Fall September, 2022

Empirical examination of the direct and moderating role of corporate social responsibility in top executive compensation

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2022

Abstract

Purpose: This study examines the direct association between firms' Corporate Social Responsibility (CSR) scores, CSR disclosures, and executive compensation. We further investigate the moderating role of CSR in the association between executive compensation and firms' stock market and accounting performances.

Research Design: We collect CEO compensation information from the Execucomp database and CSR performance information from the MSCI ESG database. Our final sample consists of 4,193 firm-year observations for 1,318 U.S. public firms for the period 2009–2013. We employ lagged regression analysis to test the direct and moderating roles of CSR in executive compensation.

Findings: Regarding the direct role of CSR, we find that CEO compensation is positively related to CSR performance but not to firms' issuance of CSR reports. We also find a positive moderating role of CSR in the relationship between CEO compensation and firms' stock performance. However, we do not identify any role for CSR in the relationship between CEO compensation and accounting performance. Our results also show a negative association of CSR in the relationship between CEO compensation and firm size.

Originality: This study fills a gap in the literature by providing empirical evidence on the direct association between CSR and CEO compensation and how the association between CEO compensation and firm performance is moderated by CSR scores. The novel findings of this study will benefit managers, boards of directors, shareholders, and other stakeholders, including regulators and policymakers.

JEL Classification: M41, M52, M55

Keywords: Direct Role, Moderating Role, CSR Performance, ESG Ratings, Top Executive Compensation, Accounting Returns, Market Performances

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Introduction

This study investigates the role of corporate social responsibility (CSR) in executive compensation. Specifically, we examine the direct association between firms' CSR scores, CSR disclosure, and compensation of the chief executive officer (CEO). We also examine whether CSR moderates the relationship between CEO compensation and firms' economic performance (the stock market and accounting returns). While there is a growing body of literature on CSR, only a few studies have focused on the association between CSR and CEO compensation, and the findings of these studies are inconclusive. For example, McGuire *et al.* (2003) and Rekker *et al.* (2014) find no association, Cai *et al.* (2011) and Hassen and Ghardadou (2020) document a negative association, and Berrone and Gomez-Mejia (2009) and Mahoney and Thorne (2005, 2006) report a positive association between CSR performance and executive compensation. In the executive compensation literature, it is widely documented that firms' economic performances, such as stock prices and accounting returns, are strongly and positively associated with CEO compensation (David *et al.,* 1998; Dechow *et al.,* 1994; Hughen *et al.,* 2019). However, there is no consistent evidence of whether firms' social performance is associated with CEO compensation or whether social performance plays a moderating role in the relationship between CEO compensation and firms' economic performance. Therefore, we find it important and intriguing to investigate the direct and moderating roles of CSR in CEO compensation.

CSR performance indicators such as environmental, social, and governance (ESG) metrics are useful for assessing a company's relative position on a range of topics relevant to a broader set of stakeholders (Kay *et al.,* 2020). As anecdotal evidence suggests that CSR and ESG are important in practice, the academic literature also documents the value-enhancing capabilities of CSR (Malik, 2014). Ding *et al.* (2018) find a positive association between CSR

and financial performance. Albuquerque *et al.* (2018) confirm that CSR decreases systematic risk and increases firm values. CSR disclosure has also become a major issue that organisations address daily basis (Lodhia and Sharma, 2019). Li *et al.* (2016) find a positive association between CSR disclosure and firm value. Additionally, Klerk *et al.* (2015) and Kumarasinghe *et al.* (2018) find that higher levels of CSR disclosure are positively associated with stock market performance. Although CSR reporting, CSR performance, and its impact on a firm's value have been studied extensively, an area that has not been fully explored is its relationship with executive compensation.

Two academic theories attempt to explain the impact of CSR on CEO compensation: a positive association (CSR as an agency problem, over-investment theory) and a negative association (CSR as a means of resolving conflicts among stakeholders, conflict-resolution theory). Executives may overinvest in CSR activities to improve their reputation and pay, often to the detriment of shareholders. Alternatively, conflict-resolution theory is based on a stakeholder approach, which stipulates that executives of socially responsible companies have relatively lower pay than those of socially irresponsible enterprises. Li *et al.* (2016) find that more powerful CEOs are associated with lower CSR activities. The authors also argue that the more a firm invests in CSR, the higher the firm value, which contradicts the over-investment theory that CSR activities reduce firm value.

CEOs can use CSR to resolve conflicts among stakeholders (conflict-resolution theory) or increase their personal reputation, which may create an agency problem (over-investment theory). Since CSR increases the value of a firm (Malik 2014; Li *et al.,* 2016; Albuquerque *et al.,* 2018), we argue that CSR activities are directly or indirectly associated with CEO compensation regardless of the CEOs' motives. Based on this argument, we predict two sets of hypotheses:

CSR activities and CEO compensation are positively associated (direct role hypothesis), and CSR can moderate the relationship between CEO compensation and firms' stock market performance and accounting returns (moderating role hypothesis). To test our direct and moderating role hypotheses, we estimate lagged regressions following previous studies (Albuquerque *et al.,* 2018; Dunbar *et al.,* 2020). Following the literature, we measure CSR scores using MSCI ESG ratings (Waddock and Graves, 1997; Johnson and Greening, 1999). We also include a wide range of control variables in our regressions, as suggested in the literature (Chalmers *et al.,* 2006; John and Qian, 2010; Houston and James, 1995).

According to our direct role hypothesis, we find that CEO compensation is positively associated with CSR performance. However, we find no relationship between firms' separate CSR report issuances and CEO compensation. Consistent with the literature, we find that CEO compensation increases with firms' stock prices and accounting performance. According to the moderating role hypothesis, we document a significant positive moderating role of CSR in the relationship between CEO compensation and firms' stock performance, implying that the positive association between CEO compensation and stock price is stronger for firms with better CSR performance. However, we fail to identify any role of CSR in the relationship between CEO compensation and accounting returns. Interestingly, our results show a negative moderating role of CSR in the relationship between executive pay and firm size, indicating that large socially responsible firms may invest more in CSR activities, including employees, the environment, and community engagement, rather than making higher payments to their top executives.

This study makes three important contributions. First, it examines the direct role of CSR ratings and CSR disclosures in executive compensation. Previous literature provides little and inconclusive evidence regarding the relationship between CSR and executive compensation. This

study fills this gap in the literature and expands our understanding of the CSR and CEO compensation literature.

Second, it provides the first empirical evidence of how CSR activities can moderate the relationship between executive compensation and firms' economic performance. Although our study focuses on U.S. firms, the findings are applicable to other developed economies, such as Australia, the U.K., Canada, and New Zealand. For example, firms in Australia, the U.S., and other industrialised countries seek to differentiate themselves from competitors by expending resources to support social causes or in projects that advance the goals of CSR (Birch, 2002; Cone *et al.*, 2003; Galbreath, 2010). However, the few studies that examine CEO compensation and CSR relationships have mostly focused on the U.S. and Canadian contexts. The lack of studies on this issue in other global contexts may be due to the unavailability of data. Therefore, our study is of interest to readers of other developed economies.

Finally, our findings are useful for investors interested in allocating assets to socially responsible investments. By linking executive compensation with CSR activities, our study also guides boards of directors and policymakers in promoting and incentivising CSR goals. CSR-linked executive compensation may encourage top executives to seek benefits from the public release of CSR reports and efforts.

Theoretical Development and Hypotheses

CEO incentive systems are complex and subject to constant debate. Bebchuk and Fried (2004) argue that generous pay packages for top executives amount to rent extraction from the firm by powerful CEOs. Rent extraction theory posits that high compensation levels reflect

CEOs' ability to extract private benefits in excess of the optimal compensation contract. Other researchers support labour market theory, which justifies excessive pay as a demand for skilled labour and talent required to operate complex modern companies, aligning the CEO with shareholder interests (Murphy and Zabojnik, 2007; Frydman, 2007; Graham *et al.*, 2009). Studies on executive compensation have shown that many factors contribute to the level and composition of compensation. These factors include firm size, accounting earnings, share price, internationalisation, diversity, governance structure, ownership structure, CEO power, and managerial discretion (Finkelstein and Boyd, 1998; David *et al.*, 1998).

Researchers have also documented factors that can influence CEO compensation and firm performance relationships. For example, Jiang *et al.* (2009) show that ownership structure can influence CEO compensation and firm performance relationships. Kabir and Thai (2017) document the moderating effect of different aspects of corporate governance on the relationship between CSR and financial performance. Le *et al.* (2020) document that externally disclosed non-Generally Accepted Accounting Principles (non-GAAP) financial measures are also used internally to determine remuneration. Matolcsy and Wright (2011) find that firms whose CEOs receive compensation inconsistent with their firm characteristics have lower performance than firms whose CEOs' compensation is consistent with their firms' performance. Gao *et al.* (2017) find that firms using market metrics are more likely to adopt relative performance evaluation and long performance periods than firms that use accounting metrics.

Many other studies have examined the relationship between executive compensation and accounting-based performance, such as return on assets (ROA). Hughen *et al.* (2019) identify a strong positive association between accounting performance and executive compensation. Carter

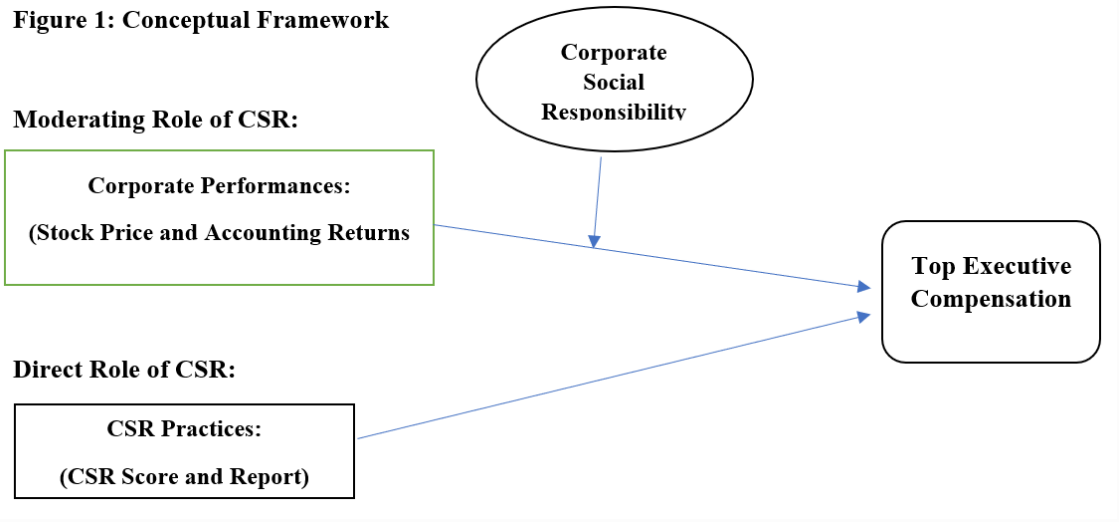
et al. (2009) and Shim and Kim (2015) also find that CEO compensation is strongly related to accounting-based performance during the post-Sarbanes-Oxley (SOX) period. Several studies (Chalmers *et al.,* 2006; John and Qian, 2010; Shim and Kim, 2015) have reported significant positive associations between firm size and compensation.

Agency theory focuses on the settings in which performance is defined in financial terms. However, CSR performance lies in the non-financial domain and is more difficult to measure than financial performance. Examining the moderating role of CSR in top executive compensation provides important and interesting insights into these relationships. Derchi *et al.* (2020) explore the moderating role of specific CSR-focused governance systems in supporting a firm's use of CSR-linked executive compensation. Cai *et al.* (2011) develop and test two hypotheses: the over-investment hypothesis based on agency theory and conflict–resolution hypothesis based on stakeholder theory. They find that the lag in CSR is adversely associated with total and cash compensations. Li and Thibodeau (2019) find that executives are more likely to manipulate earnings to achieve their personal compensation goals when the CSR ratings and CSR-contingent compensation are low.

As a business strategy, CSR activities should not waste the firm's valuable resources and propositions. However, they can enhance corporate value rather than jeopardise it. CSR activities may also strengthen the association between executive compensation and firms' financial performance. Berrone and Gomez-Mejia (2009) and Mahoney and Thorne (2005) report a significant positive association between CSR performance and executive compensation. In another study, Mahoney and Thorne (2006) find that while executive salaries increase with CSR weaknesses, bonuses and stock options increase with CSR strengths.

Cai *et al.* (2011) document a negative association between CSR and CEO compensation. Similarly, Hassen and Ghardadou (2020) show that CSR is adversely related to CEOs' compensation, after controlling for various firm and board characteristics. However, Ikram *et al.* (2020) examine CEO pay sensitivity to stock performance (delta) and stock volatility (vega) and find that delta has no significant association with CSR, whereas vega has a strong relationship with CSR. To investigate and better understand the role of CSR activities in executive compensation, we propose the following conceptual framework:

Figure 1: Conceptual Framework



We also argue that socially responsible firms disclose more CSR information by issuing separate CSR reports (Mahoney *et al.*, 2013; Gelb and Strawser, 2011; Li and Jia, 2021), and this additional disclosure reduces the information gap and risks for firms (Dhaliwal *et al.*, 2012). Thus, CEOs are compensated more for this type of non-financial CSR disclosure and are more transparent to various stakeholders. Moreover, firms with better CSR performance, as measured by CSR ratings, are more likely to have higher values (Malik, 2014; Li *et al.*, 2016). Therefore, the CEOs of socially responsible firms should be paid higher. Based on our arguments, we develop the following direct association hypotheses:

H1 (a): There is a positive association between CSR performance and CEO compensation.

H1 (b): There is a positive association between CSR disclosure and CEO compensation.

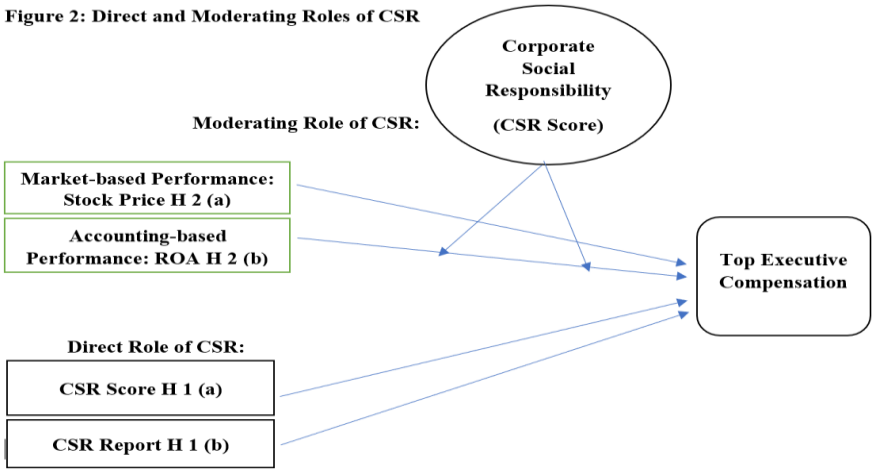
Firms have actively pursued CSR activities to enhance their image and build their reputation. Enhanced reputation is expected to be perceived positively by market players and increase firm value. Increased firm value, which is reflected by stock prices, is associated with executive compensation. This means that CSR activities are likely to play a moderating role in executive compensation and stock market performance when the market responds positively to CSR. CEOs can adopt different strategies and play an important role in firms' CSR activities, and CSR performance can be reflected in higher stock prices and firm value (Malik, 2014; Li *et al.*, 2016). Therefore, CSR performance, through stock prices and operating returns, can be significantly associated with CEO compensation and may moderate the positive association between CEO compensation and firms' economic performance. Based on this discussion, we develop the following hypotheses for the moderating role of CSR:

H2 (a): There is a positive moderating role of CSR performance in the association between CEO compensation and stock prices.

H2 (b): There is a positive moderating role of CSR performance in the association between CEO compensation and ROA.

Figure 2 illustrates the moderating and direct role hypotheses' framework.

Figure 2: Direct and Moderating Roles of CSR



Research Methodology

Data Collection and Sample Distribution

We collect data on CEO compensation from the Execucomp database, which provides information about a firm's five highest-paid executives' annual compensation for a total of 38,000 top executives and directors of the 3,300 largest U.S. companies. The CSR-related information is collected from the MSCI ESG (previously known as KLD Inc.) database, which provides ESG ratings of the 3,000 largest publicly traded U.S. companies using 60 indicators of several attributes. Following the literature (Johnson and Greening, 1999; Barnea and Rubin, 2010; Linthicum *et al.,* 2010), we construct a net CSR score (total strengths minus total concerns) in the MSCI's five main social rating areas: environment, community, employee, diversity, and product. Firms' financial information is collected from the Compustat database. The existence of a CSR report as a proxy for CSR disclosure is collected manually.

The sample period of this study is 2009-2013. We select this period for two reasons. First, these years seem to be stable in terms of CEO compensation. Research shows that CEO compensation increased in the years before the economic crisis of 2008 and later decreased and remained stable for a few years during the post-crisis period (Malik and Shim, 2019). After the 2008 economic crisis, the Dodd-Frank Act mandated several provisions for U.S. firms to regulate the executive incentive system, thereby improving compensation disclosure transparency and stockholder power on CEO pay. However, in 2014, inflation-adjusted CEO compensation began to increase again, and long-term incentives began to increase at a higher rate (Hughen *et al.,* 2019). Hence, we argue that 2009-2013 is a stable period for conducting a CEO compensation study. Second, the MSCI KLD database has a consistent set of rating indicators for this period. In 2014, the MSCI stopped rating some indicators and later changed the rating categories,

introducing new indices in ESG factors. Therefore, we limit our sample to 2009-2013 for consistency in terms of sample representation.

We exclude financial industries from our sample, as they exhibit different characteristics and financial statement structures, and face different regulations from other industries. We also exclude two other industries, agriculture and public administration, because of their low sample representation. After merging all databases and observations with all variable information, our final sample consists of 4,193 firm-year observations from 1,318 public U.S. firms.

Panel A of Table 1 reports the sample distribution by industry. Industries are classified based on 4-digit-SIC classifications. Manufacturing is the largest sector, constituting half of the sample (2,079 observations, 49.58 percent). The service sector is the second largest with 714 observations (17.03 percent). The third largest sector is wholesale and retail with 604 observations (14.40 percent). Panel B of Table 1 reports that the sample is evenly distributed across years, except for the last year of the study period.

[Insert Table 1 Here]

Model and Variable Specification

We employ lagged regression analysis to test our hypotheses. In addition to their cash salaries, executives receive bonuses and incentive compensation based on previous years' performance. Thus, using lagged regressions is more appropriate for analysing the pay-for-performance relationship. Dunbar *et al.* (2020) conduct Granger causality tests to examine the nature of the relationship between CSR and CEOs' risk-taking incentives and argue that lagged regression mitigates concerns regarding reverse causality. Additionally, previous literature uses the lagged regression approach to examine the relationships among CSR activities, systemic risk, and firm value (Albuquerque *et al.,* 2018).

Dependent Variables

The main dependent variable, CEO Comp, represents the total annual compensation (salary, bonus, restricted stock grants, stock options, long-term incentive payouts, and other annual incentives) for CEOs. In addition to total compensation, we examine the direct and moderating roles of CSR on two other components of executive compensation: long-term compensation (long-term incentive + stock grant + options) and salary.

Explanatory Variables

a. Direct Role Variables

To test *direct role* hypotheses, we employ two variables related to firms' CSR: CSR Score i,t-1 and CSR Report i,t-1. The variable CSR Score measures a firm's overall social responsibility performance, whereas the CSR Report indicates whether the firm issues a separate CSR report. We use the MSCI's ESG ratings (formerly known as KLD ratings) to calculate the CSR scores. Based on extensive analysis of surveys, CSR reports, business press, and regulatory reports, the MSCI provides CSR performance of firms that account for 98 percent of the U.S. market value. Following the literature, we construct a net CSR Score and expect a positive coefficient on the CSR Score i,t-1 (Waddock and Graves, 1997; Johnson and Greening, 1999).

Another variable that captures CSR practices is a firm's CSR report. We hand-collect this CSR Report variable, CSR Report i,t-1, to test whether the disclosure of separate CSR reports is associated with CEO compensation. The value of the CSR Report, which is a dummy variable, is coded 1 if the firm issues an independent CSR report in the previous year, and 0 otherwise. Mahoney *et al.* (2013) argue that a firm's standalone CSR report signals its superior commitment to CSR. Jeffrey (2008) describes reputation risk management as an explanatory framework for

separate CSR reporting and argues that CSR reporting may enhance CEO reputation. Patten (1990) finds that investors use information in CSR reports to modify their investment decisions. Gelb and Strawser (2001) argue that firms with better CSR performance have better CSR disclosure. Based on the CSR disclosure literature, we argue that the disclosure of a firm's separate CSR report may indicate better CSR performance and CEOs' sincere efforts to reduce the information gap between the firm and various stakeholders. Therefore, CEOs might be paid higher for their initiatives to issue separate CSR reports and practicing better non-financial disclosure behaviour. Thus, we expect a significant positive coefficient for the CSR Report i,t-1 variable.

b. Moderating Role Variables

To test the moderating role of CSR in the relationship between CEO compensation and firm performance, we focus on CSR scores and design three interaction variables. The variable Stock i,t-1 x CSR Score i,t-1 tests the interaction between the firms' stock returns and CSR scores and measures the role of CSR on the CEO pay-for-stock market performance relationship. ROA i,t-1 x CSR Score i,t-1 captures the moderating role of CSR in the relationship between CEO compensation and accounting performance. For the moderating role hypotheses, we expect CSR performance to strengthen the positive associations between CEO compensation and firms' stock market and accounting performance.

c. Control Variables

We include several control variables widely documented in the literature as common determinants of CEO compensation. The control variables of the model include Stock i,t-l, which is the company's average stock return in the previous year and a proxy for its market performance. Several studies have documented that CEO compensation is directly affected by firms' stock prices (Murphy, 1985; Boschen *et al.*, 2003; Nourayi and Daroca, 2008). We also include ROA i,t-l (the

previous year's ROA), calculated as net income divided by the total assets of a firm, and a proxy for accounting performance. Several studies in CEO compensation literature have shown a positive relationship between executive compensation and accounting performance (Lambert and Larcker, 1987; Defeo *et al.*, 1989; Dechow *et al.*, 1994).

We also include Size i,t-l in the regression model to control for the effects of firm size on executive compensation. Size is calculated as the natural logarithm of the total sales in lag years. It is well documented in the literature that firm size positively affects CEO compensation (Chalmers *et al.*, 2006; John and Qian, 2010). We expect a significantly positive coefficient for the Size variable. We also include a variable Size i,t-1 x CSR Score i,t-1, which measures whether the relationship between firm size and CEO compensation is moderated by CSR performance. Another control variable in our model is Leverage i,t-l, calculated as the lag year's total long-term debt divided by total assets. Berkovitch *et al.* (2000) argue that there is a complex relationship between managerial compensation and debt structure. Houston and James (1995) document that CEOs of highly leveraged firms receive less compensation. Therefore, we control for firms' leverage using the variable Leverage i,t-l, the firm's previous year's debt ratio. We also control for industry -and year-fixed effects. Appendix A lists the definitions of all the variables.

Regression Models

The main regression analysis is estimated using panel data with year- and industry-fixed effects and standard errors clustered by firms. In our main analysis, we use CEO Comp (total compensation) as the dependent variable and employ the following lagged regression model to test the direct and moderating role hypotheses:

CEO Comp (Total Comp) i,t = a1 + CSR Score i,t-1 + CSR Report (0, 1) i,t-1 + Stock i,t-1 + ROA i,t-1 + Size i,t-1 + Stock x CSR Score, i,t-1 + ROA x CSR Score i,t-1 + Size x CSR Score i,t-1 + Leverage (Debt/Equity) i,t-l + $\sum \lambda_j$ Industry Dummies + $\sum \Phi_k$Year Dummies + ϵ t-1

For an additional analysis, we run two other regressions using long-term compensation and salary as the dependent variables:

Long-term Comp i,t = a1 + CSR Score i,t-1 + CSR Report (0, 1) i,t-1 + Stock i,t-1 + ROA i,t-1 + Size i,t-1 + Stock x CSR Score, i,t-1 + ROA x CSR Score i,t-1 + Size x CSR Score i,t-1 + Leverage (Debt/Equity) i,t-l + $\sum \lambda_j$ Industry Dummies + $\sum \Phi_k$Year Dummies + ϵ t-l

Salary i,t = a1 + CSR Score i,t-1 + CSR Report (0, 1) i,t-1 + Stock i,t-1 + ROA i,t-1 + Size i,t-1 + Stock x CSR Score, i,t-1 + ROA x CSR Score i,t-1 + Size x CSR Score i,t-1 + Leverage (Debt/Equity) i,t-l + $\sum \lambda_j$ Industry Dummies + $\sum \Phi_k$Year Dummies + ϵ t-l

Empirical Findings

Descriptive Statistics

Table 2 reports the descriptive statistics of dependent and independent variables. The mean value of the CSR Score is 0.434, which implies that considering all five areas of CSR, the firms' total number of strengths are, on average, higher than the total number of weaknesses. The value of the standard deviation is 2.97 with a median value of 0. The upper and lower quartile of the CSR scores range from -1 to 1 for the firms included in our sample. The mean value of CSR Report is 0.218 with a median, lower, and upper quartile value 0, meaning that most of the firms did not issue separate CSR reports during our sample years. The mean value of Size (ln of sales in millions of dollars) is 7.529. In terms of the dollar sales value, the mean sales of the sample is $7,720 million, which implies that our sample includes relatively large firms. The Stock variable

has mean and median values of $35.812 and $28.153 and the mean value of ROA is 0.049 with a median value of 0.052 and standard deviation of 0.102. The mean total compensation (in thousands of dollars) of the sample firms is $5,642,000 and the standard deviation is $6,114,000.

[Insert Table 2 Here]

Correlation Matrix

Table 3 presents the Pearson correlation coefficients of the variables. The CSR Score and CSR Report are significantly and positively correlated at r = 0.407. This means that firms are more likely to issue separate CSR reports if they have superior CSR performance, which has also been documented in CSR literature. CSR Score and Firm Size are positively and significantly correlated at 0.442. CSR Score and Stock Price returns are also significantly and positively correlated at 0.10. While no significant correlation between CSR Score and Leverage is observed, CSR Score and Total Compensation are correlated with a value of 0.34.

[Insert Table 3 Here]

Empirical Results

According to the direct role hypothesis H1 (a), CSR scores and CEO total compensation are significantly and positively associated. The value of the coefficient is 0.073, with a *t*-stat value of 3.24, which implies that CEO total compensation increases with a higher CSR score. If a firm's CSR score improves by one standard deviation, this increases the total compensation by 2.5 percent (0.073 × 2.972 / ln (5,642.05)). Although these findings support H1 (a), we find no significant association between a firm's separate CSR report issuance and CEO total compensation. We find a significant positive coefficient of the interaction variable Stock Price and CSR Score (coefficient = 0.001, *t*-value = 2.45), which supports our moderating role hypothesis. This finding implies that if a firm has better CSR performance, then CEO

compensation is amplified by the joint effects of CSR and stock returns. More specifically, if a firm's lag year's CSR score increases by one standard deviation, the impact of stock returns on the CEO's total compensation increases by approximately 0.03 percent (0.001 × 2.972 / ln (5,642.05)). We also include Stock Price as a control variable, which has a significant positive association with total compensation (coefficient = 0.002, t-value = 4.41). This coefficient value means that if the stock price changes by one standard deviation, the total compensation increases by 0.083 percent (0.002 × ln (35.81) / ln (5,642.05)). After considering the combined roles of CSR Score and Stock Price, total compensation increases by 0.086 percent due to an increase in one standard deviation of the CSR score.

We find that CSR has no moderating role in the relationship between accounting returns and CEO compensation. We also find that the control variable Size has a significant positive coefficient of 0.378 (t-value = 35.95), meaning that CEO total compensation significantly increases with firm size. Interestingly, we find a significantly negative coefficient for the variable CSR Score i,t-l x Size i,t-l, which implies that CSR weakens the relationship between firm size and compensation. Specifically, if CSR performance increases by one standard deviation, the positive effect of firm size on compensation is reduced by 0.24 percent (-0.007 × 2.972 / ln (5,642.05)).

[Insert Table 4 Here]

Additional Analysis on Long-Term Compensation and Salary

In Table 5, the dependent variable is long-term compensation. In our additional analysis, we find that the coefficient of CSR Score is significantly and positively associated with long-term compensation, but there is no association between CSR reports and long-term compensation. Similarly, in Table 4, we find that CSR does not influence the relationship

between accounting performance and long-term compensation because it influences the relationship between stock performance and long-term compensation. The interaction variable of CSR Score and Size is significantly and negatively associated with long-term compensation, a finding similar to that of the relationship between Size and total compensation. While long-term compensation increases with firm size, the amount may decrease because of the influence of higher CSR performance.

[Insert Table 5 Here]

Table 6 focuses on the direct role of CSR on CEO salaries and the moderating role of CSR on the relationship between firm performance and CEO salaries. The coefficient of the interaction variable CSR Score i,t-l × Stock Price i,t-l is 0.001 with *t*-stat of 4.15, which means there is a significant positive association between salary and stock market performance. Therefore, our results support H2 (a). The findings in Table 6 also show that CEO salaries are positively and significantly related to stock market performance. However, we do not document any moderating role of CSR scores on accounting performance or firm size.

[Insert Table 6 Here]

Conclusions

In this study, we examine the direct association between CSR scores, CSR reports, and CEO compensation, and the moderating role of CSR in the relationship between CEO compensation and firm performance (stock market and accounting performance). Using a sample of 4,193 firm-year observations and 1,318 public U.S. firms, we find that CSR performance positively moderates the relationship between firms' total and long-term compensation, along with its direct association with CEO compensation. However, firms' separate CSR report disclosures are not associated with CEO compensation. These findings are both interesting and

important, as this study provides evidence that CSR performance moderates the executive compensation and economic performance relationships, along with its direct association with CEO compensation. Previous studies have provided little evidence on how a firm's CSR performance impacts the relationship between CEO compensation and firm performance. The moderating role of CSR implies that firms with better CSR performance are more likely to award CEOs with higher compensation for better stock performance. However, we find that CSR has no moderating role in the relationship between CEO compensation and accounting-based performance. Interestingly, we find that CSR performance plays a moderating role in weakening the positive relationship between executive compensation and firm size.

This study can be extended by examining specific industries to reveal whether the moderating role of CSR in the relationship between CEO pay and firm performance varies across industry sectors. Additionally, using data from more recent years, future research can examine whether the direct and moderating roles of CSR on CEO compensation have changed over time. Finally, we can extend our study by investigating international firms and small- and mid-sized firms, as the findings of our study may not be applicable to these firms or in an emerging economy setting.

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Appendix A Dependent Variables and Explanatory Variables

Variable	Definition	Data Source
Dependent Variables		
CEO Comp i, t	natural logarithm of the total annual compensations for CEOs (Salary + Long-term compensation)	Execucomp
Long-Term Comp i, t	natural logarithm of the total annual long-term compensations for CEOs (long-term incentive + stock grant + options)	Execucomp
Salary i, t	natural logarithm of the annual salary for CEOs	Execucomp
Explanatory Variables		
Direct Role Variables:		
CSR Score $_{i,t-1}$	lag year's net CSR Score (total strengths minus total concerns) in the MSCI's main five rating areas: environment, community, employee, diversity and product	MSCI ESG
CSR Report $_{i,t-1}$	a dummy variable value is coded one if the firm issues an independent CSR report in the previous year, and zero otherwise	Hand-collect
Moderating Role Variables:		
Stock x CSR Score $_{i,t-1}$	interaction term of Stock and CSR Score	CRSP and MSCI ESG
ROA x CSR Score $_{i,t-1}$	interaction term of ROA and CSR Score	Compustat and MSCI ESG
Firm Size x CSR Score $_{i,t-1}$	interaction term of Sales and CSR Score	Compustat and MSCI ESG
Control Variables:		
Firm Size $_{i,t-1}$	lag year's natural logarithm of total sales	Compustat
Stock $_{i,t-1}$	lag year's average stock returns	CRSP
ROA $_{i,t-1}$	lag year's return on assets calculated as net income divided by total assets	Compustat
Leverage $_{i,t-1}$	lag year's leverage calculated as total long-term debt divided by total assets	Compustat
Year and Industry Variables:		
$\sum \lambda_j$ Industry Dummies	dummy variables for each industry defined by the two-digit SIC codes	Compustat
$\sum \Phi_k$ Year Dummies	dummy variables assigned for each year	

Table 1 Panel A Sample Distribution by Industry

Industry Classification	No. of Observations	Percentage	Cumulative Frequency	Cumulative Percentage
Mining & Constructions	294	7.01%	2373	7.01%
Manufacturing	2079	49.58%	2079	56.59%
Transportations & Utilities	502	11.97%	3589	68.56%
Wholesale & Retail Trade	604	14.40%	4193	82.96%
Service	714	17.04%	3087	100%

Table 1 Panel B Sample Distribution by Year

Year	No. of Observations	Percentage	Cumulative Frequency	Cumulative Percentage
2009	883	21.06%	883	21.06%
2010	870	20.75%	1753	41.81%
2011	882	21.04%	2635	62.84%
2012	845	20.15%	3480	83.00%
2013	713	17.00%	4193	100.00%

Table 2 Descriptive Statistics

Variable	N	Mean	Std Dev	Lower Quartile	Median	Upper Quartile
CSR_Score	4193	0.434	2.972	-1.000	0.000	1.000
CSR_Reports	4193	0.218	0.413	0.000	0.000	0.000
Size (ln of sales in $ million)	4193	7.529	1.566	6.430	7.413	8.537
Stock_Price (in $)	4193	35.812	43.828	16.255	28.153	44.950
ROA	4193	0.049	0.102	0.022	0.052	0.089
Leverage	4193	1.542	57.960	0.008	0.323	0.758
Total_Comp ($ in thousand)	4193	5,642.050	6,114.010	2,090.620	4,027.290	7,101.810
L_T_Comp ($ in thousand)	4193	4,649.320	5,601.800	1,360.580	3,126.690	6,024.850
Salary ($ in thousand)	4193	816.962	376.805	569.615	773.087	1,000.000
Bonus ($ in thousand)	4193	175.767	1125.720	0.000	0.000	0.000

*The final sample consists of 1,318 U.S. public firms and 4,193 firm-year observations. See Appendix A for definitions of variables.

Table 3 Pearson Correlation Matrix

	CSR_Score	CSR_Rep	Size	Stock_Price	ROA	Leverage	Total_Comp	L_T_Comp	Salary	Bonus
CSR_Score	1.000									
CSR_Rep	0.407***	1.000								
Size	0.442***	0.458***	1.000							
Stock_Price	0.081***	0.093***	0.215***	1.000						
ROA	0.101***	0.066***	0.140***	0.207***	1.000					
Leverage	-0.009	-0.001	-0.004	-0.009	-0.015	1.000				
Total_Comp	0.340***	0.287***	0.576***	0.183***	0.121***	-0.010	1.000			
L_T_Comp	0.355***	0.288***	0.565***	0.187***	0.122***	-0.010	0.980***	1.000		
Salary	0.303***	0.317***	0.685***	0.172***	0.096***	-0.004	0.627***	0.563***	1.000	
Bonus	-0.019	0.018	0.085***	0.010	0.018	-0.005	0.345***	0.158***	0.270***	1.000

*The final sample consists of 1,318 U.S. public firms and 4,193 firm-year observations. See Appendix A for definitions of variables.

Table 4 Lagged Regression Results of CEO Total Compensation and CSR

CEO Comp (Total Comp) i,t = a1 + CSR Score i,t-1 + CSR Report (0, 1) i,t-1 + Stock i,t-1 + ROA i,t-1 + Firm Size i,t-1 + Stock x CSR Score, i,t-1 + ROA x CSR Score i,t-1 + Size x CSR Score i,t-1 + Leverage (Debt/Equity) $i_{,t-1} + \sum \lambda_j$ Industry Dummies + $\sum \Phi_k$ Year Dummies + ϵ_{t-1}

Dependent Variable = Total Compensations (LTC + Salary + Bonus)

Variable	**Expected Sign**	**Parameter**	**t-Value**	**Pr > |t|**
Intercept	**?**	**5.326**	**68.85**	**<.0001**
Stock_Price_lag X CSR_Score_lag	**+**	**0.001**	**2.45**	**0.014**
ROA_lag X CSR_Score_lag	+	-0.041	-0.67	0.504
Size_lag X CSR_Score_lag	**+**	**-0.007**	**-2.73**	**0.006**
Lag_CSR_Score	**+**	**0.073**	**3.24**	**0.001**
Lag_CSR_Reports	+	0.043	1.40	0.162
Lag_Stock_Price	**+**	**0.002**	**4.41**	**<.0001**
Lag_ROA	**+**	**0.215**	**2.00**	**0.046**
Lag_Size	**+**	**0.378**	**35.95**	**<.0001**
Lag_Leverage	**-**	**-0.001**	**-1.64**	**0.102**
Year Fixed-Effect		Yes		
Industry Fixed-Effect		Yes		
Adjusted R^2		41.74%		
N		4193		

See Appendix A for definitions of variables.

Table 5 Lagged Regression Results of CEO Long-Term Compensation and CSR

Long-Term Comp i,t = a1 + CSR Score i,t-1 + CSR Report (0, 1) i,t-1 + Stock i,t-1 + ROA i,t-1 + Firm Size i,t-1 + Stock x CSR Score, i,t-1 + ROA x CSR Score i,t-1 + Size x CSR Score i,t-1 + Leverage (Debt/Equity) $i_{,t-1} + \sum \lambda_j$ Industry Dummies $+ \sum \Phi_k$ Year Dummies $+ \epsilon_{t-1}$

Dependent Variable = Long-Term Compensation

Variable	**Expected Sign**	**Parameter**	**t-Value**	**Pr > |t|**
Intercept	**?**	**3.919**	**23.92**	**<.0001**
Stock_Price_lag X CSR_Score_lag	**+**	**0.001**	**2.15**	**0.032**
ROA_lag X CSR_Score_lag	+	-0.114	-1.04	0.300
Size_lag X CSR_Score_lag	**+**	**-0.020**	**-3.24**	**0.001**
Lag_CSR_Score	**+**	**0.175**	**3.29**	**0.001**
Lag_CSR_Reports	+	0.014	0.31	0.754
Lag_Stock_Price	**+**	**0.002**	**2.36**	**0.018**
Lag_ROA	+	0.322	1.44	0.151
Lag_Size	**+**	**0.492**	**26.31**	**<.0001**
Lag_Leverage	-	-0.001	-1.42	0.157
Year Fixed-Effect		Yes		
Industry Fixed-Effect		Yes		
Adjusted R^2		27.97%		
N		4193		

See Appendix A for definitions of variables.

Table 6 Lagged Regression of CEO Salary and CSR

Salary i,t = a1 + CSR Score i,t-1 + CSR Report (0, 1) i,t-1 + Stock i,t-1 + ROA i,t-1 + Firm Size i,t-1 + Stock x CSR Score, i,t-1 + ROA x CSR Score i,t-1 + Size x CSR Score i,t-1 + Leverage (Debt/Equity) $i_{,t-1} + \sum \lambda_j$ Industry Dummies + $\sum \Phi_k$ Year Dummies + ϵ_{t-1}

Dependent Variable = Salary

Variable	**Expected Sign**	**Parameter**	**t-Value**	**Pr > |t|**
Intercept	**?**	**5.109**	**54.97**	**<.0001**
Stock_Price_lag X CSR_Score_lag	**+**	**0.001**	**4.15**	**<.0001**
ROA_lag X CSR_Score_lag	+	-0.007	-0.13	0.900
Size_lag X CSR_Score_lag	+	-0.009	-1.56	0.120
Lag_CSR_Score	+	0.054	1.18	0.237
Lag_CSR_Reports	+	0.048	1.05	0.294
Lag_Stock_Price	**+**	**0.001**	**3.72**	**0.000**
Lag_ROA	+	-0.105	-1.17	0.240
Lag_Size	**+**	**0.176**	**12.72**	**<.0001**
Lag_Leverage	-	0.000	0.45	0.656
Year Fixed-Effect		Yes		
Industry Fixed-Effect		Yes		
Adjusted R^2		7.69%		
N		4193		

See Appendix A for definitions of variables.