) |
| Employee | <ul style="list-style-type: none"> • Union Relations (emp_str_a) • Cash Profit Sharing (emp_str_c) • Employee Involvement (emp_str_d) • Health & Safety (emp_str_g) • Other Strengths (emp_str_x) | <ul style="list-style-type: none"> • Union Relations (emp_con_a) • Health & Safety (emp_con_b) • Supply Chain Controversies (emp_con_f) • Other Concerns (emp_con_x) |

Figure 2.1. Types of CEO incentives



Vita

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