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AN ANALYSIS OF THE RELATIONSHIP BETWEEN CEO COMPENSATION AND
CORPORATE SOCIAL RESPONSIBILITY DISCLOSURE TYPE AND QUALITY

by

NICOLE M. HERON

A dissertation submitted to the Graduate Faculty in Business in partial fulfillment of the
requirements for the degree of Doctor of Philosophy, The City University of New York

2016

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This manuscript has been read and accepted for the Graduate Faculty in
Business in satisfaction of the dissertation requirement for the degree of Doctor
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ABSTRACT

An Analysis of the Relationship between CEO Compensation and Corporate Social Responsibility Disclosure Type and Quality

by

Nicole M. Heron

Advisor: Joseph Weintrop

The construct of corporate social responsibility (CSR) itself is comprised of three underlying components: environmental, social, and corporate governance. However, it is unclear from the extant literature whether and how these underlying components of CSR are related to CEO compensation. In the absence of a theoretical model of CSR that specifically considers its underlying components, I present in this paper an exploratory analysis of the relationships between CEO compensation and CSR disclosure type and quality. My CSR proxies are based on a firm's environmental, social and corporate governance-related disclosure, as reported by Bloomberg. I calculate total CEO compensation as the annual change in a comprehensive measure of total CEO wealth. Using a sample of US firms for the period 2007 through 2014, I first test the relationship between overall CSR disclosure and CEO compensation, and I find no significant association. I then disaggregate the CSR firms by disclosure type and provide evidence that: (1) relative to non-CSR firms, CEO compensation is lower in firms providing only corporate governance-related CSR disclosures; (2) CEO compensation is higher in firms providing both corporate governance-related and social-related CSR disclosure, as compared to

firms providing only corporate governance-related CSR disclosure; (3) CEO compensation is roughly equivalent in firms providing both corporate governance-related and social-related CSR disclosure and in non-CSR firms; and (4) CEO compensation is higher in firms providing all three types of CSR disclosure, as compared to all other firms (CSR or non-CSR). I then test the association between CSR disclosure quality and CEO compensation, and results in the CSR subsample analysis show a positive association between the two that is driven solely by the quality of the environmental-related CSR disclosures. Additional analysis is provided using a more common measure of compensation; these results suggest that the quality of the corporate governance-related CSR disclosures drives the positive association between overall CSR disclosure quality and CEO compensation. A detailed comparison of the two compensation measures highlights the importance of equity-based incentives for CSR disclosure quality.

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1. Introduction

This paper examines the relationship between CEO compensation and corporate social responsibility (CSR) disclosure type and quality. The construct of CSR is itself comprised of three distinct underlying components: environmental, social, and corporate governance. CSR disclosures are voluntary in the US and often published on an annual basis as a separate, standalone report containing nonfinancial information about a firm's policies and practices in one or more of these three areas. Therefore, in order to fully understand the relationship between CSR disclosure and CEO compensation, it is necessary to consider how each of the three underlying CSR components is associated with CEO compensation. However, the majority of the extant literature in this area does not provide this type of analysis, so my study seeks to fill this void.

The voluntary nature of CSR disclosure results in three choices for firms. First, should any CSR information be disclosed? Second, if so, what type(s) of CSR information should be included in the disclosure? Third, how much of each type of CSR information should be included in the disclosure? Answering the first question will clearly split firms into two groups: those that disclose CSR information and those that do not. Much of the CSR research to date happens on this level, is based on theories of why firms should engage in and disclose CSR (e.g., shareholder theory, stakeholder theory, legitimacy theory, institutional theory), and seeks to identify differences between these two groups. For example, literature has shown that CSR disclosers have a lower cost of equity capital (Dhaliwal et al. 2011), better financial reporting quality (Kim et al. 2012), and enhanced organizational processes and performance (Eccles et al. 2014).

Although my study will include this aspect as well (largely to provide a context for interpreting the rest of the analysis), the primary objective of my analysis is to explore whether

the different ways firms respond to the second and third questions have differing implications for CEO compensation. The multidimensional nature of the construct of CSR suggests that firm choices about what types of CSR information to disclose and how much of each type of CSR information to disclose are complex processes. Indeed, recent survey data by Rangan et al. (2015) of executives responsible for implementing CSR within their firms describes a “multifaceted version of CSR that runs the gamut from pure philanthropy to environmental sustainability to the active pursuit of shared value.” Without a theoretical model of the firm’s complex disclosure choice among the underlying CSR components and what to disclose for each, I utilize an exploratory analysis to examine these choices. Specifically, I consider what combinations of environmental, social and corporate governance-related CSR disclosures firms employ, and how these different combinations are associated with CEO compensation. I also examine the association between the quality of the different CSR disclosure combinations and CEO compensation. Any results documented in this study should be interpreted as a preliminary attempt to understand the connections between the underlying CSR components and CEO compensation, which can be expanded upon with further research in this area.

I choose CEO compensation as the setting for this study for three reasons. One, relative to other areas within CSR research, less work has been done with respect to CEO compensation (Malik 2015). Two, the extant literature on the relationship between CSR and executive compensation (Riahi-Belkaoui 1992; McGuire et al. 2003; Mahoney and Thorn 2006; Mahoney and Thorne 2005; Berrone and Gomez-Mejia 2009; Cai et al. 2011) employs a variety of settings with mixed results. Three, several of these studies use stylized groupings of varied CSR dimensions, including product, people, diversity, community, employee relations, business practices, international, and environment (Mahoney and Thorn 2006; Mahoney and Thorne

2005; Cai et al. 2011), but it is unclear how these stylized groups map to the firm-specific disclosure of the underlying components of CSR. Similarly, the use of CSR strengths versus weaknesses (McGuire et al. 2003; Mahoney and Thorn 2006; Mahoney and Thorne 2005; Cai et al. 2011) does not clearly map to the quality the firm-specific disclosure of CSR.

My study differs from these in four ways. One, my sample period, 2007 through 2014, is consistent with the timing of the recent increase in CSR reporting in the US. The only prior study I am aware of which includes any part of this period in their sample is Cai et al. (2011), who use a longer sample period of 1996 through 2010. Two, I employ a different proxy for CSR based on ESG data from Bloomberg. The advantage of this data is that it provides a relatively direct mapping from the firm-specific CSR disclosure, as well as its underlying components, to the construct of CSR, allowing me to explore the potential differences in the associations between CSR disclosure types and CEO compensation. In addition, this data relies solely on disclosures that the firm itself makes, as opposed to also incorporating CSR information that is generated by a third party. Three, I construct a measure of CEO compensation that is intended to capture the total change in CEO wealth from period $t-1$ to period t . This measure differs from the total CEO compensation data in ExecuComp commonly used in empirical studies, *TDC1*, primarily in its treatment of the equity portion of compensation. I estimate the changes in fair value of the CEO's entire equity portfolio (common stock, stock options, and restricted stock) from period $t-1$ to period t , and include those changes in the compensation calculation for period t . I use this measure because prior literature suggests it is more conducive to incorporating implicit performance measures in compensation contracts (Antle and Smith 1985), which is likely how

CSR information is currently utilized for compensation contracting for the majority of firms¹, and because the incentive effect of CSR is more relevant for long-term market-based compensation (Mahoney and Thorne 2005; Deckop et al. 2006), which is a nontrivial portion of CEO compensation. Four, my focus is to present an exploratory analysis, as opposed to a causal study, of the relationships between the types and quality of CSR disclosure, with a particular emphasis on the underlying components, and CEO compensation.

Using a sample of 9,306 US firm-years from 2007 through 2014, I first test whether aggregate CSR disclosure is related to CEO compensation. The sample includes observations both with and without CSR information. In this first test, if a firm provides any combination of environmental, social and/or governance disclosure in a given year, then an indicator variable is used to classify it as a CSR-firm. I find no significant association between CSR and CEO compensation, incremental to that of the firm financial and corporate governance variables.

I then explore the relationships between the three underlying components of CSR disclosure and CEO compensation. I begin by disaggregating the CSR-firms into three distinct subsamples based on CSR disclosure type. The first group contains firms that only include corporate governance-related information in their CSR disclosures. The second group contains firms that only include corporate governance-related and social-related information in their CSR disclosures. The third group contains firms that provide all three types of underlying information in their CSR disclosure, i.e., corporate governance-related, social-related, and environmental-related. I also include a group for the non-CSR firms. To test whether the different CSR

¹ Recent reports find that only between 22% (KPMG 2013) and 24% (Ceres and Sustainalytics 2014) of their sample firms, representing the largest 250 global firms and the largest 613 US firms, respectively, link executive compensation to CSR.

disclosure types are associated with CEO compensation, I estimate the CEO pay model three times, with a different reference group excluded in each iteration.

This analysis generates the following results. First, CSR firms that only provide corporate governance-related disclosures earn less CEO compensation, on average, than non-CSR firms. Second, CSR firms that disclose both corporate governance-related and social-related information earn more CEO compensation, on average, than CSR firms that only provide corporate governance-related disclosures. Third, there is no difference in CEO compensation, on average, for a CSR firm that discloses both corporate governance-related and social-related information and a non-CSR firm. Fourth, relative to all other firms, CEO compensation is higher, on average, in CSR firms that provide all three types of underlying disclosure (i.e., corporate governance-related, social-related, and environmental-related).

Taken together, I conclude that when examining the relationship between CEO compensation and CSR disclosure, it is not sufficient to simply compare compensation between the CSR firms and the non-CSR firms, as this will give rise to a misleading inference. Rather, it is necessary to consider the types of CSR disclosure being made. In this case, estimating the CEO compensation model without incorporating the types of CSR disclosure each firm makes suggests that average CEO compensation is the same for all firms, regardless of whether or not they make CSR disclosures. As the next part of the analysis shows, disaggregating CSR disclosure into three distinct groups based on disclosure type clarifies the relationships each group has with CEO compensation. It also reveals how for two of these groups, the association with CEO compensation is significant and approximately the same amount; however, because the parameter estimates on these two groups have the opposite sign, they effectively cancel each other out in the aggregate CSR disclosure analysis. This illustrates the importance of CSR

disclosure type with respect to CEO compensation, and how including it in the analysis serves to deepen the understanding of the overall relationship.

In the second part of my study, I examine the relationship between CSR disclosure quality and CEO compensation. The prior set of analyses indicates that CEO compensation differs, on average, across firms depending on the type of CSR information they disclose. This suggests that the act of providing the CSR disclosure is sufficient for the CEO to realize the differential compensation effects; however, it says nothing about what, if any, effect the quality of the CSR information provided has on CEO compensation. I analyze the relationship between the quality of CSR disclosure type and CEO compensation in two ways.

First, using the total sample, I replace the CSR indicator variable in the CEO pay regression with a continuous variable reflecting the firm's CSR score to test whether or not the quality of the CSR information is associated with CEO compensation. I assign a CSR score of zero to the non-CSR firms, and I include an indicator variable for them in the model. I then run the CEO pay model three more times, each time replacing the overall CSR score with different combinations of the three continuous scores for the underlying components of CSR disclosure. Which of the underlying component scores are used in each model is based on the idea that the CSR disclosure process is an additive one that starts with corporate governance-related disclosure, expanding to include social-related disclosure, and finally increasing to include environmental-related disclosure. Thus, in the first of these three models, I incorporate just the corporate governance-related CSR disclosure score, replacing all missing scores with a zero. In the second of these three models, I include both the corporate governance-related and social-related CSR disclosure scores, replacing all missing scores with a zero. Finally, in the last of these three models, I

include the corporate governance-related, social-related, and environmental-related CSR disclosure scores, replacing all missing scores with a zero.

Second, I use a series of CSR subsamples that only include observations with CSR information. As in the total sample analysis, I first estimate a model of the relationship between overall CSR disclosure quality and CEO compensation using the CSR score variable in the regression. I then estimate three more models of CEO pay, each of which uses a distinct subsample representing the three different types of CSR disclosure groups possible in the sample. The first of these three models uses a subsample of firms that only provide corporate governance-related CSR disclosure, the second model uses a subsample of firms that provide both corporate governance-related and social-related CSR disclosure, and the third model uses a subsample of firms that provides all three types of CSR disclosure.

The results are as follows. The total sample analysis on CSR disclosure quality provides some evidence that non-CSR firms, on average, receive higher compensation than CSR firms but that the firm's overall CSR disclosure score is positively associated with CEO compensation, suggesting that an improvement in the quality of the CSR disclosure (in aggregate) is associated with higher CEO compensation. The three models using the disclosure scores for the underlying CSR components provide some evidence supporting a positive association between CEO compensation and both corporate governance-related and social-related CSR disclosure quality. Two important points about the total sample analysis, though, are that it does not jointly account for CSR disclosure type and quality, and that the number of missing score values that are replaced with zeros, in particular for the environmental score, potentially weakens the power of the tests. The CSR subsample analysis is employed to address these concerns, and these tests provide similar results for the relationship between the overall CSR disclosure quality and CEO

compensation as in the total sample analysis. Furthermore, when each distinct CSR disclosure group is used to test for the quality of the types of disclosures that particular group provides, only the third group, firms disclosing all three types of CSR information, has significant results for its environmental-related CSR disclosure quality. Thus, I conclude that it is the quality of the environmental-related CSR disclosures for firms disclosing all three types of CSR information that drives the overall relationship between CSR disclosure quality and CEO compensation.

As an additional analysis, I repeat the main set of tests on the relationship between CSR disclosure type and quality using TDC1 as the dependent variable. Although I believe the more comprehensive measure of CEO compensation is appropriate in my setting, I provide this additional analysis to facilitate comparison with other studies in this area that use the more common compensation measure from ExecuComp, as well as to highlight potential implications of differing inferences based on the choice of compensation proxy used. The results on the tests of CSR disclosure type and CEO compensation are largely consistent with the main analysis with two exceptions. When TDC1 is employed, marginally significant positive results are reported for the relationships between CEO compensation and both CSR disclosure (in aggregate) and firms disclosing both corporate governance-related and social-related disclosure, whereas both were insignificant in the main results. The tests on CSR disclosure quality and CEO compensation in the total sample were also largely consistent with the main analysis.

Finally, the additional analysis yields one key difference from the main analysis in the tests on CSR disclosure quality and CEO compensation in the CSR subsamples. The additional analysis results suggest that the quality of the corporate governance-related disclosures for the CSR firms drives the overall association between CSR disclosure quality and CEO compensation, not the environmental-related disclosure quality. These different results are due to

the compensation proxies used and they suggest that the equity-based incentives not captured by TDC1 are associated with the quality of the environmental-related CSR disclosures. To the degree that environmental disclosures represent policies and actions that are expected to enhance firm value in the long run, then the absence of the full range of the CEO's equity incentives in TDC1 understates the effect of these disclosures on CEO compensation. Focusing on TDC1 could lead the CEO of a CSR firm to spend firm resources to improve only the quality of corporate governance-related CSR disclosures, which might be easier in practice to accomplish than it would be for environmental-related CSR disclosures; however, these two CSR subsample analyses suggest that choice brings with it a tradeoff between higher total compensation and higher direct compensation (TDC1).

My study contributes to the prior literature on CSR and CEO compensation by providing an exploratory analysis of the relationships between CEO compensation and underlying CSR disclosure types and quality. In the absence of a formal theory modelling the different types of CSR disclosure a firm can choose to make, this analysis is important because it provides evidence that different types of CSR disclosure are associated in different ways with total CEO compensation. It also suggests that the process of CSR disclosure is an additive one for firms, such that they start at a minimum level (providing only corporate governance-related information) and advance to the maximum level (providing all three types of CSR information). Finally, it shows that not all types of CSR disclosure quality are associated with CEO compensation, and depending on what proxy is used, different conclusions can be drawn about which type of CSR disclosure quality matters the most for CEO compensation.

This area can benefit from future research. From a theoretical perspective, the development of a model of CSR disclosure that considers the three underlying components of CSR, their

relationships to each other, and their optimal use (separately or in combination), would provide a stronger foundation for future work to investigate CSR disclosure in many different settings.

From an empirical perspective, even without a theory of CSR disclosure by underlying component, it can still be useful to revisit the results that have been documented thus far in the extant literature that rely on CSR disclosure at the aggregate level, and apply this same approach to explore which of the underlying CSR components are associated with the construct in question. Increased evidence about the underlying dimensions of CSR and how they relate to different research areas will provide insight and enhance the overall understanding of the value of CSR.

The remainder of this paper proceeds as follows: Section 2 contains the literature review and hypotheses development; section 3 is the research design; section 4 is the sample and descriptive statistics; section 5 contains the results; and section 6 concludes.

2. Literature review and hypotheses development

2.1 CSR background

CSR disclosure in the US is voluntary², nonfinancial in nature, and external assurance is not required; therefore, there tends to be variation in the content of these reports among firms.

Typically, the material within CSR disclosures can be generally classified as ESG data. Some examples of content that might be in a CSR report include: the amount of and annual change in

² The only CSR-related mandatory disclosure in the US pertains to conflict minerals, and it originated in Section 1502 of the Dodd-Frank Act (passed in July 2010). The SEC issued its final rule requiring the conflict minerals disclosures (Form SD and/or a Conflict Minerals Report) for issuers that meet the rule's criteria on August 22, 2012. All conflict minerals disclosures are required to include information on a calendar year basis, regardless of the firm's fiscal year, and must be filed by May 31 of the following year. The first conflict minerals disclosures were filed in 2014 for calendar year 2013. More specific details can be found on the SEC website: <http://www.sec.gov/News/Article/Detail/Article/1365171562058> (accessed on 12/8/15).

greenhouse gas emissions; energy usage, recycling, and waste reduction data; employee job satisfaction; information on key members in the supply chain; charitable and philanthropic contributions within local communities; employee volunteering activities; product/process improvements; and promotion of skills development, diversity, and inclusion among employees³. Over the last decade, there has been a notable upward trend in the number of US firms making CSR disclosures. According to a recent KPMG (2013) global survey of corporate responsibility reporting, 86% of the largest US companies by revenue provide CSR disclosure in either a standalone or integrated report, as compared with an earlier KPMG (2005) survey, where CSR disclosures were provided by only 32% of the largest US companies by revenue.

Similar to the recent growth in CSR disclosure in the US, there has also been a sizeable increase in socially responsible investments (SRI). As defined in the most recent US SIF Foundation (2014) report, these type of investments include “all labels that investors apply today to their strategies to consider environmental, social and corporate governance criteria to generate long-term competitive financial returns and positive societal impact” (p. 5). The total amount of socially responsible assets under management in the US is \$6.57 trillion as of 2014, representing an increase of 929% over the twenty years that the US SIF Foundation has been measuring this market (US SIF Foundation 2014). With this rise of SRI, it is likely that investors are increasingly utilizing CSR disclosures to help tailor their investment strategies accordingly. The information contained within these reports can help identify a firm’s CSR-related opportunities and/or risks.

³ Appendix C contains excerpts from two CSR reports, highlighting why each company engages in CSR policies and disclosure in their own words, as well as some specific examples of how CSR policies are enacted within each company.

2.2 CSR disclosure and CEO compensation

CSR reporting is a form of voluntary nonfinancial disclosure. Extant literature has examined other types of nonfinancial disclosure and documented their value relevance (Amir and Lev 1996; Ittner and Larcker 1998) and usage as performance measures to enhance compensation contracting (Ittner et al. 1997). Each of these studies relies on a very specific industry, type of nonfinancial information, and/or compensation contract. For example, Amir and Lev (1996) document the value relevance of two nonfinancial measures, POPS (total population in licensed service areas) and customer penetration (ratio of subscribers to POPS), in independent cellular phone companies, the only industry for which these measures would be relevant. A detailed analysis of this industry suggests that financial reporting does not produce value relevant information, which Amir and Lev (1996) document; however, when the valuation model is updated to incorporate both financial and nonfinancial information, both types of information are value relevant. In a related point, Amir and Lev (1996) note that a similar pattern is evident in the compensation contracts of their sample firms: ten out of fourteen firms provided explicit details in their proxy statements about compensation drivers, of which all ten firms explicitly included nonfinancial measures while only four of the ten firms also explicitly included earnings as a driver of compensation. As they state, “A study of nonfinancial information naturally focuses on an industry, since such information is typically industry-specific” (Amir and Lev 1996). In a similar manner, Ittner and Larcker (1998) test the relationship between customer satisfaction and future accounting performance within two industries in which they believe customer satisfaction is critical: a major telecommunications firm and retail bank branches of a large financial institution. Testing at both the individual and business unit levels yields evidence that customer satisfaction is related to future customer behavior and accounting performance,

providing support for the inclusion of customer satisfaction measures within compensation contracting (Ittner and Larcker 1998). In the third study, instead of focusing on a specific nonfinancial disclosure and industry, Ittner et al. (1997) study firms with compensation contracts that explicitly use nonfinancial performance measures. By limiting their sample to only those firms where the CEO's bonus includes ex-ante explicit weights on nonfinancial performance measures, they provide evidence about the type of firm that, on average, is more likely to rely on such nonfinancial information when writing a bonus contract.

However, CSR differs from the nonfinancial measures employed in these earlier studies in two ways. One, CSR disclosures are not specific to one industry, as was the case with POPS and customer penetration, or certain select industries, as with customer satisfaction; rather, this type of disclosure is broadly applicable across all industries. Two, the nonfinancial information contained within a CSR disclosure is not necessarily the same from one report to the next, whereas the nature of POPS, customer penetration and customer satisfaction were similar from one disclosure to the next. Unlike these more specific measures and settings, the construct of CSR is broader and itself encompasses up to three dimensions, resulting in disclosures that vary from one firm to the next, even if they are in the same industry. One advantage of the specificity in each of the earlier study settings is that it allows for the relative ease of mapping the nonfinancial measures to firm financial, market and compensation variables. In contrast, the broad applicability of CSR across industries and the potential for wide variation in the content of this disclosure type suggest that the results from the earlier studies might not be generalizable to a setting such as this one.

In spite of the challenges associated with a multidimensional construct like CSR, previous research has explored a number of ways in which CSR might affect firm value. Perhaps the

largest number of academic studies have been undertaken to examine the relationship between CSR and firm financial performance. Much of the early discourse on the use of CSR by businesses centers on the debate between those who feel it should be pursued only when it increases shareholder value (see e.g., Friedman 1970) versus those who feel it should be pursued as long as it benefits a firm's stakeholders, even if that results in a decrease to shareholder value (see e.g., Freeman 1984; Clarkson 1995; Wood and Jones 1995; Carroll 1999; McWilliams and Siegel 2001; Handy 2002). The relationship between CSR and firm financial performance has been tested in many settings (e.g., see the meta-analyses by Margolis et al. 2009; Orlitzky et al. 2003; and Margolis and Walsh 2003). Over 200 studies are documented across these three meta-analyses, and although evidence is provided of all possible relationships (i.e., positive, negative and insignificant) between CSR and firm financial performance, each meta-analysis concludes that when all of the evidence is considered together, there is a positive, albeit small, relationship between CSR and firm financial performance (Margolis et al. 2009; Orlitzky et al. 2003; and Margolis and Walsh 2003).

Another channel through which CSR can provide value for a firm, as hypothesized by Dhaliwal et al. (2011), is that voluntarily providing CSR disclosure will result in a lower cost of equity capital. Their rationale for this is threefold: one, prior literature on the relation between voluntary financial disclosure and cost of capital generally documents a negative association between the two (Leuz and Verrecchia 2000; Lambert et al. 2007), which they argue can also be applied to value relevant nonfinancial disclosures; two, CSR can affect firm performance and value in other ways that financial disclosures do not; and three, some CSR activities can have an impact on cash flows in the near future. According to Dhaliwal et al. (2011), these three arguments taken together show that CSR disclosures help to reduce information asymmetry as

well as uncertainty about factors affecting firm value, and this, in turn, leads to a decrease in cost of equity capital. Using a sample of US firms, they show that those firms with a higher cost of capital in a given year are more likely to start disclosing CSR information the following year, and once that initial CSR disclosure is made, the firm's cost of equity capital decreases in the following year. Furthermore, Dhaliwal et al. (2011) also show that these firms who start disclosing CSR information exploit their subsequent reduction in cost of equity capital by issuing a seasoned equity offering in the first or second year after the initial CSR report.

Kim et al. (2012) identify a third channel through which CSR can affect firm value, namely through financial reporting quality. In their study, Kim et al. (2012) examine the association between firm type, where firms are classified as either socially responsible or non-socially responsible, and earnings management. They predict that the (non-)socially responsible firms will be (less) more likely to behave responsibly with respect to their financial reporting; therefore, they expect these firms to engage in (more) less earnings management, thus providing investors (less) more transparent and reliable financial information. They find that socially responsible firms are less likely to manage earnings or be the subject of an SEC investigation, as compared to non-socially responsible firms. To better understand this finding, Kim et al. (2012) explore three possible CSR incentives: one, the manager is motivated by ethical concerns, two, the firm is concerned about its reputation, and three, the firm's financial performance is strong enough to allow it to engage in CSR. After including controls for both firm financial performance and reputation, Kim et al. (2012) conclude that it is the ethical perspective of the manager that is driving the use of CSR in these firms. Although CSR disclosures contain nonfinancial information, these results suggest they are relevant in helping to assess a firm's earnings quality, thereby making them supplementary to a firm's financial reporting.

In a recent CSR review paper, Malik (2015) synthesizes the extant literature to support her claim that CSR can improve firm value. Among the studies she reviews, some of the potential benefits of CSR include improvements in employee productivity, enhanced product offerings and operating performance, capital market benefits, better firm reputation, M&A market benefits, and improved relationships between the firm and regulators, stakeholders, and other relevant parties (Malik 2015).

Considering these various results together, it is clear that there are numerous channels through which engaging in CSR can enhance firm value, thereby suggesting that CSR and CEO compensation are related. Although several prior studies have examined this relationship, there has been less research in this area than in some of the other CSR topics; moreover, the work that has been done provides inconsistent results (Malik 2015). In an early study, Riahi-Belkaoui (1992) hypothesizes that executive compensation and social performance are positively related; however, he rejects that hypothesis after documenting a negative association between the two and concludes that the more socially responsible a firm is perceived to be, the more an executive's compensation will suffer. McGuire et al. (2003) use incentive compensation structure as their setting to examine the relationship between corporate governance and social performance. They make a series of hypotheses about types of executive compensation (e.g., salary, bonus, long-term incentives and CEO ownership) and both strong and weak social performance, and provide evidence of positive associations between weak social performance and both salary and long-term incentives (McGuire et al. 2003). Mahoney and Thorn (2006) do a similar study using a Canadian setting, but they document different results. They find a positive relationship between stock options and total CSR, CSR strengths and CSR weaknesses, using both contemporaneous and lagged CSR data; however, they do not find any significant

associations between current CSR data and salary or bonus (Mahoney and Thorn 2006). In a separate study of Canadian firms, Mahoney and Thorne (2005) hypothesize and find a positive (negative) association between total CSR (CSR weaknesses) and long-term compensation, which they further show is driven by the product-related aspects of CSR (as opposed to the people-related aspects). Berrone and Gomez-Mejia (2009) test the relationship between a firm's environmental performance and CEO pay, which they find is positive, but they find no evidence that this association is more pronounced in firms with environmental governance mechanisms in place. Finally, Cai et al. (2011) document a negative relationship between lagged CSR and both total and cash-based CEO pay.

2.2.1 CSR disclosure type and CEO compensation

A review of this prior literature on CSR and CEO compensation reveals that the relationship between the two is an open question. A potential explanation for the inconsistency between the results documented in these studies relates to differences in research designs and proxy choices. However, another possible cause is that the majority of the extant literature examines the construct of CSR at the *overall* level without considering the potential effects of its underlying components on compensation. One reason why the construct of CSR is challenging to study is that it is comprised of three different dimensions, specifically, environmental, social, and corporate governance. My first objective is to explore the relationship between the underlying CSR disclosure types and CEO compensation. Disaggregating CSR disclosure into different groups based on the types of CSR disclosure made and then considering each of these groups with respect to CEO compensation should yield a more nuanced analysis and understanding of the relationship between CSR and CEO compensation, as well as help guide future research in this area.

A number of theories exist to explain why a firm might engage in CSR. In addition to those already discussed (i.e., shareholder theory and stakeholder theory), management literature offers a large body of research into this area; legitimacy theory, institutional theory, and theory of the firm are some of the more commonly used. Suchman (1995) provides a review of the literature on organizational legitimacy theory to date as well as a clear definition, suggesting that firms engage in CSR in order to demonstrate their “legitimate” status as entities with respect to the norms, beliefs, cultures, and traditions of the society in which they operate. Campbell (2007) describes the institutional theory for CSR as drawing on both sociology and political science to develop a theory of CSR in which a firm’s socially responsible behavior is limited by the institutions present within its operating environment. In McWilliams and Siegel's (2001) theory of the firm, they propose that a firm should approach engaging in CSR like it would any other investment decision, incorporating the CSR demands of customers and other key stakeholders as well as the resources required to supply the CSR demands, and apply a cost-benefit analysis to determine the optimal level of CSR that results in profit maximization for the firm. All of these theories have one thing in common (other than their ultimate purpose): they all consider the construct of CSR at the overall level. Thus, in the absence of a theory that specifically considers the underlying components of CSR, I utilize an exploratory study to examine the relationship between CSR disclosure type and CEO compensation.

Of the three components of CSR, corporate governance is the most widely researched within accounting literature on its own (this literature is summarized in review articles by Bushman and Smith (2001) and Armstrong et al. (2010)). Interest in corporate governance is not merely an academic matter. In the wake of the accounting scandals at the turn of this century, governance-related regulation ensued in the US; therefore, it is not surprising to find more US firms

providing governance-related disclosures, especially in a post-Regulation FD and post-Sarbanes-Oxley period. In comparison with social-related and environmental-related CSR disclosure, corporate governance-related disclosure is more mature and established. Descriptive evidence by KPMG (2008) in their international survey of CSR reporting shows that the vast majority of their sample firms (i.e., the Global Fortune 250 and the largest 100 companies by revenue per country for 22 countries) report on corporate governance, mainly driven by the publicly-traded companies⁴, while social and environmental reporting lag behind⁵. Holder-Webb et al. (2009) perform a detailed content analysis on US firms' social and environmental disclosures, and provide evidence that community (i.e., part of the social-related component) is the most commonly disclosed CSR item with a 16.2% frequency rate; environmental disclosures, on the other hand, occur only 7.9% of the time in their sample. Other aspects of social-related CSR disclosure, such as health and safety, and diversity and human resources, are also disclosed more frequently than environmental issues, at 11.6% and 10.8%, respectively (Holder-Webb et al. 2009).

Taken together, it is evident that different disclosure patterns exist for the three underlying components of CSR. Corporate governance-related disclosures are the most common, while social-related disclosures occur less often and environmental-related disclosures are the least commonly used. Different choices about what combination of these three components to include

⁴ The report documents that 92% of the Global Fortune 250 firms include a code of conduct or ethics, and that 68% of these firms have a section specifically for corporate governance within their CSR reports. The corresponding results are much lower for the N100 firms (the top 100 firms by revenue for 22 countries), with only 64% disclosing a code of conduct or ethics, and only 42% having a separate corporate governance section in their CSR reports. A breakdown of the overall N100 results by country within the N100 sample firms is not provided.

⁵ The report focuses on two areas in particular: supply chains and climate change disclosure. It documents that although 63% of the Global Fortune 250 firms disclose some data on supply chains, this is lower than the rate reported in the previous KPMG (2005) CSR report (68%). An even lower rate of supply chain disclosure is reported for the N100 firms (38%), although the breakdown among the N100 firms shows that in the US this rate is higher (53%). As for climate change, 57% of the Global Fortune 250 report on climate change risks while the majority of N100 firms (68%) do not.

in a CSR disclosure mean that the results will be different across firms. However, if the CSR disclosure is not considered with respect to the components it contains, then the potentially differing effects of the underlying components on CEO compensation will not be detected. By examining the different combinations used of the three underlying CSR components within a disclosure, I aim to document how each different disclosure choice is associated with CEO compensation. Based on the descriptive evidence and content analysis of CSR reporting discussed above, I expect three distinct disclosure patterns to emerge.

First, with the nearly ubiquitous nature of corporate governance disclosure, I expect that all CSR firms will include corporate governance-related information, and furthermore, that some of these CSR firms will not provide any other types of CSR information. In other words, I expect that there will be a group of CSR firms that only provides corporate governance-related disclosure.

Second, based on the differences in social and environmental disclosure patterns, I expect that more firms will make social disclosures as compared to environmental disclosures. However, considering my previous expectation that all CSR disclosures will include corporate governance-related data, I expect that the second group of CSR firms will be those that provide only corporate governance-related and social-related information in the disclosure. The pervasive nature of corporate governance-related disclosures means that I cannot examine social-related disclosures in isolation, as firms provide these *in addition to* their corporate governance-related disclosures. Instead, I group the CSR firms that only provide these two types of disclosure (social and corporate governance) in order to differentiate them from the CSR firms that only provide corporate governance information.

Third, although environmental disclosures are utilized the least, I expect that when firms make these types of disclosures, they also include corporate governance-related and social-related data in their CSR disclosure. Thus, my final group of CSR firms will include those that provide all three of the underlying components of CSR within their disclosures. Similar to the rationale for the second group, the environmental-related disclosures cannot be separately examined; however, like the two before it, this final group of CSR firms represents a subset that is unique based on the type of CSR disclosure employed within the group.

Upon collectively considering these three groups, I interpret the CSR disclosure process to be an additive one, whereby firms build upon their preexisting CSR disclosure to expand it and include an additional component. Although possible, it is much less likely that a firm will stop providing a particular component of CSR disclosure after having committed to providing it in previous years. This notion of CSR disclosure functioning in an additive manner suggests that a firm begins with providing only corporate governance-related information, then expands their CSR disclosure to include social-related data, and finally extends the CSR disclosure to also include environmental-related information. This yields three distinct groups of CSR firms based on disclosure type (governance-related only, social- and governance-related, and environmental-, social- and governance-related) that can each then be tested with respect to CEO compensation.

I begin with the first group of firms that only provide corporate governance-related CSR data. Prior empirical literature has generally documented a negative relationship between corporate governance and CEO compensation (Core et al. 1999; Bebchuk and Fried 2005; Armstrong et al. 2012), which is usually interpreted as evidence of excessive managerial power over compensation in the presence of a weakly structured board of directors and/or weak external monitoring forces. If corporate-governance related CSR disclosures are consistent with better

(worse) corporate governance, then I would expect a negative (positive) association with CEO compensation in these firms. Some examples of items found within corporate governance-related CSR disclosures include explicit connections between good corporate governance and CSR, descriptions of how corporate governance-related CSR can attenuate risk, details of the firm's CSR structures, corruption policies, identifications of the people or groups within the firm who are responsible for CSR, and explanations of how the nonfinancial data is collected (KPMG 2005; KPMG 2008). These examples are illustrative of voluntary disclosure provided to highlight positive aspects of a firm's corporate governance system with respect to CSR, consistent with this type of disclosure being utilized by firms with better corporate governance structures. Thus, if firms voluntarily provide only corporate governance-related CSR disclosures, I expect that the CEO compensation will be lower for these firms, on average, as compared to firms that do not provide any CSR disclosure. This leads to the following hypothesis:

H1a: CEO compensation is lower in firms that only make corporate governance-related CSR disclosures, *ceteris paribus*, as compared to those that do not.

The second and third groups of CSR firms that include social- and environmental-related disclosures are of particular interest. Relative to corporate governance, there is much less research on these two components of CSR. In addition, the social and environmental aspects of CSR tend to be more broadly focused on stakeholders as opposed to corporate governance, which tends to have a shareholder focus. Despite not having a specific theory about the various combinations of CSR components within each disclosure group, there is still reason to believe that social- and environmental-related CSR information might be associated with CEO compensation, incremental to that of corporate governance-related information. The increased

use of CSR disclosure by US firms over the last decade⁶, coupled with the relative maturity of corporate governance-related disclosure, suggests that the increased use of social- and environmental-related disclosures are largely the drivers of the overall increase in CSR disclosure.

In addition, the social and environmental aspects of CSR are increasingly being focused on as areas with potential risks and/or opportunities for business. Recent reports show that social policies comprise the largest percentage of all shareholder proposals in 2014, and that the proportion of shareholder proposals related to social policies has been increasing over the last five to ten years⁷. Despite the increased demand by shareholders for companies to consider these types of policies, Tonello and Aguilar (2014) document that these proposals have the highest percentage of abstention and nonvotes, relative to all other types of shareholder proposals, which they conclude implies that shareholders trust that the firm's management and board of directors are best suited to handle the firm's CSR policies and practices.

From an environmental perspective, in 2010 the SEC acknowledged the growing interest by a wide array of groups, including investors, companies, regulators, scientists, academics and journalists, in a key environmental area, climate change, and responded by issuing interpretive guidance about how to apply existing disclosure requirements to climate change⁸. Four types of disclosure that might be affected by this environmental topic are explicitly mentioned in the SEC

⁶ 86% of the 100 largest US companies by revenue provide CSR reporting in 2013 (KPMG 2013), as compared with 32% in 2005 (KPMG 2005).

⁷ Copland and O'Keefe (2014) report that the most shareholder proposals in 2014 for the Fortune 250 firms are within the social policy category (48%), and that the social policy category comprised 39% of all shareholder proposals for the 2006-2014 period. Tonello and Aguilar (2014) document that shareholder proposals in 2014 for the S&P 500 and the Russell 3000 were most frequently related to social and environmental policy (43% and 38.3%, respectively), representing an increase of almost 10% in the Russell 3000 since 2010, when social and environmental policy accounted for 29.2% of all shareholder proposals.

⁸ Securities and Exchange Commission. (Feb. 2, 2010). *Commission Guidance Regarding Disclosure Related to Climate Change*, available at <http://www.sec.gov/rules/interp/2010/33-9106.pdf>; 75 Fed. Reg. at 6797.

guidance: description of business, legal proceedings, risk factors, and management's discussion and analysis (MD&A)⁹. In an analysis of 10-Ks filed by the S&P 500 for the period 2009-2013, the rate of climate change disclosures grew from 45% to 59%; however, most of these disclosures were judged to be inadequate since they were brief, did not quantify the potential risks facing the firm, and contained little in the way of discussion about material issues facing the firm (Coburn and Cook 2014). Moreover, Coburn and Cook (2014) review the SEC response to its guidance in the form of comment letters issued to companies to ensure compliance, and document that only 45 comment letters were issued on climate change in the period 2010 – 2013 (out of the more than 45,000 comment letters issued over the same four-year period). This view of the period immediately following the SEC climate change guidance highlights the contradiction between the stated importance of this environmental issue for creating business risk and/or opportunity, versus the low response from the SEC to ensure compliance with its guidance¹⁰.

Combining these potential reasons for social- and environmental- disclosures to be incrementally associated with CEO compensation within the concept of CSR disclosure as an additive process (i.e., one that moves from only corporate governance disclosure to then incorporate both corporate governance and social disclosure, and finally to incorporate all three of the underlying components of CSR), and in the absence of a formal theory of specific CSR disclosure types, I formulate the following hypotheses stated in the null:

H1b: There is no difference in CEO compensation in firms that make both social- and corporate governance-related CSR disclosures, as compared to those that only make corporate governance-related CSR disclosures, *ceteris paribus*.

⁹ Ibid.

¹⁰ Please see Appendix F for excerpts from an SEC 10-K filing and from a CDP disclosure on climate change.

H1c: There is no difference in CEO compensation in firms that make all three types of CSR disclosures, as compared to those that only make social- and corporate governance-related CSR disclosures, *ceteris paribus*.

2.3 CSR disclosure quality and CEO compensation

The second objective of this study is to explore the relationships between CSR disclosure quality and CEO compensation. The hypotheses presented in the previous section only consider the action of providing different combinations of CSR disclosure, and whether the act of making the disclosure is associated with CEO compensation. I now turn my attention to the quality of the different CSR disclosure types in order to consider whether they are associated with CEO compensation.

Most of the prior literature on disclosure quality and compensation has focused on financial disclosures. In a recent review paper, Armstrong et al. (2010) identify a newly growing area of research that focuses on the relationship between financial reporting quality and executive compensation, in particular equity incentives. An early paper in this area by Nagar et al. (2003) hypothesizes and finds evidence that firms using stock-based incentives have higher quality voluntary financial disclosures, as proxied by the frequency of management earnings forecasts. They conclude that equity incentives are an effective tool to induce the manager to voluntarily disclose his private information, thus improving the alignment of disclosure preferences with investors, lowering the disclosure agency costs by reducing information asymmetry between the manager and investors, and making the stock price more informative through this disclosure (Nagar et al. 2003). Hui and Matsunaga (2015) document that voluntary financial disclosure quality is positively associated with CEO bonuses and that it is driven by firms with better corporate governance structures, suggesting that the board of directors finds the CEO's voluntary communications to be relevant for users, representative of the CEO's efforts,

and linked to improved firm value, thereby implicitly including this performance measure in the contract.

The different frameworks identified in the extant literature to support the use of voluntary financial disclosure quality in compensation contracting can be applied to CSR disclosures as well. First, these disclosures represent the CEO's effort and the voluntary disclosure of his private information about one or more of environmental, social, and corporate governance matters. Referring again to the CSR disclosure excerpts included in Appendix C, it is notable that both companies begin their report with a letter or statement written by the CEO laying out his vision for how CSR policies and practices fit in at his company. These examples are representative of standard practice, such that the average CSR report is expected to include at the outset a message from the CEO. This sets the tone for the remainder of the disclosure and suggests that the information that follows is precisely what the CEO wanted to share with stakeholders regarding his company's CSR practices. Second, the increase in SRI to a level of \$6.57 trillion in 2014 (US SIF Foundation 2014) implies that there is a large and growing group of investors who have a strong preference for CEO information about CSR issues. These investors in particular tend to have a long horizon and seek CSR information that will help them earn a long-term return; therefore, increasing the quality of CSR disclosures should result in more aligned disclosure preferences and less information asymmetry between the CEO and investors. Third, as discussed at length in section 2.2, there are numerous ways through which CSR disclosures affect firm value, including lower cost of capital (Dhaliwal et al. 2011), improved financial reporting quality (Kim et al. 2012), and improved financial performance (Margolis et al. 2009; Orlitzky et al. 2003; Margolis and Walsh 2003). Taken together, it is likely that higher quality CSR disclosures will also be positively associated with CEO compensation.

On the other hand, certain aspects of CSR reporting in the US suggest that the quality might not be positively associated with CEO compensation. In the absence of universal CSR reporting standards, firms have numerous reporting framework options from which to choose; in addition, the content included within CSR disclosures is highly subjective. This can result in a lack of comparability and reliability, thus making it difficult for investors to utilize this information and for issuers to create meaningful reports (Park and Ravenel 2013; Park and Ravenel 2015). Relatedly, a CEO could employ any number of strategies to present the firm's CSR activities and disclosure as something other than what they actually are. For example, he might engage in "greenwashing", broadly defined as the presentation of an environmentally friendly image to cover up policies, products, or actions that are environmentally unfriendly (see Du (2015) for a summary of greenwashing definitions), a charge commonly leveled at CSR disclosures. A similar issue is the inclusion of only the positive aspects of CSR, as opposed to a balanced presentation containing both positive and negative CSR information. Holder-Webb et al. (2009) provide evidence of this tendency for positive CSR disclosure behavior in US firms.

A potential countermeasure to address these issues is external verification or assurance for a CSR disclosure. Although this is not required, choosing to have a CSR report assured is a way to enhance the credibility of the information contained in it, potentially leading to increased user reliance on the disclosure. Voluntary assurance is also associated with a less positive overall tone, as compared to CSR disclosures that are not audited or reviewed (Holder-Webb et al. 2009). However, US firms have very low rates of assurance on CSR disclosures. In their study on CSR report assurance spanning the three-year period ending in 2004, Simnett et al. (2009) use an international sample in which only 6.19% of US firms who provide CSR reports have them assured; although the US was the country with the third-highest number of CSR disclosures in

the sample, they had the lowest rate of assurance (excluding the five nations with no CSR assurance). This is a consistent trend over time, as shown in KPMG's (2011) global survey of corporate responsibility reporting, where only 13% of the 100 largest US firms by revenue obtained assurance for their CSR reports. The US was tied with Russia for the second lowest assurance rate across the 34 countries included in this report (KPMG 2011). Therefore, the relationship between CSR disclosure quality and CEO compensation is an empirical question.

Beginning the analysis of CSR disclosure quality and CEO compensation at the aggregate CSR disclosure level should provide a useful context within which to better understand the underlying relationships between the different CSR disclosure types and CEO compensation. Independently considering the quality of the three underlying components of CSR should enhance the overall analysis by identifying any associations that might exist between each of them and CEO compensation, which would otherwise go undetected. Collectively considering the relationship between CEO compensation and both overall and disaggregated CSR disclosure quality should lend itself to inferences about which, if any, of the individual components drive the overall relationship.

The analysis in the previous section of CSR disclosure type and CEO compensation is exploratory given the absence of a theory that specifically considers the disclosure of the underlying components of CSR. Thus, I follow a similar approach now to examine the relationship between the quality of CSR disclosure type and CEO compensation. This issue is not unique to nonfinancial disclosure; as Barth (2003) notes in her discussion of Nagar et al.'s (2003) paper, the authors make a series of assumptions that are not part of a formal model of financial disclosure quality and equity-based compensation, and as such, the conclusions might not be reliable. As discussed in subsection 2.2.1, the lack of specific models of the underlying

components of CSR with respect to CEO compensation will also make it difficult to formulate directional predictions about the quality of each one with respect to compensation, with the exception of corporate governance. H1a assumes that corporate governance-related CSR disclosures are made by firms with better corporate governance structure and therefore predicts that compensation is lower in these firms. Following from this and incorporating the above discussions about disclosure quality, I expect that CEO compensation will be higher in firms with higher quality corporate governance-related CSR disclosure, leading to the following hypothesis:

H2a: Corporate governance-related CSR disclosure quality is positively associated with CEO compensation, *ceteris paribus*.

The combined implications of H1a and H2a are that while firms making corporate governance-related CSR disclosures are expected to be compensated less, on average, than non-CSR disclosers, there is an expectation that improving the quality of the corporate governance-related CSR disclosure will be associated with higher compensation. I expect this will be most salient when examined within the first group of CSR disclosers, i.e., the ones that only provide corporate governance-related information, since there is no other form of CSR information that can be relied on to improve the overall CSR disclosure quality for this group.

As for the relationships between CEO compensation and the quality of the social- and environmental-related CSR disclosures, respectively, in the absence of a formal theory of either of these specific CSR disclosure types, and following from H1b and H1c, respectively, I formulate the following hypotheses stated in the null:

H2b: Social-related CSR disclosure quality is not associated with CEO compensation, *ceteris paribus*.

H2c: Environmental-related CSR disclosure quality is not associated with CEO compensation, *ceteris paribus*.

Although no directional predictions are made for the respective relationships between CEO compensation and social-related and environmental-related CSR disclosure, these two components have been researched the least and therefore have the most to offer in terms of developing a more meaningful understanding of how they relate to each other and to compensation. Considering the process of CSR disclosure in an additive manner, I expect, then that the results for H2b will be most salient among the second group of CSR disclosers, i.e., the ones that only provide corporate governance-related and social-related information. Similarly, I expect that the results for H2c will be most prominent when limited to the third group of CSR disclosers, i.e., only the firms who have provided all three types of CSR disclosure.

3. Research design

3.1 CSR disclosure type and CEO compensation

My first objective is to test whether CEO compensation differs for firms based on the type of CSR disclosure a firm makes. I begin by first documenting the overall association between CSR disclosure and CEO compensation. This should provide a useful context within which to better understand the underlying relationships between the different CSR disclosure types and CEO compensation, as well as to help situate this study within the extant literature. I use a variation of the methodology in Core et al. (1999) to estimate the following model of CEO pay for firm i in period t using ordinary least squares regression:

$$(1) \text{ CEO Compensation}_{i,t} = \alpha + \gamma_1 \text{ CSR_DV}_{i,t} + \beta_{1-6} \text{ Financial Variables}_{i,t} + \beta_{7-14} \text{ Corporate Governance Variables}_{i,t} + \varepsilon$$

All models used throughout this study include year and industry fixed effects, and heteroskedasticity-consistent standard errors clustered at the firm level. A full explanation of each variable is provided in Appendix A.

The model includes six financial variables intended to proxy for the economic determinants of CEO compensation. These variables include sales (SALES), the five-year average market-to-book ratio (MTB), return on assets (ROA), the annual stock return (RET), the five-year standard deviation of return on assets (StdDevROA), and the five-year standard deviation of the annual stock return (StdDevRET). As in Core et al. (1999), these variables represent firm size and complexity (SALES), the firm's investment opportunity set (MTB), firm performance (ROA and RET), and firm risk factors (StdDevROA and StdDevRET); they are intended to capture those firm aspects that, in the absence of agency conflict, should fully explain CEO pay.

The model also includes eight corporate governance variables representing characteristics of the board of directors' structure (CEOisChair, BoardSize, InsideDirs, OutsideRelatedDirs, Over70Dirs, and BusyDirs) and the firm's ownership structure (NonCEOInsiderStockOwn and OutsideBlock). Core et al. (1999) include a series of corporate governance variables in their model in order to test for an association between corporate governance and the level of CEO pay. They first estimate the CEO pay model using only the firm financial variables, and then they estimate it again after adding the corporate governance variables to the model. The significance of the majority of the corporate governance variables, combined with the increase in the adjusted R-squared from the first to the second model, is provided as evidence of the existence of an

association between corporate governance and CEO pay; furthermore, the signs of the significant additional variables are consistent with weak corporate governance, suggesting that there is an unresolved agency conflict (Core et al. 1999). I include these variables in my model in order to control for the firm's corporate governance structure. Although my corporate governance variables are not identical to those in Core et al. (1999), I expect that the tenor of their results (i.e., corporate governance mechanisms play a role in CEO compensation contracting over and above that of the role of the firm's fundamentals as captured by the economic determinants) will be evident in my sample as well.

The main variable of interest in Model 1 is *CSR_DV*, an indicator variable used to proxy for the firm's CSR disclosures. If the firm has provided any CSR information in a given year, then the indicator variable takes the value of one (otherwise, it is a zero). Extending the Core et al. (1999) logic, I include *CSR_DV* after controlling for both the economic determinants of CEO compensation and corporate governance to see if CSR disclosure has an incremental effect on, and therefore a role to play in, CEO compensation contracting before I separate CSR disclosure into its types.

My first set of hypotheses (H1a – H1c) examines the relationships between the three types of CSR disclosure (corporate governance-related, social-related, and environmental-related) and CEO compensation. Disaggregating the firms voluntarily disclosing CSR information into three distinct groups based on the type of CSR disclosure each group makes allows me to examine the effect that each particular disclosure type has on CEO compensation.

Beginning with firms that only provide corporate governance-related CSR information, I use the following model of CEO pay to test H1a:

$$(2) \text{ CEO Compensation}_{i,t} = \alpha + \delta_1 \text{ Gov_only_DV}_{i,t} + \delta_2 \text{ Gov_Soc_only_DV}_{i,t} \\ + \delta_3 \text{ Gov_Soc_Env_DV}_{i,t} + \beta_{1-6} \text{ Financial Variables}_{i,t} \\ + \beta_{7-14} \text{ Corporate Governance Variables}_{i,t} + \varepsilon$$

The main variable of interest in Model 2 is Gov_only_DV, an indicator variable for those firms that only disclose corporate governance-related CSR information in a given year. The other firms making CSR disclosures are represented with Gov_Soc_only_DV (firms that only make corporate governance-related and social-related CSR disclosures) and Gov_Soc_Env_DV (firms that disclose all three types of CSR information). My prediction in H1a is that $\delta_1 < 0$, consistent with CEO compensation being lower in these firms, as compared to those firms that do not provide any CSR disclosure. If a firm has voluntarily provided corporate governance-related CSR information, it suggests that this information is a signal of better corporate governance practices (as opposed to voluntarily providing information about poor corporate governance practices), and as a result, CEO compensation will be lower than a firm which does not voluntarily provide similar information.

Next, I consider the case of firms that voluntarily provide both corporate governance-related and social-related CSR information. I use the following model of CEO pay to test H1b:

$$(3) \text{ CEO Compensation}_{i,t} = \alpha + \delta_2 \text{ Gov_Soc_only_DV}_{i,t} + \delta_3 \text{ Gov_Soc_Env_DV}_{i,t} \\ + \eta_1 \text{ Non-CSR_DV}_{i,t} + \beta_{1-6} \text{ Financial Variables}_{i,t} \\ + \beta_{7-14} \text{ Corporate Governance Variables}_{i,t} + \varepsilon$$

The main variable of interest in Model 3 is Gov_Soc_only_DV, whose coefficient should capture the net effect on CEO compensation of providing both corporate governance-related and social-related CSR disclosures, as compared to firms only providing corporate governance-related CSR disclosures. This model includes Non-CSR_DV, an indicator variable representing all of the firms that have no CSR disclosures. In Model 2, this was the reference group; however, since I am interested in H1b in testing the differential effect on CEO compensation of including social-

related CSR disclosures in addition to corporate governance-related CSR disclosures, I change the reference group accordingly. Under the null hypothesis, my prediction in H1b is that $\delta_2 = 0$, consistent with CEO compensation being no different for firms that voluntarily disclose social-related and corporate governance-related CSR, as compared to those that only provide corporate governance-related CSR disclosure.

Finally, I consider the case of firms that voluntarily provide all three forms of CSR disclosure (corporate governance-related, social-related, and environmental-related). I use the following model of CEO pay to test H1c:

$$(4) \text{ CEO Compensation}_{i,t} = \alpha + \delta_1 \text{ Gov_only_DV}_{i,t} + \delta_3 \text{ Gov_Soc_Env_DV}_{i,t} \\ + \eta_1 \text{ Non-CSR_DV}_{i,t} + \beta_{1-6} \text{ Financial Variables}_{i,t} \\ + \beta_{7-14} \text{ Corporate Governance Variables}_{i,t} + \varepsilon$$

The main variable of interest in Model 4 is Gov_Soc_Env_DV, whose coefficient should capture the net effect on CEO compensation of providing all three types of CSR disclosure, as compared to firms only providing two types (corporate governance-related and social-related) of CSR disclosure. The reference group in this model is the Gov_Soc_only_DV firms. With this model, I am testing the incremental effect of including environmental-related CSR disclosures on CEO compensation. Under the null hypothesis, my prediction in H1c is that $\delta_3 = 0$, consistent with CEO compensation being no different for firms that voluntarily disclose all three forms of CSR disclosure, as compared to those that only provide corporate governance-related and social-related CSR disclosure.

In summary, each of hypotheses H1a – H1c is being primarily tested in a different model (2 – 4) with a different reference group. One advantage of this research design is that it allows me to directly test the differential effect on CEO compensation of increasing CSR disclosure to include an additional component. More specifically, I directly compare the CSR firms who only

provide corporate governance-related information to the non-CSR firms in Model 2; the CSR firms with both social- and corporate governance-related disclosure to the CSR firms with only corporate governance-related disclosure in Model 3; and the CSR firms with all three types of disclosure to those that only provide social- and corporate governance-related CSR information in Model 4.

Another advantage of this research design is that inferences can also be made about the two hypotheses not directly tested in a model, and the parameter estimates on the corresponding indicator variables can be checked for consistency. For example, Model 2 is used to test H1a; however, I can also examine the results on Gov_Soc_only_DV and Gov_Soc_ENV_DV for accuracy based on the expectations of H1b and H1c, respectively. Since the corporate governance-related CSR disclosures are hypothesized to be negatively associated with CEO compensation (H1a), and the null hypothesis of H1b predicts that social-related CSR disclosures are not associated with CEO compensation, then my prediction is that the net effect of both corporate governance-related and social-related disclosure, δ_2 , will be negative and approximately equivalent to that of δ_1 . Alternatively, a negative result on δ_2 that is a higher or lower magnitude than δ_1 , or a positive result on δ_2 , would suggest that social-related CSR disclosure is associated with CEO compensation. Similarly, since the null hypothesis of H1c predicts that environmental-related CSR disclosures are not associated with CEO compensation, my prediction is that the net effect of all three types of CSR disclosure, δ_3 , will be negative and approximately equivalent to that of δ_1 . A different result for δ_3 would suggest that environmental-related disclosures are associated with CEO compensation. The same type of analysis can be performed on Model 3 (4) to check the accuracy of the predictions for H1a and H1c (H1b).

The following two subsections provide a brief discussion of: (1) the primary dependent variable in each model, Total CEO Compensation, and (2) the CSR-related independent variables.

3.1.1 Total CEO compensation

My primary proxy for the dependent variable, Total CEO Compensation, is calculated as the change in total CEO wealth with firm *i* from year *t*-1 to year *t*. With this proxy, I incorporate all publicly available sources of a CEO's income related to his job with firm *i*. More specifically, I include the following components in my measure: salary, bonus, non-equity incentives, other compensation, and cash realized from stock option exercises, as well as the annual changes in the pension, market value of common stock holdings, fair value of the full stock options portfolio, and fair value of the full restricted stock portfolio. For a detailed description of this variable construction, as well as an example from my sample, please refer to Appendix B.

A commonly used measure of CEO compensation is the ExecuComp variable TDC1. ExecuComp defines its primary compensation variable, TDC1, as total compensation in thousands of dollars calculated using the:

“2006 reporting format, which is comprised of the following: Salary, Bonus, Non-Equity Incentive Plan Compensation, Grant-Date Fair Value of Option Awards, Grant-Date Fair Value of Stock Awards, Deferred Compensation Earnings Reported as Compensation, and Other Compensation.”

The common elements found in both Total CEO Compensation and TDC1 are salary, bonus, non-equity incentives, and other compensation. The difference between Total CEO Compensation and TDC1 lies primarily in the treatment of the equity-based compensation. Total CEO Compensation considers all of the outstanding stock options in the CEO's portfolio at the

end of years $t-1$ and t , whereas TDC1 considers only the stock options granted to the CEO in year t . The same is true of each variable's treatment of the CEO's restricted stock holdings. In addition, Total CEO Compensation incorporates three components that are not found in TDC1: the annual changes in the CEO's pension, the CEO's common stock holdings at the end of years $t-1$ and t , and the cash received from the CEO's stock option exercises in year t . Finally, TDC1 includes deferred compensation, which is not a part of Total CEO Compensation. For a comparison of Total CEO Compensation and TDC1, please see the example from my sample provided in Appendix B.

I construct this proxy based largely on the methodology described by Antle and Smith (1985), who first created a measure of total CEO compensation (which they call "current income equivalents"). The motivation for developing this measure was to better account for the implicit elements within CEO contracting that were not being captured by the explicit measures of CEO compensation commonly used in research at the time (Antle and Smith 1985). In a later study, Hall and Liebman (1998) use a similar measure, allowing them to present a more comprehensive picture of total CEO compensation, which is especially important given the large increase in stock option issuances in the 1980s and 1990s. They conclude, "that changes in CEO wealth due to stock and stock option revaluations are more than 50 times larger than wealth increases due to salary and bonus changes" (Hall and Liebman 1998). These prior studies suggest two reasons that this type of total compensation proxy is relevant in my setting.

First, the use of CSR within CEO compensation contracting as a performance measure is still an open question. While the number and type of CSR disclosures have increased in the US over the last decade, descriptive evidence indicates that the majority of CEOs are not explicitly incentivized for their company's CSR efforts. A 2012 report by Ceres, a non-profit organization

advocating for sustainability in the business world, studies 600 of the largest US firms and notes that 84% of firms do not tie executive compensation to CSR measures¹¹ (Ceres and Sustainalytics 2012). Ceres updated their analysis in a 2014 report, and although more firms are now linking executive compensation to CSR (24%), the vast majority of firms (76%) still are not¹² (Ceres and Sustainalytics 2014). Similarly, in a recent global survey on CSR, KPMG (2013) documents that among the world's largest 250 companies reporting on sustainability, 78% of these firms do not link CSR performance with compensation¹³. However, it is possible that firms are implicitly using CSR as a performance measure for CEOs and simply not disclosing that information¹⁴. For example, Armstrong et al. (2010) discuss how the board of directors will often rely on stock price as the key measure of CEO performance, while also utilizing the more varied information contained within financial reporting as a means to better understand a CEO's performance. This type of informal contracting allows the board the flexibility to consider what they feel is relevant from the vast array of available financial reporting information, and the same can be said for their consideration of a firm's CSR disclosures. Furthermore, disaggregating the CSR disclosure allows for the board to engage in a more detailed analysis of what actions have been taken with respect to any or all of the underlying components within CSR. Thus, to the extent that measuring total CEO compensation as the annual change in wealth does a better job at accounting for implicit contract elements, I

¹¹ The executive compensation analysis appears on page 16 of the report. What I refer to in this paper as CSR is called ESG in this report. The acronym ESG is commonly used when referring to CSR.

¹² The executive compensation analysis appears on page 19 of the report. What I refer to in this paper as CSR is called sustainability performance in this report. The term sustainability is commonly used when referring to CSR.

¹³ See Figure 47 on page 74 of the report for the graphic associated with CSR performance and compensation. What I refer to in this paper as CSR is called corporate responsibility, or CR, in this report. It is not uncommon to use the phrase corporate responsibility when referring to CSR.

¹⁴ Appendix D includes excerpts from two proxy statements of companies that explicitly mention CSR with respect to executive compensation contracting.

expect this proxy will improve the tests of CSR disclosure and CEO compensation.

Second, the trend of CEO pay being more heavily weighted with equity as opposed to cash has continued. Using data from 1984 through 1996, Abowd and Kaplan (1999) show that relative to 12 OECD countries, US CEOs receive more total pay than CEOs in any other country, and this is largely driven by the long-term compensation (i.e., stock options, restricted stock, performance shares), which grew from about 17% of total US CEO pay in 1984 to about 29% of total US CEO pay in 1996. Using a longer time series of CEO compensation data from 1993 through 2008 for S&P 500 firms, Core and Guay (2010) note that because equity-based incentives (i.e., performance incentives) are higher for US firms and have been increasing over time, it is important to consider the effect of these incentives on the CEO's overall wealth. They accomplish this by calculating the change in the value of the CEO's entire equity portfolio using a method similar to the one I employ for my primary proxy estimation. Prior studies have documented that CSR will impact a CEO's wealth through his equity-based compensation more than through his cash-based compensation (Mahoney and Thorne 2005; McGuire et al. 2003; Deckop et al. 2006). As such, including the CEO's entire equity portfolio in the measurement of the compensation proxy should help to better estimate its association with CSR by incorporating the incentive effect related to the CEO's equity holdings.

Many empirical studies employ TDC1 as their proxy for CEO compensation; however, its treatment of the equity portion of compensation does not completely reflect the change in the CEO's wealth from one year to the next. By only including the stock options and restricted stock awarded to a CEO in a given year, TDC1 does not fully consider the impact of the change in value of any outstanding stock options and/or restricted stock granted to the CEO in prior years but that the CEO has not yet vested in and/or exercised. As a result, the fair value of the stock

options and restricted stock will always be positive in TDC1. As for the CEO's common stock holdings, they are not considered in the TDC1 calculation. By evaluating all of the outstanding stock options, restricted stock awards, and common stock holdings in the CEO's portfolio in years t-1 and t, I present a more comprehensive picture of the CEO's exposure to equity-related risk. In this approach, I measure the change in the fair value of the total outstanding stock options, restricted stock, and common stock holdings from year t-1 to year t. As a result, it allows for the possibility that a CEO's stock options, restricted stock, and/or common stock holdings portfolio decreased in value from year t-1 to year t, even if a new grant of either/both stock options and/or restricted stock is made to the CEO in year t. Therefore, by construction, the stock options, restricted stock, and common stock holdings components of Total CEO Compensation, and by extension, Total CEO Compensation itself, are not necessarily always positive. Negative values of Total CEO Compensation represent reductions in the CEO's overall wealth from one year to the next.

3.1.2 CSR

The construct of CSR is very complex, as shown in part by the numerous definitions found for it in extant literature¹⁵; therefore, it is not surprising that many different proxies have been employed when trying to measure CSR. Arguably, the most popular proxy used in empirical CSR studies to date is from the KLD (Kinder, Lydenberg, and Domini) database¹⁶, which was one of the earliest repositories for CSR data. In 1991, KLD began by covering certain

¹⁵ There are at least 14 different definitions of CSR commonly cited, including but not limited to: Carroll (1979); Wartick and Cochran (1985); Wood (1991a); Wood (1991b); Clarkson (1995); Wood and Jones (1995); Carroll (1999); McWilliams and Siegel (2001); Post et al. (2002); Barnett (2007); Campbell (2007); Mackey et al. (2007); Benabou and Tirole (2010); and the World Business Council for Sustainable Development, <http://www.wbcsd.org/home.aspx>.

¹⁶ KLD, now part of MSCI, is called MSCI ESG Research; see <https://www.msci.com/esg-integration>.

social categories for the S&P 500, and expanded its coverage to the 3,000 largest US firms by 2003; its general approach is to assess each company using a variety of sources (not limited to firm-specific disclosure) on a series of strengths and concerns within each one of the following seven qualitative categories: community, corporate governance, diversity, employee relations, environment, human rights, and product¹⁷. Researchers tend to incorporate this data into empirical studies in three ways: generating one net overall measure for CSR based on aggregating the strengths and concerns across all seven qualitative categories; generating seven measures for CSR, calculated as the net of the aggregate strengths and concerns within each qualitative category; and generating fourteen measures for CSR, calculated as the aggregate strengths and aggregate concerns within each qualitative category. While KLD has been a rich source of CSR data, several issues have been identified with it in the literature, including its equal treatment of all strengths and concerns within each qualitative category for each firm and industry that it covers (Capelle-Blancard and Petit 2014), its use of simple zero/one indicator variables to document the absence/presence of each strength or concern (Dhaliwal et al. 2011), and the possibility that it does not map to actual CSR-related outcomes, suggesting a suboptimal use of publicly available data (Chatterji et al. 2009).

In an effort to address some of these KLD critiques, my results are based on a different CSR proxy: the ESG score from Bloomberg. Although Bloomberg only started collecting and reporting on sustainability data in 2009, it now covers over 5,000 companies globally and collects over 700 data points per company (where available) within the ESG portion of its

¹⁷ KLD Research & Analytics, Inc. (2006). *Getting Started with KLD Stats and KLD's Ratings Definitions*.

terminals¹⁸. Bloomberg utilizes these data points to calculate scores for each firm based on the extent of their ESG disclosure. Although the exact calculation of each score is proprietary, Bloomberg states that they weigh each data point in terms of relative importance and that they make additional provisions by industry when considering the relevance of the data points. As a result, the end product is a continuous number as opposed to an indicator variable, all of its underlying data points are not treated equally, and adjustments have been made to it for data relevance based on industry. Overcoming some of the earlier limitations identified in the KLD data suggests that this measure has the potential to enhance CSR-related analysis and further our understanding of CSR disclosure.

From a user perspective, E&Y notes that when Bloomberg started providing CSR data, it was “one of the biggest moments in the mainstreaming of sustainability reporting”¹⁹.

Bloomberg’s ESG data easily reaches over 300,000 users daily via its terminals, and early tracking of its usage documents over 50 million hits in the second half of 2010²⁰. This was followed by another 44 million hits from November 2010 through April 2011 – with the most hits going to the ESG disclosure score (i.e., the basis of my CSR proxy) in both the US and the global markets (Eccles et al. 2011), suggesting a serious interest on the part of analysts and investors for CSR information. Since its inception in 2009 through 2015, the number of unique users querying Bloomberg for ESG data has grown more than 600%²¹.

¹⁸Appendix E provides a list of all 758 data points that Bloomberg collects within the ESG portion of its terminals, as of February 2016. There are 276 Environmental data points, 50 Social data points, and 432 Governance data points.

¹⁹ E&Y & Boston College Center for Corporate Citizenship. (2014). *Value of Sustainability Reporting* (EYG no. FQ0061) (BSC no. 1401-1183411).

²⁰ Tullis, Paul. (2011, April). Making the Bottom Line Green. *Fast Company*, (154), 36-37.

²¹ Bloomberg L.P. (2016). Impact Report Update 2015. Per the graph shown on page 12 of this report, there were only 1,545 unique users of ESG data in 2009, and as of 2015, there are 12,078 unique users of ESG data.

Some caveats should be noted about my CSR proxy. One, although hundreds of data points are analyzed per company, it is a relatively new measure as compared with the data available from KLD. As such, my study is limited to a much shorter time-series than might otherwise be possible if a different CSR proxy were being used. Two, the Bloomberg ESG score is designed to capture CSR disclosure made by the firm; however, to the extent that a firm's CSR disclosures are not perfectly aligned with their CSR activities, then there will be a disconnect between what the measure reflects versus what the company is actually doing with respect to CSR. Depending on which way the misalignment occurs, the ESG score could be either understated (less CSR disclosure than actual CSR activity) or overstated (more CSR disclosure than actual CSR activity). In the absence of a direct measure of CSR activity, however, I use this proxy of CSR disclosure and note its potential limitation, as it is a common criticism of CSR measures provided by third parties (such as KLD ratings). Finally, although Bloomberg does not use a simple 0/1 indicator for each of the data points underlying the ESG score, the proprietary nature of how exactly the score is calculated from these underlying data points suggests that this proxy is a "black box" itself.

3.2 CSR disclosure quality and CEO compensation

3.2.1 Total sample analysis

My second objective is to examine the relationship between CSR disclosure quality and CEO compensation. As in the previous set of tests, I start by first documenting the association between overall CSR disclosure quality and CEO compensation in the total sample using the following modified model of CEO pay:

$$(5) \text{ CEO Compensation}_{i,t} = \alpha + \gamma_1 \text{ CSR_Score_1}_{i,t} + \eta_1 \text{ Non-CSR_DV}_{i,t} + \beta_{1-6} \text{ Financial Variables}_{i,t} + \beta_{7-14} \text{ Corporate Governance Variables}_{i,t} + \varepsilon$$

The variable of interest here is `CSR_Score_1`, which is a continuous number on a scale ranging from 0 to 100 that measures the amount of CSR disclosure a firm makes in a given year. Although the exact methodologies used by Bloomberg to calculate all of its CSR scores are proprietary, it considers the firm's industry when assessing the relevance of each data point (disclosed or not). The firm's overall CSR score is known as the `ESG_Score` in Bloomberg, and as such, higher `ESG_Scores` should represent firms with more relevant, and therefore higher quality, overall CSR disclosures. In order to test this relationship using the total sample, I have to replace the missing `ESG_Scores` for the non-CSR firms (who do not have any CSR data in Bloomberg). Thus, `CSR_Score_1` is equal to the `ESG_Score` for those firms with CSR data in Bloomberg, and is equal to 0 for those firms without CSR data in Bloomberg. In addition, I control for the non-CSR firms by including `Non-CSR_DV` in the model. This technique is consistent with the treatment that Koh and Reeb (2015) suggest researchers apply when using R&D data as a way to deal with large quantities of missing or non-reported values when R&D matters in a study. Although CSR disclosure is inherently different than R&D, in my setting this treatment implicitly assumes that non-CSR firms have little to no CSR information to disclose; therefore, assigning a 0 to these firms represents the lowest-quality score they would have received had they disclosed little to nothing with respect to CSR.

After looking at the overall CSR score, I then examine which, if any, of the underlying scores for CSR disclosures that are corporate governance-related, social-related, and environmental-related are associated with CEO compensation, as in H2a – H2c. Beginning with H2a, I test the relationship between corporate-governance related CSR disclosure quality and CEO compensation in the total sample using the following model:

$$(6) \text{ CEO Compensation}_{i,t} = \alpha + \delta_1 \text{ GOV_Score_1}_{i,t} + \eta_1 \text{ Non-CSR_DV}_{i,t} + \beta_{1-6} \text{ Financial}$$

$$\text{Variables}_{i,t} + \beta_{7-14} \text{Corporate Governance Variables}_{i,t} + \varepsilon$$

The variable of interest here is GOV_Score_1, which is a continuous number on a scale ranging from 0 to 100 that measures the amount of corporate-governance related CSR disclosure a firm makes in a given year. The firm's corporate governance-related CSR score is known as the GOV_Score in Bloomberg, and as such, higher GOV_Scores should represent firms with more relevant, and therefore higher quality, corporate governance-related CSR disclosures. In order to test this relationship using the total sample, I have to replace the missing GOV_Scores for the non-CSR firms (who do not have any CSR data in Bloomberg). Thus, GOV_Score_1 is equal to the GOV_Score for those firms with CSR data in Bloomberg, and is equal to 0 for those firms without CSR data in Bloomberg. In addition, I control for the non-CSR firms by including Non-CSR_DV in the model. Consistent with H2a, I predict that $\delta_1 > 0$, suggesting a positive association between corporate governance-related CSR disclosure quality and CEO compensation.

I then test the relationship between social-related CSR disclosure quality and CEO compensation in the total sample using the following model:

$$(7) \text{ CEO Compensation}_{i,t} = \alpha + \delta_1 \text{ GOV_Score_1}_{i,t} + \delta_2 \text{ SOC_Score_1}_{i,t} \\ + \eta_1 \text{ Non-CSR_DV}_{i,t} + \beta_{1-6} \text{ Financial Variables}_{i,t} \\ + \beta_{7-14} \text{ Corporate Governance Variables}_{i,t} + \varepsilon$$

The variable of interest here is SOC_Score_1, which is a continuous number on a scale ranging from 0 to 100 that measures the amount of social-related CSR disclosure a firm makes in a given year. The firm's social-related CSR score is known as the SOC_Score in Bloomberg, and as such, higher SOC_Scores should represent firms with more relevant, and therefore higher quality, social-related CSR disclosures. In order to test this relationship using the total sample, I have to replace the missing SOC_Scores for the firms without social-related CSR data in

Bloomberg. Thus, SOC_Score_1 is equal to the SOC_Score for those firms with social-related CSR data in Bloomberg, and is equal to 0 for those firms without social-related CSR data in Bloomberg. In addition, I control for the non-CSR firms by including Non-CSR_DV in the model. Consistent with H2b, in which I expect that the quality of social-related CSR disclosures is not associated with CEO compensation, I predict that $\delta_2 = 0$.

Finally, I test the relationship between environmental-related CSR disclosure quality and CEO compensation in the total sample using the following model:

$$(8) \text{ CEO Compensation}_{i,t} = \alpha + \delta_1 \text{ GOV_Score_1}_{i,t} + \delta_2 \text{ SOC_Score_1}_{i,t} + \delta_3 \text{ ENV_Score_1}_{i,t} + \eta_1 \text{ Non-CSR_DV}_{i,t} + \beta_{1-6} \text{ Financial Variables}_{i,t} + \beta_{7-14} \text{ Corporate Governance Variables}_{i,t} + \varepsilon$$

The variable of interest here is ENV_Score_1, which is a continuous number on a scale ranging from 0 to 100 that measures the amount of environmental-related CSR disclosure a firm makes in a given year. The firm's environmental-related CSR score is known as the ENV_Score in Bloomberg, and as such, higher ENV_Scores should represent firms with more relevant, and therefore higher quality, environmental-related CSR disclosures. In order to test this relationship using the total sample, I have to replace the missing ENV_Scores for the firms without environmental-related CSR data in Bloomberg. Thus, ENV_Score_1 is equal to the ENV_Score for those firms with environmental-related CSR data in Bloomberg, and is equal to 0 for those firms without environmental-related CSR data in Bloomberg. In addition, I control for the non-CSR firms by including Non-CSR_DV in the model. Consistent with H2c, in which I expect that the quality of environmental-related CSR disclosures is not associated with CEO compensation, I predict that $\delta_3 = 0$.

3.2.2 CSR subsample analysis

In this final part of my research design, I present a modified version of the models used in the previous subsection in order to test the relationships between CSR disclosure quality and CEO compensation within four distinct CSR subsamples. This is important because CSR disclosure is voluntary; therefore, the group of firms within which I expect the quality of the CSR disclosures to matter the most is among the firms actually making the CSR disclosures. From a research design perspective, this means removing the non-CSR firms from the sample and running the revised models on a series of subsamples that only include the firms making CSR disclosures. In the previous subsection where a total sample analysis is performed, the firms without the disclosures in each model have their missing CSR quality scores replaced with a zero. While it is not unreasonable to assume that a non-CSR discloser (of any type) is one that has no information to disclose, thereby earning a quality score of zero, it is also possible that non-disclosers have CSR information and either do not want to report it or do not have the capacity to do so. One potential consequence of using this approach is that in cases where there are a large number of non-CSR disclosers (of any type), the resulting distribution of the independent variable could end up with a large number of zero scores in it and thus be negatively skewed, potentially weakening the power of the tests.

By repeating each of the analyses from the previous subsection again within a specific CSR subsample and using a modified model, I expect to strengthen the tests of the association between CSR disclosure quality and CEO compensation. First, I reexamine the relationship between overall CSR disclosure quality and CEO compensation using just firms that have CSR data (of any disclosure type) and the following model:

$$(9) \text{ CEO Compensation}_{i,t} = \alpha + \gamma_1 \text{ CSR_Score}_{i,t} + \beta_{1-6} \text{ Financial Variables}_{i,t} + \beta_{7-14} \text{ Corporate Governance Variables}_{i,t} + \varepsilon$$

The variable of interest here is CSR_Score, which is simply the unmodified ESG_Score from Bloomberg, and since I am only using firms with CSR data in Bloomberg, there is no need to control for the non-CSR firms in this model.

I then repeat the testing for my second set of hypotheses (H2a – H2c). Beginning with H2a, I test the relationship between corporate-governance related CSR disclosure quality and CEO compensation in a subsample of firms that only have corporate governance-related CSR data in Bloomberg using the following model:

$$(10) \text{ CEO Compensation}_{i,t} = \alpha + \delta_1 \text{ GOV_Score}_{i,t} + \beta_{1-6} \text{ Financial Variables}_{i,t} + \beta_{7-14} \text{ Corporate Governance Variables}_{i,t} + \varepsilon$$

The variable of interest here is GOV_Score, which is the firm's corporate governance-related CSR score from Bloomberg.

Then I examine the relationship between social-related CSR disclosure quality and CEO compensation in H2b for a subsample of firms that have both corporate governance-related and social-related CSR Bloomberg data in the following model:

$$(11) \text{ CEO Compensation}_{i,t} = \alpha + \delta_1 \text{ GOV_Score}_{i,t} + \delta_2 \text{ SOC_Score}_{i,t} + \beta_{1-6} \text{ Financial Variables}_{i,t} + \beta_{7-14} \text{ Corporate Governance Variables}_{i,t} + \varepsilon$$

The variable of interest here is SOC_Score, which is the firm's social-related CSR score from Bloomberg.

Finally, I test the relationship between environmental-related CSR disclosure quality and CEO compensation in H2c for a subsample of firms that have all three types of CSR data in Bloomberg using the following model:

$$(12) \text{ CEO Compensation}_{i,t} = \alpha + \delta_1 \text{ GOV_Score}_{i,t} + \delta_2 \text{ SOC_Score}_{i,t} + \delta_3 \text{ ENV_Score}_{i,t} + \beta_{1-6} \text{ Financial Variables}_{i,t} + \beta_{7-14} \text{ Corporate Governance Variables}_{i,t} + \varepsilon$$

The variable of interest here is ENV_Score, which is the firm's environmental-related CSR score from Bloomberg.

In summary, although I don't expect the predicted results from H2a – H2c to differ in these CSR subsample analyses, the purpose of including them is to test the predictions in more powerful settings limited to just the voluntary CSR disclosing firms.

4. Sample and descriptive statistics

4.1 Sample selection

The sample is constructed of publicly-traded US firms using data from four sources. First I utilize Compustat and CRSP to obtain the necessary financial and stock variables. My third data source is MSCI, which I use for the board of director and ownership structure variables. Then I obtain the CEO compensation data from ExecuComp. Finally, I delete all observations in industries with fewer than ten observations per industry, where industry is defined as the two-digit SIC code. There are 9,306 observations remaining and this represents the total sample, as detailed in Table 1.

[Insert Table 1 about here]

I then obtain the CSR information from Bloomberg. Given that CSR disclosure is voluntary for US firms, not all of the observations in the total sample will have the Bloomberg data. I refer to those sample observations with (without) CSR data collectively as the (non-)CSR sample. The total sample consists of 6,984 CSR firm-years and 2,322 non-CSR firm-years from 2007 to 2014. The sample period begins in 2007 for three reasons: one, CSR data is not widely

available prior to 2006²²; two, the primary dependent variable, Total CEO Compensation, requires a detailed breakdown of the CEO's stock options and restricted stock grants, which is not available prior to 2006; and three, Total CEO Compensation is calculated using the annual change in fair value of the equity portions of the CEO's wealth, requiring two consecutive years' worth of this data.

Table 2, Panel A, provides the distribution of the CSR, non-CSR and total samples by year. The CSR sample has the fewest observations in 2007 (452), and increases over time to the most observations in 2014 (1,106). The opposite pattern is seen in the non-CSR sample, which starts with the most observations in 2007 (573) and decreases over time to end with the fewest observations in 2014 (85). Table 2, Panel B, provides a distribution of the CSR, non-CSR and total samples by industry, where industry is defined as the two-digit SIC code. As prior literature shows, certain industries are more likely to engage in CSR than others, making industry-related differences particularly important with respect to CSR (Simnett et al. 2009); therefore, I include industry fixed-effects in all regression models to control for these baseline differences. Panel B shows that the total sample composition by industry is roughly similar across the CSR and non-CSR samples, that there is great variation in the number of industries represented (60 in total), and that there is little evidence of industry concentration, with no one industry representing 12% or more of any sample. The three most represented industries are Business Services (73), Electronic and other Electrical Equipment and Components (36), and Chemicals and Allied Products (28).

²² Based on the Bloomberg data for actively traded US equities as of February 2016, prior to 2006 there are a total of 91 CSR firm-years available, with the following breakdown: 1 in 2002; 2 in 2003; 6 in 2004; and 82 in 2005. There were only 170 CSR firm-years in 2006.

[Insert Table 2 about here]

4.2 Descriptive statistics

Table 3, Panel A presents the full set of descriptive statistics for the total sample. The average (median) total CEO compensation is \$12.1 (\$5.4) million across all observations. My measure of total CEO compensation ranges from a negative \$117 million to a positive \$237 million. Calculating CEO compensation as the change in wealth, notably by using the change in the fair value of the CEO's equity holdings from one year to the next, is what drives both the existence of negative compensation as well as the large variations in compensation. In comparison, the average (median) TDC1 amount is \$5.5 (\$3.9) million, and ranges from \$344 thousand to \$29 million. In the total sample, firms are generally large and profitable, with average (median) sales of \$6.4 (\$1.2) billion, an average (median) ROA of 10.2% (9.1%), and an average (median) annual return of 13.1% (10.3%) over the sample period. Regarding the corporate governance variables, about 53% of the total sample, on average, retains the CEO as the chairman of the board of directors. The average firm's board has more than 9 members, of which approximately 16% are insiders, 10% are related outsiders, 12% are over the age of 70, and 1% sit on more than four corporate boards. Finally, about 35% of the total sample, on average, has a non-CEO insider with a substantial equity holding, while the vast majority (94%) has an outside blockholder.

Table 3, Panel B provides the mean and median of all dependent and independent variables for each of the CSR and non-CSR samples, as well as univariate tests of the difference in means and medians across the two subsamples. With the exception of two variables, CEOisChair and BusyDirs, each of the means and medians presented is significantly different

between the two subsamples. This panel presents univariate evidence that the average (median) Total CEO Compensation of \$14.3 (\$6.6) million in the CSR sample is significantly higher, as compared to that of the Non-CSR sample, \$5.4 (\$2.4) million. The CSR sample, on average, also has more sales, a larger five-year average MTB ratio, ROA, and annual stock return, and a lower five-year standard deviation of both ROA and stock return, as compared with non-CSR firms. This suggests that the average CSR firm is a financially stronger firm with less firm risk, as compared to the average non-CSR firm. When comparing the two samples on their corporate governance characteristics, the board of directors, on average, is larger in CSR firms, has a greater percentage of outside related directors and directors over the age over 70, and is less likely to have a non-CEO insider with a significant equity holding and an outside blockholder, as compared to the average non-CSR firm. On the other hand, the average CSR firm has fewer inside directors, as compared with the average non-CSR firm.

[Insert Table 3 about here]

Table 4, Panel A presents the annual breakdown of the CSR sample by type of CSR disclosure. The CSR sample is now disaggregated into three groups based upon the types of CSR disclosure a firm has made. The G only group has only made corporate governance-related disclosures, the S & G only group has only made social-related and corporate governance-related disclosures, and the E, S, & G group has made environmental-related, social-related and corporate governance-related disclosures²³. Looking at the time-series trends shows that the G only and the E, S, & G groups have had the largest increases over the sample period, while the S

²³ Upon disaggregating the CSR sample by CSR disclosure type, several anomalies were observed. There were 7 observations with only social disclosures and 2 observations with only environmental and governance disclosures. Since these likely represent noise in the data, the 7 social only disclosures have been grouped with the S & G only group, and the 2 environmental and governance only disclosures have been grouped with the E, S, & G group. Removing these observations does not qualitatively change any of the reported results.

& G only group has not increased as much. Also, while the frequency of CSR reporting has increased over time, the only disclosure group to monotonically increase over the sample period is the E, S, & G group.

The CSR-related descriptive statistics are shown in Table 4, Panel B. Approximately 75% of the total sample has some kind of CSR disclosure, and the breakdown by CSR disclosure types, on average, is 24.2% with only corporate governance-related disclosures (G only group), 20.5% with both social-related and corporate-governance related disclosures (S & G only group), and 30.3% with all three types of CSR disclosure (E, S & G group). Among just the CSR sample firms, the average (median) CSR_Score is 19.69 (14.05), ENV_Score is 20.77 (14.73), SOC_Score is 18.52 (14.04), and GOV_Score is 52.41 (51.79), all of which are out of a maximum possible 100 points. In comparison, when the missing scores are replaced with zero values as described in subsection 3.2.1 to test CSR disclosure quality and CEO compensation for the total sample, the average (median) CSR_Score_1 is 14.75 (12.81), ENV_Score_1 is 6.25 (0), SOC_Score_1 is 9.37 (3.13), and GOV_Score_1 is 39.25 (48.21).

As Panel B shows, among CSR sample firms GOV_Score is the most common of the three disclosure types, with nearly all CSR sample firms providing governance disclosures, while social and environmental scores are less frequent. This is consistent with a firm's governance-related disclosures being more established than its social-related and environmental-related CSR disclosures. This also suggests that when the missing values are replaced with zeros, it will have the greatest (least) effect on the distribution of the environmental-related (corporate governance-related) disclosure scores, as evidenced by the differences in means and medians for ENV_Score (GOV_Score) and ENV_Score_1 (GOV_Score_1). In addition to frequency, the relative maturity of the governance disclosures as compared to both the social and the environmental disclosures

is evident from the scores, where the average and median values for GOV_Score are much higher than those for both SOC_Score and ENV_Score, suggesting these disclosures are of a higher quality than the social-related and environmental-related CSR disclosures.

[Insert Table 4 about here]

Table 5 shows the Spearman (Pearson) correlation coefficients above (below) the diagonal line. All correlations in bold are significant at the 1% or better ($p < 0.01$) level. Further univariate evidence is provided in this table for the positive association between CSR and Total CEO Compensation. In addition, there is univariate support for a negative association between GOV_only_DV and Total CEO Compensation (H1a), no significant association between GOV_SOC_only_DV and Total CEO Compensation (H1b), and a positive association between GOV_SOC_ENV_DV and Total CEO Compensation (H1c). The correlation table also shows positive univariate associations between each of the CSR disclosure quality scores and Total CEO Compensation (H2a – H2c).

The univariate correlations between CSR and each of the economic determinants is consistent with Table 3, Panel B, in that there are significant positive associations between CSR and SALES, MTB, ROA, and RET, and significant negative associations between CSR and StdDevROA and StdDevRET. Similarly, the univariate correlations between CSR and each of the corporate governance variables in Table 5 is generally consistent with Table 3, Panel B. A significantly positive (negative) correlation is shown between CSR and each of BoardSize, OutsideRelatedDirs, and Over70Dirs (InsideDirs, NonCEOInsiderStockOwn and OutsideBlock).

[Insert Table 5 about here]

5. Results

5.1 CSR disclosure type and CEO compensation

The empirical results of the tests for H1a – H1c are shown in Table 6. Parameter estimates and t-statistics are shown for the main variables in Models 1 through 4 (the year and industry coefficients are suppressed). Starting with Model 1 in column (1), the parameter estimate on the main variable of interest, CSR_DV, is -370.44 and it is insignificant (t-statistic of -0.43). In the multivariate setting, this suggests that once the firm financial variables and corporate governance characteristics are controlled for, there is no difference in CEO compensation, on average, for a firm that makes CSR disclosures and one that does not. However, the purpose of this model is to provide some context within which to better understand the underlying types of CSR disclosure and how each of them might be associated with CEO compensation.

[Insert Table 6 about here]

Turning to Model 2 in column (2), CSR_DV is replaced with three indicator variables representing the three different types of CSR disclosure groups possible in the sample. The parameter estimate on my main variable of interest in H1a, GOV_only_DV, is -3,037.97 and it is significant at the 1% level (t-statistic of -2.84). Firms that only make corporate governance-related CSR disclosures have lower CEO compensation, on average, as compared to firms that do not make any CSR disclosures, consistent with the prediction for H1a.

Furthermore, although H1b and H1c are not directly tested in Model 2, inferences can be made about these hypotheses by analyzing the coefficients on GOV_SOC_only_DV and GOV_SOC_ENV_DV. First, the coefficient on GOV_SOC_only_DV is -332.19 (t-statistic of -0.26) and insignificant, which is in contrast to the null expectation in H1b that social-related

CSR disclosures are not associated with CEO compensation. If that were the case, then I would expect to see a significantly negative coefficient on GOV_SOC_only_DV that is approximately equivalent to that of GOV_only_DV. Similarly, the coefficient on GOV_SOC_ENV_DV is 3,072.51 (t-statistic of 2.60) and significant at the 1% level, which is inconsistent with the null prediction in H1c that environmental-related CSR disclosures are not associated with CEO compensation.

Each of these inferences will be directly tested in Models 3 and 4, but it is worthwhile to note that, relative to firms making no CSR disclosures, CEO compensation differs, on average, depending on the type of CSR disclosure a firm makes. The results in Model 2 taken together suggest that, relative to non-CSR firms, CEO compensation is lower in firms making only corporate governance-related CSR disclosures, about the same in firms making both corporate governance-related and social-related CSR disclosures, and higher in firms making all three types of CSR disclosures. Given that the results in Model 1 suggest there is no difference in CEO compensation between CSR and non-CSR firms, by disaggregating the CSR firms into groups based on their disclosure type, Model 2 provides a more nuanced and informative analysis of the relationships between CEO compensation and type of CSR disclosure, and documents the different ways that CSR disclosure type is associated with CEO compensation.

The results of Model 3 are shown in column (3). The variable of interest here is GOV_SOC_only_DV, which has a parameter estimate of 2,705.78 (t-statistic of 1.86) and is significant at the 10% level. By changing the reference group in this model to those firms only providing corporate governance-related CSR disclosure, I am able to test the differential effect on CEO compensation of a firm that also makes social-related CSR disclosure. As hypothesized in H1b, if providing social-related CSR disclosures in addition to that of corporate governance-

related disclosures has no incremental effect, then the coefficient estimate in this model should be insignificant. However, the significantly positive result on GOV_SOC_only_DV is evidence that the null hypothesis in H1b can be rejected as social-related CSR disclosures are positively associated with CEO compensation.

Both of the other two CSR indicator variables in Model 3 also have results consistent with those in Model 2. First, the coefficient on GOV_SOC_ENV_DV is 6,110.48 (t-statistic of 4.68), suggesting that CEO compensation is higher in these firms, relative to firms only providing governance-related CSR disclosures. As for the differential effect of including environmental-related CSR disclosures, in addition to social-related and corporate governance-related, the increased magnitude and significance of this coefficient (as compared to that of GOV_SOC_only_DV) suggests that there is also an association between environmental-related disclosures and CEO compensation, which will be directly tested in Model 4. Second, the non-CSR firms have a significantly positive coefficient of 3,037.97 (t-statistic of 2.84), which is consistent with the inverse of the Model 2 results on GOV_only_DV.

The results of Model 4 are shown in column (4). The variable of interest here is GOV_SOC_ENV_DV, which has a parameter estimate of 3,404.70 (t-statistic of 2.31) and is significant at the 5% level. By changing the reference group in this model to those firms only providing corporate governance-related and social-related CSR disclosure, I am able to test the differential effect on CEO compensation of a firm that also makes environmental-related CSR disclosure. As hypothesized in H1c, if providing environmental-related CSR disclosures in addition to that of corporate governance-related and social-related disclosures has no incremental effect, then the coefficient estimate in this model should be insignificant. However, the significantly positive result on GOV_SOC_ENV_DV is evidence that the null hypothesis in H1c

can be rejected as environmental-related CSR disclosures are positively associated with CEO compensation.

Finally, both of the other two CSR indicator variables in Model 4 also have results consistent with those in Models 2 and 3. First, the coefficient on GOV_only_DV is -2,705.78 (t-statistic of -1.86), consistent with governance only firms having lower CEO compensation than firms with both governance and social CSR disclosure. As expected, this coefficient is the inverse of the Model 3 result on GOV_SOC_only_DV. Second, the non-CSR firms have an insignificantly positive coefficient of 332.19 (t-statistic of 0.26), which is consistent with the inverse of the Model 2 results on GOV_SOC_only_DV.

Collectively considering the results in Models 1 – 4 yields the following inferences. One, although no evidence is provided of CEO compensation being different for CSR firms (as a whole) and non-CSR firms, disaggregating CSR firms by their disclosure types produces significantly different results. Two, as compared to non-CSR firms, those firms only providing corporate governance-related CSR disclosures have lower average CEO compensation, *ceteris paribus*. Three, compared to those CSR firms only providing corporate governance-related disclosure, the ones who also provide social-related CSR disclosure have higher average CEO compensation, *ceteris paribus*; however, on average there is no difference between the CEO compensation of a non-CSR firm and of a CSR firm providing both corporate governance-related and social-related disclosure. Fourth, firms that provide all three types of CSR-related disclosure have higher CEO compensation, on average, than any other firms (non-CSR, corporate governance CSR disclosures only, and both corporate governance and social CSR disclosures). It suggests that when considering the relationship of CEO compensation contracting and CSR

disclosures, it is not sufficient to simply separate the voluntary CSR disclosers from the non-CSR disclosers; rather, it is necessary to consider the type of CSR disclosure being made.

5.2 CSR disclosure quality and CEO compensation

5.2.1 Total sample analysis

The empirical results of the tests for H2a – H2c are shown in Table 7. Panel A presents the total sample analysis, with parameter estimates and *t*-statistics shown for the main variables in Models 5 through 8 (the year and industry coefficients are suppressed). Starting with Model 5 in column (1), the parameter estimate on the main variable of interest, CSR_Score_1, is 176.48 and is significant at the 1% level (*t*-statistic of 3.32). In addition, the Non-CSR_DV coefficient is 3,231.19 and it is significant at the 1% level (*t*-statistic of 2.60). Taken together, it suggests that non-CSR firms, on average, have higher CEO compensation; however, there is a positive relationship between a firm's overall CSR disclosure score and CEO compensation. One inference drawn from this result is that although CSR firms, on average, have lower CEO compensation, one way to offset that is by improving the quality of the firm's overall CSR disclosure. To provide some context, the economic significance of the reported parameter estimate is approximately \$2.4 million, assuming a one standard deviation change in the firm's overall CSR score.

Column (2) shows the results for Model 6, in which the overall CSR disclosure score variable is replaced with the corporate governance-related CSR disclosure score variable. The parameter estimate on the main variable of interest in H2a, GOV_Score_1, is 279.97 and it is significant at the 1% level (*t*-statistic of 2.62). Consistent with the prediction in H2a, if a firm that discloses corporate governance-related CSR disclosure improves the quality of that

disclosure, then there is a positive association with CEO compensation. If we assume the firm increases its governance score by one standard deviation, then the economic significance of the coefficient on GOV_Score_1 is about \$6.5 million in CEO compensation. This is taken as evidence that the quality of corporate governance-related CSR disclosures is positively associated with CEO compensation in the total sample. It is important to note, however, that this result does not differentiate between the different types of CSR disclosures that firms make; thus, the average effect documented in Model 6 applies to all CSR firms with governance disclosures. This full sample analysis will be followed by a subsample analysis that examines more closely the differences in CSR disclosure quality across different types of CSR disclosures.

Model 7 is expanded to include both the corporate governance-related and the social-related CSR disclosure score variables. The results are presented in column (3). My focus in H2b is the quality of the social-related CSR disclosure. As such, the parameter estimate on the main variable of interest, SOC_Score_1, is 95.85 and it is significant at the 5% level (t-statistic of 2.22). The prediction in H2b is that social-related CSR disclosure quality is not associated with CEO compensation, following from the earlier prediction in H1b that social-related CSR disclosures are not associated with CEO compensation; however, this total sample evidence suggests that hypothesis H2b should be rejected. Similar to Model 6, this result in Model 7 applies to all CSR firms with social-related disclosures, and does not separate the CSR firms by type of disclosure (e.g., governance and social only versus environmental, governance and social). The next subsection will provide a subsample analysis to address this issue.

Finally, Model 8, shown in column (4), includes all three of the individual CSR disclosure score variables. The main variable of interest in H2c is the environmental-related CSR disclosure quality, which has an insignificant coefficient of 54.49 (t-statistic of 0.65). As a result,

the total sample evidence suggests that H2c, which predicts that environmental-related CSR disclosure quality is not associated with CEO compensation, cannot be rejected. Unlike the prior two models, since there is only one group of CSR disclosers that provide environmental data, this particular model does not have the same issue regarding the inference of this parameter. However, given that in the total sample (9,306 firm-years) there are only 2,823 firms that provide environmental CSR data (see Table 4, Panel B), by construction this variable includes 6,483 zero values (70% of the observations), potentially weakening the power of this test. This will be addressed in the next subsection with a subsample analysis.

[Insert Table 7 about here]

5.2.2 CSR subsample analysis

As discussed in the previous subsection, I now test the relationships between CSR disclosure quality and CEO compensation again within four distinct CSR subsamples. By focusing only on firms that provide CSR disclosure (of any type), I can now analyze whether the relationship between CEO compensation and CSR disclosure quality differs based on the type of CSR disclosures a firm makes (i.e., only corporate governance, corporate governance and social, or corporate governance, social and environmental). In addition, these subsamples represent the firms for which I expect the relationship between CSR disclosure quality and CEO compensation to be the most relevant. By removing the non-CSR firms from these subsamples, it also allows for a more accurate representation of the underlying CSR score variable distributions.

The empirical results of the tests for H2a – H2c are repeated using four CSR subsamples in Table 7, Panel B. Parameter estimates and t-statistics are shown for the main variables in Models 9 through 12 (the year and industry coefficients are suppressed). Beginning with Model

9, the CSR subsample analysis corroborates the total sample analysis with respect to the relationship between overall CSR disclosure quality and CEO compensation. The parameter estimate on CSR_Score is 164.62 and is significant at the 1% level (t-statistic of 2.93), suggesting that among CSR disclosers (of all types), improving the overall CSR disclosure quality is associated with higher CEO compensation.

To see which of the underlying CSR disclosure types is driving this result, I first test H2a using Model 10 and a subsample composed of firms that only provide corporate governance-related CSR disclosures. As the GOV_Score coefficient shows (-181.29, t-statistic of -0.51), there is no significant relationship between the quality of the corporate governance-related CSR disclosure and CEO compensation for this particular subsample. Although this is inconsistent with the H2a prediction and the total sample analysis results in Model 6, this evidence is compelling given the expectation that limiting the subsample to these firms should provide strong evidence of the relationship between disclosure quality and compensation. It also suggests that the results in Model 6 are possibly being driven by the corporate governance-related disclosures made by firms providing more than just this one type of CSR disclosure.

I then test H2b again using Model 11 and a subsample consisting of firms that provide both corporate governance-related and social-related CSR disclosures. As this analysis shows, the parameter estimate on SOC_Score is a statistically insignificant 273.97 (t-statistic of 1.29). It is also worth noting that the coefficient on GOV_Score in this subsample is a statistically insignificant 268.84 (t-statistic of 1.61). This suggests that the quality of neither of these two types of CSR disclosure is associated with CEO compensation for this subsample of firms. Although I hypothesize in H2b that social-related CSR disclosure quality is not associated with CEO compensation, for which Model 11 provides support, it is possible that the reduction in

sample size, while expected to strengthen the hypothesis testing by focusing on firms for which the relationship should matter the most, has also reduced the power of the tests. A comparison of the time trend of this disclosure group (corporate governance-related and social-related) to that of the governance only and governance, social and environmental disclosure groups (see Table 4, Panel A) shows that this group in particular had the flattest disclosure trend over the sample period, with the least amount of frequency change. Thus, while the parameter estimates have signs consistent with what one might expect about the relationship between disclosure quality and CEO compensation, the subsample composition has potentially weakened the results.

An alternative explanation is that for this particular combination of CSR disclosures, there is no association between the disclosure quality and CEO compensation because the act of providing these two types of CSR disclosure is sufficient to yield higher CEO compensation and improving the quality of the disclosures will have no further effect. The earlier evidence documented in support of H1a and rejecting H1b suggested that firms in this particular subsample have higher CEO compensation than firms disclosing only corporate governance CSR information, and roughly the same CEO compensation as firms not making any CSR disclosures. It is possible, then, that this particular CSR disclosure strategy is employed by firms, on average, that want to present some more CSR information than just corporate governance but that do not invest resources to substantially improve or enhance the quality of that disclosure over time. This would also help explain why CEO compensation is roughly equivalent between firms that make both corporate governance-related and social-related disclosures and firms that make no CSR disclosures. Further research can explore which of these alternative explanations holds.

Finally, in column (4) I present the test of H2c using Model 12 and a subsample of firms that provide all three types of CSR disclosure. In this model, each of the individual CSR

disclosure scores are employed. The primary variable of interest is ENV_Score, which has a parameter estimate of 156.44 (t-statistic of 1.99) and is significant at the 5% level. Additionally, the results on both GOV_Score and SOC_Score are statistically insignificant in this subsample. The evidence of the positive association between CEO compensation and the environmental-related CSR disclosure quality provided in this column is inconsistent with the predicted null relationship in H2c, and suggests that this hypothesis be rejected. It is also inconsistent with the total sample analysis in Panel A; however, as noted previously, it is likely that the earlier results in the full sample are affected by the large amount of environmental CSR scores that have values of zero. Thus, I conclude that for firms providing all three types of CSR disclosure, improving the quality of the environmental disclosure in particular is associated with higher CEO compensation. Also, considering the combined results across Models 9 through 12, it suggests that the environmental-related CSR disclosure quality result in column (4) is what drives the overall CSR quality result in column (1).

5.3 Additional Analysis

As an additional analysis, I repeat all of the tests from Tables 6 and 7 again using TDC1 as the dependent variable. Although I believe the more comprehensive measure of CEO compensation that I employ in my main analyses is appropriate in this setting, I want to test these hypotheses using a different dependent variable. This should serve to better facilitate comparison with other compensation studies in this area that have more commonly used ExecuComp's measure of direct compensation.

Table 8 presents the results of the tests on CSR disclosure type and CEO compensation. The results shown in columns (1) through (4) are largely consistent with that provided in Table 6.

One exception is the overall effect of the relationship between CSR firms and CEO compensation, versus non-CSR firms. Table 6 reports an insignificant result, while Table 8 shows a marginally positive coefficient on CSR_DV of 299.65 (t-statistic of 1.78). A possible explanation for this lies in the only other notable difference in the results between the two tables, and that is the coefficient on GOV_SOC_only_DV. In Table 6 it is insignificant, while it is marginally significant in Table 8 with a coefficient of 344.28 (t-statistic of 1.70), and this in turn could be causing the overall CSR effect to load with marginal significance. The interpretation of this result is that firms providing governance and social CSR disclosures have higher CEO compensation than non-CSR firms, all else equal. If that is the case, though, then I would also expect to see different results in the following analysis on CSR disclosure quality and CEO compensation.

[Insert Table 8 about here]

Table 9 presents the results of the tests on CSR disclosure quality and CEO compensation. Panel A contains the total sample analysis. The results on the primary variables of interest in each of Models 5 through 8 are consistent in both tables. However, in Models 7 and 8, Table 9, Panel A also reports significantly positive coefficients on GOV_Score_1 and SOC_Score_1. Although these are not the main variables being tested in H2b and H2c, it is interesting to note that when compensation is measured in this way, the suggestion is that improving the quality of corporate governance-related and social-related CSR disclosure will always be associated with higher CEO compensation.

[Insert Table 9 about here]

Just as in the main analyses, though, this table does not differentiate between the CSR firms based on disclosure type, so a corresponding CSR subsample analysis is provided in Panel B. It is in this analysis that the most striking difference between the dependent variable measures occurs. The results of Models 9 through 12 are presented in Panel B. In a comparison with Table 7, Panel B, a significantly positive coefficient is estimated on the overall CSR disclosure score when the subsample is limited to only CSR firms. In columns (2) and (3), the results on H2a and H2b are consistent across both tables. It is only column (4), where the Model 12 results are shown, that a key difference emerges. While Table 7, Panel B documents a significantly positive parameter estimate on ENV_Score, when TDC1 is used, the resulting coefficient in Table 9, Panel B is insignificant. Instead, the parameter estimate on GOV_Score is marginally significant at 52.87 (t-statistic of 1.81). Considering the CSR subsample results collectively in Table 9, Panel B suggests that the quality of the corporate governance-related disclosures for the CSR firms seems to drive the overall association between CSR disclosure quality and CEO compensation documented in column (1). This is in contrast to the results in Table 7, Panel B, where the evidence provided suggests that the environmental-related CSR disclosure quality is what drives the positive association between CEO compensation and overall CSR disclosure.

These different results, and the inferences from them, are likely due to the different CEO compensation measures used in each table. The proxy used in Table 7 includes the CEO's entire equity portfolio and the estimated change in its fair value from the previous year as a component of CEO compensation. To the extent that environmental disclosures represent policies, actions and strategies that are expected to impact firm value in the long run, and that they are implicitly utilized in compensation contracting, then this proxy does a better job at capturing the total wealth effect on the CEO of these disclosures and their quality. Conversely, the direct

compensation proxy only captures the current year equity awards granted to an executive, and thus risks both understating the compensation effect of environmental-related CSR disclosure quality, and overstating the compensation effect of corporate governance-related CSR disclosure quality. While improving the quality of corporate governance-related CSR disclosures might be easier in practice for a CEO to accomplish than it would be for environmental-related CSR disclosures, these two tables suggest that choice brings with it a tradeoff between higher total compensation and higher direct compensation.

6. Conclusion

This study contributes to the growing literature on CSR disclosure in accounting, as well as the literature streams on nonfinancial disclosure and executive compensation. In this study I test the association between CEO compensation and CSR disclosure type and quality using a sample of US firms from 2007 – 2014. I document that when CEO compensation is measured as the total annual change in wealth, then on average, there is no significant difference between CSR firms and non-CSR firms. However, by disaggregating the CSR firms into three distinct groups based upon their CSR disclosure type, I provide evidence that the type of CSR disclosure provided is associated with CEO compensation, *ceteris paribus*, after controlling for firm financial performance and risk factors, as well as a series of corporate governance variables reflecting the board of directors' structure and the firm's ownership structure. Specifically, firms providing only corporate governance-related CSR disclosure have lower CEO compensation than non-CSR firms; firms providing both corporate governance-related and social-related CSR disclosure have higher CEO compensation than firms only providing corporate governance-related CSR disclosure and approximately the same CEO compensation as non-CSR firms; and

firms providing all three types of CSR disclosure have higher CEO compensation than all other firms (both CSR disclosers of other types and non-CSR firms).

I then provide evidence on the association between CSR disclosure quality and CEO compensation using both total sample and CSR subsample analyses. Given that CSR disclosure is voluntary, the subsample analyses focusing only on the CSR firms should provide a stronger setting in which to test these relationships. Results of the CSR subsample analyses show that there is a positive association between CSR disclosure quality and CEO compensation, and that it is driven primarily by the quality of the environmental-related CSR disclosures.

Additional analyses are also provided using total direct compensation, a more common CEO compensation measure used in empirical literature. The general tenor of the results on the association between CSR disclosure type and CEO compensation using this proxy are consistent with those already reported; however, the inference on the relationship between CSR disclosure quality and CEO compensation is different. While both proxies provide evidence of a positive association between CSR disclosure quality and CEO compensation, the direct compensation measure suggests the primary driver is the quality of the corporate governance-related CSR disclosures. These different interpretations are likely due to the nature of the comprehensive versus direct measures of compensation, and suggest the importance for researchers of determining an appropriate proxy in their compensation studies.

Table 1
Sample Selection

This table describes the sample selection procedures used to construct the total sample.

| | Number of firm- years |
|---|----------------------------------|
| Observations with necessary Compustat/CRSP data | 27,982 |
| Less: Observations missing MSCI data | (15,426) |
| Less: Observations missing ExecuComp data | (3,215) |
| Less: Observations in industries with fewer than ten observations per industry, defined as two-digit SIC code | (35) |
| Remaining observations, total sample: | 9,306 |

Table 2
Sample Distribution

Panel A provides a breakdown of the total sample by year, as well as a breakdown of the CSR and non-CSR firm-years. Panel B provides an industry breakdown of the total, CSR, and non-CSR samples by two-digit SIC code.

Panel A: CSR, non-CSR and total sample distributions by year

| Year | CSR | Non-CSR | Total |
|--------------|--------------|----------------|--------------|
| 2007 | 452 | 573 | 1,025 |
| 2008 | 646 | 526 | 1,172 |
| 2009 | 691 | 478 | 1,169 |
| 2010 | 937 | 220 | 1,157 |
| 2011 | 1,038 | 163 | 1,201 |
| 2012 | 1,028 | 154 | 1,182 |
| 2013 | 1,086 | 123 | 1,209 |
| 2014 | 1,106 | 85 | 1,191 |
| Total | 6,984 | 2,322 | 9,306 |

Panel B: CSR, non-CSR and total sample distributions by industry

| SIC Code Description | CSR Sample | | Non-CSR Sample | | Total Sample | |
|---|------------|------------|----------------|------------|--------------|------------|
| | N | Percentage | N | Percentage | N | Percentage |
| Agriculture Production-Crops (01) | 8 | 0.11% | 6 | 0.26% | 14 | 0.15% |
| Metal Mining (10) | 37 | 0.53% | 8 | 0.34% | 45 | 0.48% |
| Coal Mining (12) | 17 | 0.24% | 4 | 0.17% | 21 | 0.23% |
| Oil and Gas Extraction (13) | 263 | 3.77% | 78 | 3.36% | 341 | 3.66% |
| Mining, Quarry Nonmetallic Minerals (14) | 20 | 0.29% | 7 | 0.30% | 27 | 0.29% |
| Building Construction-Gen Contractors, Op Builders (15) | 69 | 0.99% | 22 | 0.95% | 91 | 0.98% |
| Heavy Construction-Not Building Construction (16) | 45 | 0.64% | 15 | 0.65% | 60 | 0.64% |
| Construction-Special Trade (17) | 17 | 0.24% | 4 | 0.17% | 21 | 0.23% |
| Food and Kindred Products (20) | 219 | 3.14% | 35 | 1.51% | 254 | 2.73% |
| Tobacco Products (21) | 14 | 0.20% | 5 | 0.22% | 19 | 0.20% |
| Textile Mill Products (22) | 23 | 0.33% | 10 | 0.43% | 33 | 0.35% |
| Apparel and Other Finished Products (23) | 66 | 0.95% | 29 | 1.25% | 95 | 1.02% |
| Lumber and Wood Products, Ex Furniture (24) | 35 | 0.50% | 11 | 0.47% | 46 | 0.49% |
| Furniture and Fixtures (25) | 68 | 0.97% | 9 | 0.39% | 77 | 0.83% |
| Paper and Allied Products (26) | 81 | 1.16% | 39 | 1.68% | 120 | 1.29% |
| Printing, Publishing and Allied (27) | 50 | 0.72% | 16 | 0.69% | 66 | 0.71% |
| Chemicals and Allied Products (28) | 523 | 7.49% | 195 | 8.40% | 718 | 7.72% |
| Pete Refining and Related Industries (29) | 48 | 0.69% | 8 | 0.34% | 56 | 0.60% |
| Rubber and Misc Plastics Prods (30) | 60 | 0.86% | 14 | 0.60% | 74 | 0.80% |
| Leather and Leather Products (31) | 31 | 0.44% | 17 | 0.73% | 48 | 0.52% |
| Stone, Clay, Glass, Concrete Products (32) | 48 | 0.69% | 16 | 0.69% | 64 | 0.69% |
| Primary Metal Industries (33) | 117 | 1.68% | 25 | 1.08% | 142 | 1.53% |
| Fabr Metal, Ex Machy, Trans Eq (34) | 119 | 1.70% | 21 | 0.90% | 140 | 1.50% |
| Indl, Comml Machy, Computer Eq (35) | 421 | 6.03% | 158 | 6.80% | 579 | 6.22% |
| Electr, Oth Elec Eq, Ex Cmp (36) | 511 | 7.32% | 275 | 11.84% | 786 | 8.45% |
| Transportation Equipment (37) | 197 | 2.82% | 58 | 2.50% | 255 | 2.74% |
| Meas Instr; Photo Gds; Watches (38) | 425 | 6.09% | 160 | 6.89% | 585 | 6.29% |

| SIC Code Description | CSR Sample | | Non-CSR Sample | | Total Sample | |
|---|--------------|-------------|----------------|-------------|--------------|-------------|
| | N | Percentage | N | Percentage | N | Percentage |
| Misc Manufacturing Industries (39) | 41 | 0.59% | 35 | 1.51% | 76 | 0.82% |
| Railroad Transportation (40) | 36 | 0.52% | 1 | 0.04% | 37 | 0.40% |
| Motor Freight Trans, Warehousing (42) | 63 | 0.90% | 22 | 0.95% | 85 | 0.91% |
| Water Transportation (44) | 31 | 0.44% | 18 | 0.78% | 49 | 0.53% |
| Transportation By Air (45) | 71 | 1.02% | 7 | 0.30% | 78 | 0.84% |
| Transportation Services (47) | 42 | 0.60% | 9 | 0.39% | 51 | 0.55% |
| Communications (48) | 156 | 2.23% | 54 | 2.33% | 210 | 2.26% |
| Electric, Gas, Sanitary Serv (49) | 453 | 6.49% | 73 | 3.14% | 526 | 5.65% |
| Durable Goods-Wholesale (50) | 170 | 2.43% | 35 | 1.51% | 205 | 2.20% |
| Nondurable Goods-Wholesale (51) | 89 | 1.27% | 22 | 0.95% | 111 | 1.19% |
| Building Matl, Hardware, Garden-Retl (52) | 32 | 0.46% | 1 | 0.04% | 33 | 0.35% |
| General Merchandise Stores (53) | 78 | 1.12% | 23 | 0.99% | 101 | 1.09% |
| Food Stores (54) | 28 | 0.40% | 12 | 0.52% | 40 | 0.43% |
| Auto Dealers, Gas Stations (55) | 57 | 0.82% | 18 | 0.78% | 75 | 0.81% |
| Apparel and Accessory Stores (56) | 135 | 1.93% | 32 | 1.38% | 167 | 1.79% |
| Home Furniture, Equip Stores (57) | 40 | 0.57% | 4 | 0.17% | 44 | 0.47% |
| Eating and Drinking Places (58) | 128 | 1.83% | 37 | 1.59% | 165 | 1.77% |
| Miscellaneous Retail (59) | 114 | 1.63% | 45 | 1.94% | 159 | 1.71% |
| Depository Institutions (60) | 486 | 6.96% | 152 | 6.55% | 638 | 6.86% |
| Non-Depository Credit Institutions (61) | 14 | 0.20% | 0 | 0% | 14 | 0.15% |
| Security & Commodity Brokers, Dealers, Exchanges, Services (62) | 10 | 0.14% | 2 | 0.09% | 12 | 0.13% |
| Insurance Carriers (63) | 14 | 0.20% | 16 | 0.69% | 30 | 0.32% |
| Ins Agents, Brokers, Service (64) | 36 | 0.52% | 11 | 0.47% | 47 | 0.51% |
| Holding, Other Invest Offices (67) | 87 | 1.25% | 28 | 1.21% | 115 | 1.24% |
| Hotels, Other Lodging Places (70) | 14 | 0.20% | 0 | 0% | 14 | 0.15% |
| Personal Services (72) | 23 | 0.33% | 9 | 0.39% | 32 | 0.34% |
| Business Services (73) | 668 | 9.56% | 255 | 10.98% | 923 | 9.92% |
| Auto Repair, Services, Parking (75) | 16 | 0.23% | 7 | 0.30% | 23 | 0.25% |
| Motion Pictures (78) | 26 | 0.37% | 5 | 0.22% | 31 | 0.33% |
| Amusement & Rec Services (79) | 42 | 0.60% | 15 | 0.65% | 57 | 0.61% |
| Health Services (80) | 106 | 1.52% | 65 | 2.80% | 171 | 1.84% |
| Educational Services (82) | 58 | 0.83% | 4 | 0.17% | 62 | 0.67% |
| Engr, Acc, Resh, Mgmt, Rel Svcs (87) | 88 | 1.26% | 60 | 2.58% | 148 | 1.59% |
| Total: | 6,984 | 100% | 2,322 | 100% | 9,306 | 100% |

Table 3
Descriptive Statistics

Panel A provides a full set of descriptive statistics for the total sample. Panel B provides the mean and median of all dependent and independent variables for each of the CSR and non-CSR samples, and tests for differences in means (t-statistics) and medians (z-statistics) for all variables shown. All mean and median difference statistic values denoted with ***, **, * represent variables with a statistically significant difference between the CSR and non-CSR samples at the 1%, 5%, and 10% levels or better, respectively. All variables are defined in Appendix A.

Panel A: Descriptive statistics, total sample

| Variable | N | Mean | Std. Dev. | Min | Median | Max |
|----------------------|----------|-------------|------------------|------------|---------------|------------|
| TotalCEOCompensation | 9,306 | 12,086.77 | 38,500.58 | -116,983 | 5,407.98 | 236,863.5 |
| TDC1 | 9,306 | 5,541.102 | 5,283.712 | 344.137 | 3,879.87 | 29,073.17 |
| Sales | 9,306 | 6,361.927 | 14,698.8 | 57.767 | 1,590.66 | 100,887.1 |
| MTB | 9,306 | 2.915452 | 3.056677 | -6.3666 | 2.197484 | 20.30032 |
| ROA | 9,306 | 0.10207 | 0.094624 | -0.17692 | 0.090892 | 0.434005 |
| RET | 9,306 | 0.131299 | 0.421623 | -0.74939 | 0.10333 | 1.71329 |
| StdDevROA | 9,306 | 0.043846 | 0.047224 | 0.001788 | 0.028739 | 0.278078 |
| StdDevRET | 9,306 | 0.431426 | 0.368443 | 0.068791 | 0.334497 | 2.503088 |
| CEOisChair | 9,306 | 0.534386 | 0.498843 | 0 | 1 | 1 |
| BoardSize | 9,306 | 9.293467 | 2.256415 | 5 | 9 | 16 |
| InsideDirs | 9,306 | 0.156527 | 0.077752 | 0.0625 | 0.125 | 0.428571 |
| OutsideRelDirs | 9,306 | 0.10391 | 0.136687 | 0 | 0.076923 | 0.6 |
| Over70Dirs | 9,306 | 0.117452 | 0.133429 | 0 | 0.1 | 0.555556 |
| BusyDirs | 9,306 | 0.01329 | 0.037038 | 0 | 0 | 0.166667 |
| NonCEOInsOwn | 9,306 | 0.345906 | 0.475688 | 0 | 0 | 1 |
| OutsideBlock | 9,306 | 0.943477 | 0.230941 | 0 | 1 | 1 |

Table 3, cont.
Descriptive Statistics

Panel B: Descriptive statistics, CSR and non-CSR samples

| Variable | CSR Sample | | | Non-CSR Sample | | | T-statistic for the difference between columns (2) and (5) | Z-statistic for the difference between columns (3) and (6) |
|----------------------|------------|-----------|----------|----------------|----------|----------|--|--|
| | N | Mean | Median | N | Mean | Median | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| TotalCEOCompensation | 6,984 | 14,297.84 | 6,641.44 | 2,322 | 5,436.42 | 2,363.09 | 9.6556*** | 17.909*** |
| TDC1 | 6,984 | 6,061.29 | 4,420.59 | 2,322 | 3,976.51 | 2,511.78 | 16.7157*** | 20.897*** |
| Sales | 6,984 | 7,618.88 | 1,980.02 | 2,322 | 2,581.33 | 841.5375 | 14.4659*** | 23.061*** |
| MTB | 6,984 | 2.9889 | 2.2339 | 2,322 | 2.6944 | 2.1073 | 4.0260*** | 3.290*** |
| ROA | 6,984 | 0.1081 | 0.0964 | 2,322 | 0.0838 | 0.0762 | 10.7776*** | 11.722*** |
| RET | 6,984 | 0.1557 | 0.1278 | 2,322 | 0.0580 | -0.0001 | 9.7222*** | 12.616*** |
| StdDevROA | 6,984 | 0.0414 | 0.0270 | 2,322 | 0.0513 | 0.0340 | -8.7862*** | -9.733*** |
| StdDevRET | 6,984 | 0.4127 | 0.3182 | 2,322 | 0.4878 | 0.3785 | -8.5373*** | -11.906*** |
| CEOisChair | 6,984 | 0.5387 | 1 | 2,322 | 0.5215 | 1 | 1.4317 | 1.433 |
| BoardSize | 6,984 | 9.5223 | 9 | 2,322 | 8.6051 | 8 | 17.2376*** | 17.660*** |
| InsideDirs | 6,984 | 0.1545 | 0.125 | 2,322 | 0.1627 | 0.1429 | -4.3909*** | -8.899*** |
| OutsideRelDirs | 6,984 | 0.1080 | 0.0769 | 2,322 | 0.0915 | 0 | 5.0542*** | 3.182** |
| Over70Dirs | 6,984 | 0.1228 | 0.1 | 2,322 | 0.1013 | 0.0714 | 6.7499*** | 6.694*** |
| BusyDirs | 6,984 | 0.0134 | 0 | 2,322 | 0.0129 | 0 | 0.6402 | 1.561 |
| NonCEOInsOwn | 6,984 | 0.3182 | 0 | 2,322 | 0.4294 | 0 | -9.8097*** | -9.760*** |
| OutsideBlock | 6,984 | 0.9386 | 1 | 2,322 | 0.9582 | 1 | -3.5545*** | -3.552*** |

Table 4**CSR Sample Distribution and Descriptive Statistics by Disclosure Type**

Panel A provides an annual breakdown of the CSR sample into three groups by CSR disclosure type: governance disclosures only (G only), social and governance disclosures only (S & G only), and environmental, social and governance disclosures (E, S & G). Panel B provides the CSR-related descriptive statistics. All variables are defined in Appendix A.

Panel A: CSR sample distribution by disclosure type and year

| Year | G only | S & G only | E, S, & G | CSR Sample |
|--------------|---------------|-----------------------|----------------------|-------------------|
| 2007 | 84 | 173 | 195 | 452 |
| 2008 | 116 | 265 | 265 | 646 |
| 2009 | 137 | 243 | 311 | 691 |
| 2010 | 363 | 226 | 348 | 937 |
| 2011 | 413 | 226 | 399 | 1,038 |
| 2012 | 359 | 264 | 405 | 1,028 |
| 2013 | 390 | 250 | 446 | 1,086 |
| 2014 | 394 | 258 | 454 | 1,106 |
| Total | 2,256 | 1,905 | 2,823 | 6,984 |

Panel B: CSR-related descriptive statistics

| Variable | N | Mean | Std. Dev. | Min | Median | Max |
|-----------------|----------|-------------|------------------|------------|---------------|------------|
| CSR DV | 9,306 | 0.750484 | 0.432756 | 0 | 1 | 1 |
| GOV only DV | 9,306 | 0.242424 | 0.428573 | 0 | 0 | 1 |
| GOV SOC only DV | 9,306 | 0.204707 | 0.403509 | 0 | 0 | 1 |
| GOV SOC ENV DV | 9,306 | 0.303353 | 0.459731 | 0 | 0 | 1 |
| CSR Score | 6,984 | 19.69262 | 12.11238 | 10.3306 | 14.0496 | 61.157 |
| ENV Score | 2,823 | 20.76922 | 17.57585 | 1.3793 | 14.7287 | 67.4419 |
| SOC Score | 4,726 | 18.52017 | 15.28796 | 3.125 | 14.0351 | 65.625 |
| GOV Score | 6,977 | 52.41431 | 5.442279 | 42.8571 | 51.7857 | 71.4286 |
| CSR Score 1 | 9,306 | 14.74533 | 13.47398 | 0 | 12.8099 | 59.3361 |
| ENV Score 1 | 9,306 | 6.245922 | 13.37231 | 0 | 0 | 58.1395 |
| SOC Score 1 | 9,306 | 9.369633 | 14.16282 | 0 | 3.125 | 60.9375 |
| GOV Score 1 | 9,306 | 39.24542 | 23.21144 | 0 | 48.2143 | 71.4286 |

Table 5
Pairwise Correlation Matrix

Spearman (Pearson) correlation coefficients are reported above (below) the diagonal.
All correlations in bold are significant at the 1% or better level. All variables defined in Appendix A.

| No. | Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|-----|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1 | CSR DV | 1 | 0.33 | 0.29 | 0.38 | . | . | . | . | 0.76 | 0.37 | 0.54 | 0.77 | 0.19 | 0.22 |
| 2 | GOV_only DV | 0.33 | 1 | -0.29 | -0.37 | -0.78 | . | . | -0.66 | -0.24 | -0.37 | -0.53 | -0.15 | -0.08 | -0.29 |
| 3 | SOC GOV_only DV | 0.29 | -0.29 | 1 | -0.33 | -0.07 | . | -0.58 | -0.03 | 0.18 | -0.33 | 0.27 | 0.20 | 0.01 | 0.01 |
| 4 | ENV SOC GOV DV | 0.38 | -0.37 | -0.33 | 1 | 0.81 | . | 0.58 | 0.66 | 0.78 | 0.98 | 0.77 | 0.68 | 0.24 | 0.47 |
| 5 | CSR Score | . | -0.47 | -0.28 | 0.70 | 1 | 0.97 | 0.88 | 0.84 | 1.00 | 0.86 | 0.94 | 0.84 | 0.26 | 0.57 |
| 6 | ENV Score | . | . | . | . | 0.97 | 1 | 0.73 | 0.67 | 0.97 | 1.00 | 0.73 | 0.67 | 0.19 | 0.42 |
| 7 | SOC Score | . | . | -0.53 | 0.53 | 0.90 | 0.75 | 1 | 0.61 | 0.88 | 0.74 | 1.00 | 0.61 | 0.23 | 0.43 |
| 8 | GOV Score | . | -0.49 | -0.15 | 0.60 | 0.81 | 0.69 | 0.67 | 1 | 0.84 | 0.72 | 0.77 | 1.00 | 0.24 | 0.53 |
| 9 | CSR_Score_1 | 0.63 | -0.14 | -0.03 | 0.75 | 1.00 | 0.97 | 0.90 | 0.82 | 1 | 0.80 | 0.92 | 0.94 | 0.28 | 0.48 |
| 10 | ENV_Score_1 | 0.27 | -0.26 | -0.24 | 0.71 | 0.98 | 1.00 | 0.81 | 0.75 | 0.90 | 1 | 0.79 | 0.71 | 0.25 | 0.49 |
| 11 | SOC_Score_1 | 0.38 | -0.37 | -0.03 | 0.73 | 0.92 | 0.75 | 1.00 | 0.75 | 0.90 | 0.84 | 1 | 0.83 | 0.27 | 0.50 |
| 12 | GOV_Score_1 | 0.98 | 0.22 | 0.25 | 0.49 | 0.78 | 0.68 | 0.65 | 0.97 | 0.75 | 0.42 | 0.52 | 1 | 0.27 | 0.45 |
| 13 | TotalCEOCompensation | 0.10 | -0.04 | 0.00 | 0.13 | 0.13 | 0.09 | 0.11 | 0.12 | 0.16 | 0.14 | 0.15 | 0.12 | 1 | 0.43 |
| 14 | TDC1 | 0.17 | -0.26 | -0.03 | 0.43 | 0.50 | 0.33 | 0.37 | 0.45 | 0.45 | 0.45 | 0.47 | 0.25 | 0.29 | 1 |
| 15 | Sales | 0.15 | -0.19 | -0.09 | 0.40 | 0.50 | 0.34 | 0.37 | 0.45 | 0.47 | 0.49 | 0.45 | 0.24 | 0.16 | 0.53 |
| 16 | MTB | 0.04 | -0.04 | 0.02 | 0.06 | 0.05 | 0.02 | 0.04 | 0.03 | 0.06 | 0.05 | 0.07 | 0.05 | 0.09 | 0.10 |
| 17 | ROA | 0.11 | -0.01 | 0.05 | 0.07 | 0.06 | 0.07 | 0.04 | 0.05 | 0.11 | 0.07 | 0.09 | 0.12 | 0.16 | 0.14 |
| 18 | RET | 0.10 | 0.05 | 0.02 | 0.03 | -0.01 | -0.01 | 0.01 | -0.02 | 0.05 | 0.01 | 0.03 | 0.09 | 0.45 | 0.06 |
| 19 | StdDevROA | -0.09 | 0.04 | 0.03 | -0.15 | -0.15 | -0.13 | -0.13 | -0.14 | -0.15 | -0.14 | -0.14 | -0.11 | -0.02 | -0.09 |
| 20 | StdDevRET | -0.09 | 0.08 | -0.01 | -0.15 | -0.15 | -0.08 | -0.13 | -0.13 | -0.15 | -0.13 | -0.16 | -0.11 | -0.01 | -0.07 |
| 21 | CEOisChair | 0.01 | -0.09 | -0.01 | 0.11 | 0.15 | 0.13 | 0.10 | 0.14 | 0.11 | 0.13 | 0.11 | 0.04 | 0.07 | 0.15 |
| 22 | BoardSize | 0.18 | -0.17 | -0.04 | 0.36 | 0.41 | 0.33 | 0.32 | 0.37 | 0.39 | 0.37 | 0.37 | 0.24 | 0.07 | 0.35 |
| 23 | InsideDirs | -0.05 | 0.10 | 0.09 | -0.22 | -0.26 | -0.22 | -0.23 | -0.25 | -0.20 | -0.22 | -0.21 | -0.09 | 0.01 | -0.18 |
| 24 | OutsideRelDirs | 0.05 | 0.09 | 0.03 | -0.06 | -0.10 | -0.06 | -0.06 | -0.10 | -0.03 | -0.07 | -0.05 | 0.03 | 0.00 | -0.06 |
| 25 | Over70Dirs | 0.07 | 0.10 | 0.07 | -0.09 | -0.15 | -0.14 | -0.10 | -0.14 | -0.06 | -0.11 | -0.07 | 0.04 | 0.05 | -0.01 |
| 26 | BusyDirs | 0.01 | -0.08 | 0.02 | 0.06 | 0.08 | 0.05 | 0.04 | 0.10 | 0.06 | 0.06 | 0.07 | 0.02 | 0.04 | 0.13 |
| 27 | NonCEOInsOwn | -0.10 | 0.17 | 0.02 | -0.27 | -0.27 | -0.16 | -0.20 | -0.27 | -0.24 | -0.24 | -0.25 | -0.15 | -0.01 | -0.21 |
| 28 | OutsideBlock | -0.04 | 0.03 | 0.01 | -0.07 | -0.09 | -0.10 | -0.08 | -0.06 | -0.09 | -0.09 | -0.08 | -0.05 | -0.04 | -0.08 |

Table 5, cont.
Pairwise Correlation Matrix

Spearman (Pearson) correlation coefficients are reported above (below) the diagonal.
All correlations in bold are significant at the 1% or better level. All variables defined in Appendix A.

| No. | Variable | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|-----|----------------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1 | CSR DV | 0.24 | 0.03 | 0.12 | 0.13 | -0.10 | -0.12 | 0.01 | 0.18 | -0.09 | 0.03 | 0.07 | 0.02 | -0.10 | -0.04 |
| 2 | GOV_only DV | -0.35 | -0.08 | -0.03 | 0.05 | 0.05 | 0.07 | -0.09 | -0.19 | 0.13 | 0.08 | 0.08 | -0.09 | 0.17 | 0.03 |
| 3 | SOC GOV_only DV | -0.01 | 0.02 | 0.06 | 0.02 | 0.02 | 0.02 | -0.01 | -0.04 | 0.10 | 0.04 | 0.07 | 0.02 | 0.02 | 0.01 |
| 4 | ENV SOC GOV DV | 0.56 | 0.09 | 0.09 | 0.06 | -0.16 | -0.20 | 0.11 | 0.39 | -0.29 | -0.08 | -0.07 | 0.08 | -0.27 | -0.07 |
| 5 | CSR Score | 0.67 | 0.11 | 0.09 | 0.02 | -0.18 | -0.19 | 0.15 | 0.45 | -0.32 | -0.11 | -0.13 | 0.11 | -0.31 | -0.07 |
| 6 | ENV Score | 0.51 | 0.09 | 0.09 | -0.00 | -0.13 | -0.11 | 0.13 | 0.36 | -0.29 | -0.05 | -0.15 | 0.08 | -0.15 | -0.10 |
| 7 | SOC Score | 0.50 | 0.08 | 0.09 | 0.06 | -0.10 | -0.15 | 0.07 | 0.31 | -0.27 | -0.07 | -0.07 | 0.04 | -0.20 | -0.06 |
| 8 | GOV Score | 0.62 | 0.10 | 0.07 | 0.02 | -0.16 | -0.18 | 0.14 | 0.41 | -0.32 | -0.11 | -0.15 | 0.13 | -0.30 | -0.04 |
| 9 | CSR Score_1 | 0.56 | 0.09 | 0.14 | 0.11 | -0.18 | -0.20 | 0.09 | 0.39 | -0.25 | -0.04 | -0.02 | 0.08 | -0.25 | -0.07 |
| 10 | ENV Score_1 | 0.59 | 0.10 | 0.10 | 0.06 | -0.18 | -0.21 | 0.12 | 0.41 | -0.31 | -0.08 | -0.09 | 0.09 | -0.28 | -0.08 |
| 11 | SOC Score_1 | 0.58 | 0.12 | 0.14 | 0.08 | -0.15 | -0.20 | 0.11 | 0.38 | -0.25 | -0.05 | -0.03 | 0.10 | -0.26 | -0.07 |
| 12 | GOV Score_1 | 0.52 | 0.08 | 0.14 | 0.11 | -0.17 | -0.19 | 0.09 | 0.37 | -0.25 | -0.04 | -0.03 | 0.09 | -0.24 | -0.05 |
| 13 | TotalCEOCompensation | 0.33 | 0.14 | 0.24 | 0.74 | -0.09 | -0.07 | 0.10 | 0.16 | -0.12 | -0.00 | 0.04 | 0.06 | -0.09 | -0.01 |
| 14 | TDC1 | 0.72 | 0.16 | 0.20 | 0.11 | -0.14 | -0.09 | 0.15 | 0.39 | -0.29 | -0.11 | -0.06 | 0.16 | -0.30 | -0.04 |
| 15 | Sales | 1 | 0.06 | 0.19 | 0.05 | -0.26 | -0.20 | 0.17 | 0.53 | -0.32 | -0.07 | -0.07 | 0.17 | -0.32 | -0.10 |
| 16 | MTB | 0.03 | 1 | 0.52 | 0.05 | 0.17 | -0.02 | 0.03 | -0.05 | 0.05 | -0.07 | -0.05 | 0.03 | -0.01 | -0.06 |
| 17 | ROA | 0.05 | 0.33 | 1 | 0.17 | 0.15 | -0.04 | 0.03 | -0.06 | 0.06 | -0.03 | 0.01 | 0.01 | -0.03 | -0.04 |
| 18 | RET | 0.00 | 0.03 | 0.15 | 1 | -0.02 | 0.07 | -0.01 | 0.02 | -0.04 | 0.04 | 0.05 | 0.00 | -0.01 | 0.03 |
| 19 | StdDevROA | -0.12 | 0.15 | 0.08 | 0.01 | 1 | 0.42 | -0.09 | -0.37 | 0.20 | 0.00 | 0.04 | -0.03 | 0.11 | 0.04 |
| 20 | StdDevRET | -0.09 | 0.02 | -0.01 | 0.16 | 0.32 | 1 | -0.08 | -0.25 | 0.16 | 0.05 | -0.01 | -0.00 | 0.10 | 0.06 |
| 21 | CEOisChair | 0.12 | 0.01 | 0.03 | -0.02 | -0.09 | -0.07 | 1 | 0.06 | -0.06 | -0.15 | -0.03 | 0.02 | -0.12 | -0.02 |
| 22 | BoardSize | 0.34 | -0.03 | -0.06 | -0.02 | -0.29 | -0.19 | 0.05 | 1 | -0.48 | 0.07 | -0.01 | 0.12 | -0.17 | -0.09 |
| 23 | InsideDirs | -0.16 | 0.01 | 0.06 | 0.00 | 0.11 | 0.08 | -0.03 | -0.32 | 1 | -0.07 | 0.15 | -0.07 | 0.30 | -0.03 |
| 24 | OutsideRelDirs | -0.05 | -0.03 | -0.01 | 0.05 | -0.01 | 0.05 | -0.12 | 0.06 | -0.09 | 1 | 0.10 | -0.02 | 0.22 | -0.03 |
| 25 | Over70Dirs | -0.07 | -0.03 | 0.01 | 0.04 | 0.04 | -0.02 | -0.02 | -0.01 | 0.19 | 0.10 | 1 | -0.02 | 0.13 | -0.00 |
| 26 | BusyDirs | 0.12 | 0.04 | -0.00 | 0.00 | -0.02 | 0.03 | 0.02 | 0.07 | -0.06 | -0.02 | -0.03 | 1 | -0.06 | 0.00 |
| 27 | NonCEOInsOwn | -0.17 | -0.02 | -0.03 | 0.02 | 0.09 | 0.09 | -0.12 | -0.15 | 0.31 | 0.17 | 0.15 | -0.05 | 1 | -0.08 |
| 28 | OutsideBlock | -0.16 | -0.05 | -0.03 | 0.02 | 0.02 | 0.03 | -0.02 | -0.11 | -0.07 | -0.02 | -0.01 | 0.01 | -0.08 | 1 |

Table 6
CSR Disclosure Type and CEO Compensation

This table provides the OLS regression results of CSR disclosure type and CEO compensation for the total sample. Column (1) shows the results for model (1): $CEO\ Compensation_{i,t} = \alpha + \gamma_1 CSR_DV_{i,t} + \beta_{1-6} Financial\ Variables_{i,t} + \beta_{7-14} Corporate\ Governance\ Variables_{i,t} + \varepsilon$. Column (2) shows the results for model (2): $CEO\ Compensation_{i,t} = \alpha + \delta_1 Gov_only_DV_{i,t} + \delta_2 Gov_Soc_only_DV_{i,t} + \delta_3 Gov_Soc_Env_DV_{i,t} + \beta_{1-6} Financial\ Variables_{i,t} + \beta_{7-14} Corporate\ Governance\ Variables_{i,t} + \varepsilon$. Column (3) shows the results for model (3): $CEO\ Compensation_{i,t} = \alpha + \delta_2 Gov_Soc_only_DV_{i,t} + \delta_3 Gov_Soc_Env_DV_{i,t} + \eta_1 Non-CSR_DV_{i,t} + \beta_{1-6} Financial\ Variables_{i,t} + \beta_{7-14} Corporate\ Governance\ Variables_{i,t} + \varepsilon$. Column (4) shows the results for model (4): $CEO\ Compensation_{i,t} = \alpha + \delta_1 Gov_only_DV_{i,t} + \delta_3 Gov_Soc_Env_DV_{i,t} + \eta_1 Non-CSR_DV_{i,t} + \beta_{1-6} Financial\ Variables_{i,t} + \beta_{7-14} Corporate\ Governance\ Variables_{i,t} + \varepsilon$. The dependent variable in each model is Total CEO Compensation. All models include robust standard errors that are clustered at the firm level. ***, **, * denote significance at the 1%, 5%, and 10% levels or better, respectively. All variables are defined in Appendix A.

Dependent variable = Total CEO Compensation_t

| Variable | Model 1 (1) | Model 2 (2) | Model 3 (3) | Model 4 (4) |
|-----------------------------------|-------------------------|-------------------------|-------------------------|---------------------------|
| Reference group: | Non-CSR firms | Non-CSR firms | Gov_only CSR firms | Gov_Soc_only CSR firms |
| $\gamma_1 - CSR_DV_t$ | -370.44 [-0.43] | | | |
| $\delta_1 - GOV_only_DV_t$ | | -3,037.97*** [-2.84] | | -2,705.78* [-1.86] |
| $\delta_2 - GOV_SOC_only_DV_t$ | | -332.19 [-0.26] | 2,705.78* [1.86] | |
| $\delta_3 - GOV_SOC_ENV_DV_t$ | | 3,072.51*** [2.60] | 6,110.48*** [4.68] | 3,404.70** [2.31] |
| $\eta_1 - Non-CSR_DV_t$ | | | 3,037.97*** [2.84] | 332.19 [0.26] |
| $\beta_1 - Sales_t$ | 0.3551*** [6.06] | 0.3148*** [5.41] | 0.3148*** [5.41] | 0.3148*** [5.41] |
| $\beta_2 - MTB_t$ | 685.71*** [3.63] | 644.97*** [3.48] | 644.97*** [3.48] | 644.97*** [3.48] |
| $\beta_3 - ROA_t$ | 21,703.73*** [4.25] | 20,772.72*** [4.08] | 20,772.72*** [4.08] | 20,772.72*** [4.08] |
| $\beta_4 - Return_t$ | 39,589.32*** [21.04] | 39,614.98*** [21.07] | 39,614.98*** [21.07] | 39,614.98*** [21.07] |
| $\beta_5 - StdDevROA_t$ | 3,880.83 [0.33] | 5,596.71 [0.48] | 5,596.71 [0.48] | 5,596.71 [0.48] |
| $\beta_6 - StdDevRet_t$ | -6,707.14*** [-7.12] | -6,400.74*** [-6.83] | -6,400.74*** [-6.83] | -6,400.74*** [-6.83] |

| | | | | |
|--|------------------------|------------------------|------------------------|------------------------|
| β_7 – CEOisChair _t | 4,737.75*** [5.46] | 4,581.51*** [5.27] | 4,581.51*** [5.27] | 4,581.51*** [5.27] |
| β_8 – BoardSize _t | 727.47*** [2.85] | 492.57* [1.95] | 492.57* [1.95] | 492.57* [1.95] |
| β_9 – InsideDirs _t | 13,538.96* [1.74] | 13,928.49* [1.80] | 13,928.49* [1.80] | 13,928.49* [1.80] |
| β_{10} – OutRelDirs _t | -7,369.96** [-2.43] | -6,646.65** [-2.21] | -6,646.65** [-2.21] | -6,646.65** [-2.21] |
| β_{11} – Over70Dirs _t | 7,938.75** [2.14] | 8,878.27** [2.39] | 8,878.27** [2.39] | 8,878.27** [2.39] |
| β_{12} – BusyDirs _t | 28,240.99** [2.36] | 27,611.10** [2.31] | 27,611.10** [2.31] | 27,611.10** [2.31] |
| β_{13} – NonCEOInsStock _t | 810.71 [0.81] | 1,379.03 [1.39] | 1,379.03 [1.39] | 1,379.03 [1.39] |
| β_{14} – OutsideBlock _t | -3,323.12 [-1.21] | -3,273.30 [-1.19] | -3,273.30 [-1.19] | -3,273.30 [-1.19] |
| Intercept | 6,592.95 [1.38] | 7,375.52* [1.67] | 4,337.56 [0.91] | 7,043.34 [1.52] |
| Industry FE | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes |
| Adjusted R ² | 26.64% | 26.85% | 26.85% | 26.85% |
| N | 9,306 | 9,306 | 9,306 | 9,306 |

Table 7
CSR Disclosure Quality and CEO Compensation

Panel A, column (1) of this table provides the OLS regression results on CSR disclosure quality and CEO compensation for the total sample using the following model: $CEO\ Compensation_{i,t} = \alpha + \gamma_1 CSR_Score_1_{i,t} + \eta_1 Non-CSR_DV_{i,t} + \beta_{1-6} Financial\ Variables_{i,t} + \beta_{7-14} Corporate\ Governance\ Variables_{i,t} + \varepsilon$. The dependent variable is Total CEO Compensation and the CSR score variable is a continuous measure. In columns (2) through (4), the CSR Score variable is replaced with one, two or three of the underlying CSR score variables when estimating the model. Column (2) uses the governance score (GOV_Score_1), column (3) uses GOV_Score_1 and the social score (SOC_Score_1), and column (4) uses GOV_Score_1, SOC_Score_1, and the environmental score (ENV_Score_1). Panel B estimates the model without the Non-CSR indicator variable for four CSR subsamples: column (1) includes all CSR firm-years, column (2) includes CSR firm-years that only provide governance disclosure, column (3) includes CSR firm-years that only provide governance and social disclosures, and column (4) includes CSR firm-years that provide governance, social and environmental disclosures. All models include robust standard errors that are clustered at the firm level. ***, **, * denote significance at the 1%, 5%, and 10% levels or better, respectively. All variables are defined in Appendix A.

Panel A: Total sample

| Variable | (1) | (2) | (3) | (4) |
|------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| $\gamma_1 - CSR_Score_1_t$ | 176.48*** [3.32] | | | |
| $\delta_1 - GOV_Score_1_t$ | | 279.61*** [2.62] | 138.22 [1.22] | 111.56 [1.00] |
| $\delta_2 - SOC_Score_1_t$ | | | 95.85** [2.22] | 62.59 [0.81] |
| $\delta_3 - ENV_Score_1_t$ | | | | 54.49 [0.65] |
| $\eta_1 - Non-CSR_DV_t$ | 3,231.19*** [2.60] | 14,553.67*** [2.67] | 8,164.59 [1.46] | 6,783.77 [1.22] |
| $\beta_1 - Sales_t$ | 0.3034*** [5.01] | 0.3194*** [5.25] | 0.3073** [4.98] | 0.3016*** [5.97] |
| $\beta_2 - MTB_t$ | 671.17*** [3.55] | 681.04*** [3.60] | 666.68*** [3.53] | 668.82*** [3.54] |
| $\beta_3 - ROA_t$ | 20,815.91*** [4.06] | 20,816.67*** [4.05] | 20,724.97*** [4.01] | 20,697.39*** [4.02] |
| $\beta_4 - Return_t$ | 39,688.83*** [21.08] | 39,673.43*** [21.07] | 39,673.75*** [21.06] | 39,692.17*** [21.07] |
| $\beta_5 - StdDevROA_t$ | 5,438.88 [0.47] | 4,813.25 [0.41] | 5,223.97 [0.45] | 5,438.13 [0.47] |
| $\beta_6 - StdDevRet_t$ | -6,565.62*** [-6.99] | -6,632.58*** [-7.05] | -6,527.41*** [-6.94] | -6,543.12*** [-6.94] |
| $\beta_7 - CEOisChair_t$ | 4,578.93*** [5.30] | 4,616.30*** [5.36] | 4,581.67*** [5.31] | 4,569.94*** [5.30] |

| | | | | |
|---|------------------------|------------------------|------------------------|------------------------|
| β_8 – BoardSize _{<i>t</i>} | 549.17** [2.14] | 610.22** [2.42] | 548.80** [2.16] | 538.81** [2.11] |
| β_9 – InsideDirs _{<i>t</i>} | 14,370.65* [1.84] | 14,206.05* [1.82] | 14,267.45* [1.83] | 14,399.04* [1.85] |
| β_{10} – OutRelDirs _{<i>t</i>} | -6,597.42** [-2.20] | -6,790.95** [-2.28] | -6,627.93** [-2.22] | -6,559.37** [-2.20] |
| β_{11} – Over70Dirs _{<i>t</i>} | 8,875.99** [2.42] | 8,616.47** [2.34] | 8,723.12** [2.36] | 8,887.82** [2.42] |
| β_{12} – BusyDirs _{<i>t</i>} | 28,299.40** [2.37] | 27,619.66** [2.31] | 27,785.18** [2.33] | 28,018.04** [2.34] |
| β_{13} – NonCEOInsStock _{<i>t</i>} | 1,085.03 [1.09] | 1,021.29 [1.02] | 1,127.37 [1.12] | 1,120.09 [1.11] |
| β_{14} – OutsideBlock _{<i>t</i>} | -3,220.60 [-1.17] | -3,352.57 [-1.22] | -3,289.98 [-1.20] | -3,261.46 [-1.19] |
| Intercept | 2,951.48 [0.62] | -7,781.30 [-1.01] | -1,405.19 [-0.18] | -344.36 [-0.05] |
| Industry FE | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes |
| Adjusted R ² | 26.77% | 26.73% | 26.77% | 26.77% |
| N | 9,306 | 9,306 | 9,306 | 9,306 |

Panel B: CSR subsamples

| Variable | CSR subsample (1) | GOV_only subsample (2) | GOV_SOC_only subsample (3) | GOV_SOC_ENV subsample (4) |
|--|-------------------------|-------------------------|----------------------------|---------------------------|
| $\gamma_1 - \text{CSR_Score}_t$ | 164.62*** [2.93] | | | |
| $\delta_1 - \text{GOV_Score}_t$ | | -181.29 [-0.51] | 268.84 [1.61] | 69.75 [0.33] |
| $\delta_2 - \text{SOC_Score}_t$ | | | 273.97 [1.29] | -116.44 [-1.42] |
| $\delta_3 - \text{ENV_Score}_t$ | | | | 156.44** [1.99] |
| $\beta_1 - \text{Sales}_t$ | 0.3271*** [5.19] | 0.5958* [1.88] | 0.4502** [2.35] | 0.3225*** [4.75] |
| $\beta_2 - \text{MTB}_t$ | 777.01*** [3.59] | 427.85** [2.33] | 828.33** [2.23] | 743.28** [2.21] |
| $\beta_3 - \text{ROA}_t$ | 29,390.78*** [4.54] | 23,065.39*** [3.22] | 21,123.47** [2.05] | 44,246.82*** [3.02] |
| $\beta_4 - \text{Return}_t$ | 45,663.58*** [18.67] | 27,918.14*** [10.04] | 50,731.31*** [12.28] | 61,039.44*** [12.78] |
| $\beta_5 - \text{StdDevROA}_t$ | 7,212.75 [0.48] | -10,496.44 [-0.99] | 30,342.09 [0.99] | 576.89 [0.02] |
| $\beta_6 - \text{StdDevRet}_t$ | -6,014.71*** [-5.45] | -3,844.94*** [-3.37] | -3,665.67 [-1.31] | -7,012.89*** [-2.68] |
| $\beta_7 - \text{CEOisChair}_t$ | 4,892.10*** [4.57] | 4,320.94*** [3.25] | 3,644.35 [1.64] | 6,309.07*** [3.63] |
| $\beta_8 - \text{BoardSize}_t$ | 623.14** [2.00] | -66.80 [-0.17] | 1,163.86* [1.90] | -359.88 [-0.73] |
| $\beta_9 - \text{InsideDirs}_t$ | 17,953.88** [2.01] | 19,495.17* [1.83] | 13,158.39 [0.85] | 32,753.6 [1.62] |
| $\beta_{10} - \text{OutRelDirs}_t$ | -6,869.71* [-1.90] | -266.14 [-0.06] | -732.58 [-0.09] | -15,014.06** [-2.53] |
| $\beta_{11} - \text{Over70Dirs}_t$ | 9,321.01** [2.17] | 3,643.08 [0.82] | 10,469.69 [1.34] | 17,220.01** [2.05] |
| $\beta_{12} - \text{BusyDirs}_t$ | 25,727.38* [1.73] | 29,129.33 [1.21] | 37,578.68 [1.38] | 11,884.31 [0.58] |
| $\beta_{13} - \text{NonCEOInsStock}_t$ | 1,534.83 [1.24] | 2,154.88* [1.84] | 4,378.65 [1.61] | 4,062.83 [1.43] |
| $\beta_{14} - \text{OutsideBlock}_t$ | -4,778.85 [-1.48] | -11,745.23* [-1.95] | 4,189.02 [0.73] | -6,217.77 [-1.50] |
| Intercept | 4,217.37 [0.75] | 19,656.49 [1.03] | -17,482.77 [-1.17] | 11,741.21 [0.90] |
| Industry FE | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes |
| Adjusted R ² | 28.76% | 27.65% | 31.06% | 32.43% |
| N | 6,984 | 2,256 | 1,905 | 2,823 |

Table 8: Additional Analysis on CSR Disclosure Type and CEO Compensation

This table replicates the OLS regressions of CSR disclosure type and CEO compensation for the total sample from Table 6 using TDC1 as the dependent variable. Column (1) shows the results for model (1): $CEO\ Compensation_{i,t} = \alpha + \gamma_1 CSR_DV_{i,t} + \beta_{1-6} Financial\ Variables_{i,t} + \beta_{7-14} Corporate\ Governance\ Variables_{i,t} + \varepsilon$. Column (2) shows the results for model (2): $CEO\ Compensation_{i,t} = \alpha + \delta_1 Gov_only_DV_{i,t} + \delta_2 Gov_Soc_only_DV_{i,t} + \delta_3 Gov_Soc_Env_DV_{i,t} + \beta_{1-6} Financial\ Variables_{i,t} + \beta_{7-14} Corporate\ Governance\ Variables_{i,t} + \varepsilon$. Column (3) shows the results for model (3): $CEO\ Compensation_{i,t} = \alpha + \delta_2 Gov_Soc_only_DV_{i,t} + \delta_3 Gov_Soc_Env_DV_{i,t} + \eta_1 Non-CSR_DV_{i,t} + \beta_{1-6} Financial\ Variables_{i,t} + \beta_{7-14} Corporate\ Governance\ Variables_{i,t} + \varepsilon$. Column (4) shows the results for model (4): $CEO\ Compensation_{i,t} = \alpha + \delta_1 Gov_only_DV_{i,t} + \delta_3 Gov_Soc_Env_DV_{i,t} + \eta_1 Non-CSR_DV_{i,t} + \beta_{1-6} Financial\ Variables_{i,t} + \beta_{7-14} Corporate\ Governance\ Variables_{i,t} + \varepsilon$. All models include robust standard errors that are clustered at the firm level. ***, **, * denote significance at the 1%, 5%, and 10% levels or better, respectively. All variables are defined in Appendix A.

Dependent variable = TDC1_t

| Variable | Model 1 (1) | Model 2 (2) | Model 3 (3) | Model 4 (4) |
|-----------------------------------|------------------------|-----------------------|------------------------|-------------------------|
| Reference group: | Non-CSR firms | Non-CSR firms | Gov_only CSR firms | Gov_Soc_only CSR firms |
| $\gamma_1 - CSR_DV_t$ | 299.65* [1.78] | | | |
| $\delta_1 - GOV_only_DV_t$ | | -854.92*** [-4.76] | | -1,199.20*** [-6.33] |
| $\delta_2 - GOV_SOC_only_DV_t$ | | 344.28* [1.70] | 1,199.20*** [6.33] | |
| $\delta_3 - GOV_SOC_ENV_DV_t$ | | 1,754.47*** [7.03] | 2,609.39*** [11.81] | 1,410.19*** [6.26] |
| $\eta_1 - Non-CSR_DV_t$ | | | 854.92*** [4.76] | -344.28* [-1.70] |
| $\beta_1 - Sales_t$ | 0.1517*** [11.67] | 0.1347*** [10.56] | 0.1347*** [10.56] | 0.1347*** [10.56] |
| $\beta_2 - MTB_t$ | 84.50*** [3.15] | 67.15** [2.49] | 67.15** [2.49] | 67.15** [2.49] |
| $\beta_3 - ROA_t$ | 3,927.52*** [4.29] | 3,527.60*** [3.91] | 3,527.60*** [3.91] | 3,527.60*** [3.91] |
| $\beta_4 - Return_t$ | 711.35*** [6.53] | 721.48*** [6.66] | 721.48*** [6.66] | 721.48*** [6.66] |
| $\beta_5 - StdDevROA_t$ | -4,016.01** [-2.11] | -3,292.64* [-1.75] | -3,292.64* [-1.75] | -3,292.64* [-1.75] |
| $\beta_6 - StdDevRet_t$ | -116.61 [-0.71] | 14.69 [0.09] | 14.69 [0.09] | 14.69 [0.09] |
| $\beta_7 - CEOisChair_t$ | 904.67*** [5.71] | 837.66*** [5.46] | 837.66*** [5.46] | 837.66*** [5.46] |

| | | | | |
|--|-------------------------|-------------------------|-------------------------|-------------------------|
| β_8 – BoardSize _t | 539.76*** [10.80] | 439.69*** [9.06] | 439.69*** [9.06] | 439.69*** [9.06] |
| β_9 – InsideDirs _t | -2,094.04* [-1.66] | -1,935.63 [-1.61] | -1,935.63 [-1.61] | -1,935.63 [-1.61] |
| β_{10} – OutRelDirs _t | -1,833.69*** [-3.41] | -1,526.97*** [-2.84] | -1,526.97*** [-2.84] | -1,526.97*** [-2.84] |
| β_{11} – Over70Dirs _t | 554.76 [0.81] | 951.36 [1.43] | 951.36 [1.43] | 951.36 [1.43] |
| β_{12} – BusyDirs _t | 7,078.55*** [3.81] | 6,792.55*** [3.74] | 6,792.55*** [3.74] | 6,792.55*** [3.74] |
| β_{13} – NonCEOInsStock _t | -780.29*** [-4.59] | -536.63*** [-3.25] | -536.63*** [-3.25] | -536.63*** [-3.25] |
| β_{14} – OutsideBlock _t | -43.06 [-0.11] | -22.81 [-0.06] | -22.81 [-0.06] | -22.81 [-0.06] |
| Intercept | 2,094.57*** [3.01] | 2,433.66*** [3.83] | 1,578.74** [2.36] | 2,777.94*** [4.19] |
| Industry FE | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes |
| Adjusted R ² | 43.81% | 46.00% | 46.00% | 46.00% |
| N | 9,306 | 9,306 | 9,306 | 9,306 |

Table 9: Additional Analysis on CSR Disclosure Quality and CEO Compensation

This table replicates the OLS regressions of CSR disclosure quality and CEO compensation from Table 7 using TDC1 as the dependent variable. Panel A uses the total sample and estimates the following model in column (1): $CEO\ Compensation_{i,t} = \alpha + \gamma_1 CSR_Score_1_{i,t} + \eta_1 Non-CSR_DV_{i,t} + \beta_{1-6} Financial\ Variables_{i,t} + \beta_{7-14} Corporate\ Governance\ Variables_{i,t} + \varepsilon$. The CSR score variable is a continuous measure. In columns (2) through (4), the CSR Score variable is replaced with one, two or three of the underlying CSR score variables when estimating the model. Column (2) uses the governance score (GOV_Score_1), column (3) uses GOV_Score_1 and the social score (SOC_Score_1), and column (4) uses GOV_Score_1, SOC_Score_1, and the environmental score (ENV_Score_1). Panel B estimates the model without the Non-CSR indicator variable for four CSR subsamples: column (1) includes all CSR firm-years, column (2) includes CSR firm-years that only provide governance disclosure, column (3) includes CSR firm-years that only provide governance and social disclosures, and column (4) includes CSR firm-years that provide governance, social and environmental disclosures. All models include robust standard errors that are clustered at the firm level. ***, **, * denote significance at the 1%, 5%, and 10% levels or better, respectively. All variables are defined in Appendix A.

Panel A: Total sample

| Variable | (1) | (2) | (3) | (4) |
|------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| $\gamma_1 - CSR_Score_1_t$ | 84.93*** [8.75] | | | |
| $\delta_1 - GOV_Score_1_t$ | | 124.37*** [6.60] | 40.08** [2.05] | 33.80* [1.79] |
| $\delta_2 - SOC_Score_1_t$ | | | 57.15*** [6.72] | 49.32*** [3.65] |
| $\delta_3 - ENV_Score_1_t$ | | | | 12.82 [0.89] |
| $\eta_1 - Non-CSR_DV_t$ | 1,077.08*** [4.98] | 6,009.30*** [6.29] | 2,200.01** [2.29] | 1,875.16** [2.02] |
| $\beta_1 - Sales_t$ | 0.1268*** [9.35] | 0.1359*** [10.20] | 0.1286*** [9.74] | 0.1273*** [9.50] |
| $\beta_2 - MTB_t$ | 77.51*** [3.00] | 82.43*** [3.16] | 73.86*** [2.85] | 74.37*** [2.87] |
| $\beta_3 - ROA_t$ | 3,500.26*** [3.93] | 3,532.94*** [3.93] | 3,478.27*** [3.94] | 3,471.78*** [3.92] |
| $\beta_4 - Return_t$ | 759.23*** [7.02] | 748.76*** [6.84] | 748.95*** [6.92] | 753.28*** [6.96] |
| $\beta_5 - StdDevROA_t$ | -3,266.21* [-1.75] | -3,601.25* [-1.93] | -3,356.38* [-1.82] | -3,305.99* [-1.79] |
| $\beta_6 - StdDevRet_t$ | -48.50 [-0.30] | -83.45 [-0.51] | -20.74 [-0.13] | -24.44 [-0.15] |
| $\beta_7 - CEOisChair_t$ | 828.24*** [5.36] | 850.65*** [5.47] | 830.00*** [5.37] | 827.25*** [5.36] |

| | | | | |
|---|-------------------------|-------------------------|-------------------------|-------------------------|
| β_8 – BoardSize _{<i>t</i>} | 453.95*** [9.15] | 487.61*** [9.79] | 450.99*** [9.15] | 448.64*** [9.08] |
| β_9 – InsideDirs _{<i>t</i>} | -1,693.79 [-1.37] | -1,797.30 [-1.45] | -1,760.70 [-1.43] | -1,729.74 [-1.41] |
| β_{10} – OutRelDirs _{<i>t</i>} | -1,461.91*** [-2.78] | -1,576.14*** [-2.98] | -1,478.94*** [-2.80] | -1,462.81*** [-2.77] |
| β_{11} – Over70Dirs _{<i>t</i>} | 1,005.80 [1.51] | 856.22 [1.28] | 919.81 [1.38] | 958.55 [1.44] |
| β_{12} – BusyDirs _{<i>t</i>} | 7,106.66*** [3.87] | 6,802.17*** [3.68] | 6,900.86*** [3.78] | 6,955.64*** [3.80] |
| β_{13} – NonCEOInsStock _{<i>t</i>} | -648.28*** [-3.86] | -686.62*** [-4.04] | -623.38*** [-3.68] | -625.09*** [-3.69] |
| β_{14} – OutsideBlock _{<i>t</i>} | 6.28 [0.02] | -56.16 [-0.14] | -18.84 [-0.05] | -12.13 [-0.03] |
| Intercept | 820.05 [1.08] | -3,834.93*** [-3.47] | -33.37 [-0.03] | 216.20 [0.19] |
| Industry FE | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes |
| Adjusted R ² | 45.51% | 44.83% | 45.64% | 45.66% |
| N | 9,306 | 9,306 | 9,306 | 9,306 |

Panel B: CSR subsamples

| Variable | CSR subsample (1) | GOV_only subsample (2) | GOV_SOC_only subsample (3) | GOV_SOC_ENV subsample (4) |
|--|-----------------------|------------------------|----------------------------|---------------------------|
| $\gamma_1 - \text{CSR_Score}_t$ | 95.89*** [9.43] | | | |
| $\delta_1 - \text{GOV_Score}_t$ | | -61.67 [-1.08] | 21.47 [0.62] | 52.87* [1.81] |
| $\delta_2 - \text{SOC_Score}_t$ | | | 36.07 [1.23] | 10.86 [0.64] |
| $\delta_3 - \text{ENV_Score}_t$ | | | | 25.33 [1.51] |
| $\beta_1 - \text{Sales}_t$ | 0.1190*** [8.50] | 0.2515*** [3.32] | 0.1815*** [4.60] | 0.1053*** [6.84] |
| $\beta_2 - \text{MTB}_t$ | 74.65** [2.56] | 60.57* [1.89] | 88.88* [1.66] | 55.01 [1.15] |
| $\beta_3 - \text{ROA}_t$ | 3,406.21*** [2.96] | 1,374.04 [1.46] | 4,883.09*** [2.64] | 2,592.78 [0.89] |
| $\beta_4 - \text{Return}_t$ | 806.74*** [5.76] | 303.79** [1.97] | 580.34** [2.09] | 1,480.96*** [5.11] |
| $\beta_5 - \text{StdDevROA}_t$ | -1,321.13 [-0.54] | -4,287.87* [-1.77] | 3,344.87 [0.86] | -2,377.73 [-0.40] |
| $\beta_6 - \text{StdDevRet}_t$ | 109.96 [0.52] | 518.25** [2.41] | 214.32 [0.58] | -227.68 [-0.15] |
| $\beta_7 - \text{CEOisChair}_t$ | 772.33*** [4.20] | 412.36** [2.30] | 569.61** [1.99] | 1,303.23*** [3.85] |
| $\beta_8 - \text{BoardSize}_t$ | 464.78*** [7.92] | 176.39*** [2.89] | 429.79*** [4.57] | 476.86*** [4.81] |
| $\beta_9 - \text{InsideDirs}_t$ | -1,038.15 [-0.69] | -2,342.54** [-2.02] | -695.19 [-0.29] | 1,054.18 [0.29] |
| $\beta_{10} - \text{OutRelDirs}_t$ | -942.16 [-1.51] | -438.14 [-0.65] | -1,160.10 [-0.95] | -1,173.12 [-1.05] |
| $\beta_{11} - \text{Over70Dirs}_t$ | 1,275.40* [1.69] | 76.11 [0.13] | 1,167.81 [0.95] | 3,944.53** [2.35] |
| $\beta_{12} - \text{BusyDirs}_t$ | 7,641.28*** [3.46] | 7,138.77** [2.19] | 8,975.01** [2.43] | 5,067.73 [1.56] |
| $\beta_{13} - \text{NonCEOInsStock}_t$ | -668.50*** [-3.27] | -173.65 [-1.06] | -323.29 [-0.94] | -273.65 [-0.48] |
| $\beta_{14} - \text{OutsideBlock}_t$ | 29.67 [0.07] | 519.38 [1.51] | -29.49 [-0.04] | -557.14 [-0.88] |
| Intercept | 237.81 [0.29] | 4,274.99 [1.56] | -1,430.47 [-0.57] | -114.20 [0.19] |
| Industry FE | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes |
| Adjusted R ² | 46.42% | 17.92% | 25.38% | 45.09% |
| N | 6,984 | 2,256 | 1,905 | 2,823 |

Appendix A – Variable Definitions

| Variable | Definition | Source |
|----------------------------|--|---------------------------------|
| CSR Variables | | |
| CSR_Score | Proprietary Bloomberg score based on the extent of a company's Environmental, Social, and Governance (ESG) disclosure | Bloomberg |
| ENV_Score | Proprietary Bloomberg score based on the extent of a company's environmental disclosure as part of Environmental, Social and Governance (ESG) data | Bloomberg |
| SOC_Score | Proprietary Bloomberg score based on the extent of a company's social disclosure as part of Environmental, Social and Governance (ESG) data | Bloomberg |
| GOV_Score | Proprietary Bloomberg score based on the extent of a company's governance disclosure as part of Environmental, Social and Governance (ESG) data | Bloomberg |
| CSR_DV | Indicator variable equal to 1 if the firm has a CSR_Score in a given fiscal year; zero otherwise | Calculated |
| GOV_only_DV | Indicator variable equal to 1 if the firm has both a CSR_Score and a GOV_Score in a given fiscal year, but neither an ENV_Score or SOC_Score; zero otherwise | Calculated |
| GOV_SOC_only_DV | Indicator variable equal to 1 if the firm has a CSR_Score, a GOV_Score, and a SOC_Score in a given fiscal year, but not an ENV_Score; zero otherwise | Calculated |
| GOV_SOC_ENV_DV | Indicator variable equal to 1 if the firm has a CSR_Score, a GOV_Score, a SOC_Score, and an ENV_Score in a given fiscal year; zero otherwise | Calculated |
| CSR_Score_1 | Continuous number set equal to CSR_Score if CSR_DV equals 1; zero otherwise | Calculated |
| ENV_Score_1 | Continuous number set equal to ENV_Score if GOV_SOC_ENV_DV equals 1; zero otherwise | Calculated |
| SOC_Score_1 | Continuous number set equal to SOC_Score if GOV_SOC_ENV_DV equals 1 or GOV_SOC_only_DV equals 1; zero otherwise | Calculated |
| GOV_Score | Continuous number set equal to GOV_Score if GOV_SOC_ENV_DV equals 1 or GOV_SOC_only_DV equals 1 or GOV_only_DV equals 1; zero otherwise | Calculated |
| Non-CSR_DV | Indicator variable equal to 1 if the firm does not have a CSR_Score in a given fiscal year; zero otherwise | Calculated |
| Financial Variables | | |
| Sales | Total sales in millions (SALE) for firm i in year t | Compustat – Fundamentals Annual |

| Variable | Definition | Source |
|-------------------------------|---|--|
| MTB | The ratio of market value of equity (MKVALT) to book value of equity (CEQ) for firm i, averaged across the five years ending in year t | Compustat – Fundamentals Annual |
| ROA | The ratio of annual earnings before interest and taxes (EBIT) for firm i in year t to lagged total assets (AT) | Compustat – Fundamentals Annual |
| Return | The one-year total return to shareholders, including the monthly reinvestment of dividends (TRS1YR), for firm i in year t | ExecuComp – Company Financial and Director Compensation |
| StdDevROA | The standard deviation of ROA for firm i, across the five years ending in year t | Compustat – Fundamentals Annual |
| StdDevRet | The standard deviation of Return for firm i, across the five years ending in year t | ExecuComp – Company Financial and Director Compensation |
| Governance Variables | | |
| CEOisChair | Indicator variable equal to 1 if the CEO is also the current Chairman of the board of directors; else zero | GMI Ratings – Companies |
| BoardSize | Total number of all directors on a given board (excluding Emeritus or Advisory member positions) | GMI Ratings – Companies |
| InsideDirs | Percentage of directors who are executives of the company, scaled by BoardSize | GMI Ratings – Companies |
| OutRelDirs | Percentage of all independent directors on a given board that have or have had a significant relationship with the company, scaled by BoardSize | GMI Ratings – Companies |
| Over70Dirs | Percentage of all directors over the age of 70 on a given board, scaled by BoardSize | GMI Ratings – Companies |
| BusyDirs | Percentage of directors with more than 4 corporate (public) directorships on a given board, scaled by BoardSize | GMI Ratings – Companies |
| NonCEOInsStock | Indicator variable equal to 1 if top management other than the CEO and directors hold an estimated 5% or greater of the firm's outstanding shares; zero otherwise | GMI Ratings – Companies; ExecuComp – Annual Compensation |
| OutsideBlock | Indicator variable equal to 1 if the firm has an external shareholder that holds at least 5% of the firm's outstanding shares; zero otherwise | GMI Ratings – Companies |
| Compensation Variables | | |
| Total CEO Compensation | Total CEO compensation in thousands of dollars, defined as the change in cumulative CEO wealth with firm i from year t-1 to year t. Please refer to Appendix B for a detailed explanation of how this variable is measured. | Calculated (ExecuComp – Annual Compensation, Outstanding Equity Awards; Compustat – Fundamentals Annual) |
| TDC1 | 2006 reporting format, which is comprised of the following: Salary, Bonus, Non-Equity Incentive Plan | ExecuComp – Annual Compensation |

| | | |
|--|--|--|
| | Compensation, Grant-Date Fair Value of Option Awards, Grant-Date Fair Value of Stock Awards, Deferred Compensation Earnings Reported as Compensation, and Other Compensation | |
|--|--|--|

All continuous variables have been winsorized at the 1% and 99% levels.

Appendix B – CEO compensation measurement and analysis

In this appendix I describe the process used to measure Total CEO Compensation. By explaining the variable calculation, I will highlight its similarities and differences with respect to the measure more typically utilized in empirical studies on CEO compensation, TDC1²⁴.

I define Total CEO Compensation as the change in CEO cumulative wealth related to firm i from year $t - 1$ to year t . Included in this variable are the following: salary, bonus, non-equity incentives, other compensation, the change in the fair value from year $t - 1$ to year t of the CEO's entire stock options, restricted stock, and common stock portfolios, the change in the CEO's pension from year $t - 1$ to year t , and the cash realized upon the exercise of stock options. ExecuComp defines its primary compensation variable, TDC1, as total compensation in thousands of dollars calculated using the:

“2006 reporting format, which is comprised of the following: Salary, Bonus, Non-Equity Incentive Plan Compensation, Grant-Date Fair Value of Option Awards, Grant-Date Fair Value of Stock Awards, Deferred Compensation Earnings Reported as Compensation, and Other Compensation.”

For illustrative purposes, I've randomly chosen one firm-year from the sample with which to walk through both of these variable calculations in detail: Cytec Industries, Inc. for FY2011, whose CEO was Shane D. Fleming.

1. Cytec Industries, Inc. – FY2011

The following table presents the components of Total CEO Compensation and TDC1 for Cytec Industries, Inc. CEO, Shane D. Fleming, in FY2011 (all amounts are in thousands):

²⁴ Studies using TDC1 for total compensation include but are not limited to: Carter et al. (2007), Chhaochharia and Grinstein (2009), Faulkender and Yang (2010), Ferri and Sandino (2009), Graham et al. (2011), and Guthrie et al. (2012).

| | Total CEO Compensation | TDC1 |
|---|-------------------------------|-------------------|
| Salary | \$840.48 | \$840.48 |
| Bonus | \$0 | \$0 |
| Non-equity incentives | \$3,371.48 | \$3,371.48 |
| Other compensation | \$368.44 | \$368.44 |
| Stock options | (\$1,372.01) | \$1,292.08 |
| Restricted stock | (\$33.93) | \$388.34 |
| Common stock | (\$446.05) | N/A |
| Pension change | \$121.78 | N/A |
| Cash realized from stock option exercises | \$0 | N/A |
| Deferred compensation | N/A | \$0 |
| Total: | \$2,850.19 | \$6,260.82 |

The treatment of salary, bonus, non-equity incentives, and other compensation is identical for both variables, so the remainder of the discussion will focus on the stock options, restricted stock, and common stock components.

1.1 Stock options

The stock option component in Total CEO Compensation is calculated as the change in the fair value of the CEO's entire outstanding stock option portfolio at fiscal year-end 2010 and fiscal year-end 2011. I first obtained the detail of the CEO's outstanding stock option grants at each fiscal year-end, including the grant date and number of outstanding options (total options that have not yet been exercised). Then I calculated the Black-Scholes fair value for each grant, necessarily incorporating three assumptions as disclosed by the firms: risk-free rate, volatility, and dividend yield. One caveat to this approach is that due to data limitations, each outstanding grant at any given fiscal year-end will be based on the same three assumptions as all other outstanding grants for that firm's fiscal year-end; however, in practice the fair value calculation would be performed when stock options are granted and would therefore be based on the risk-

free rate, volatility, and dividend yield specific to that point in time. Since the individual assumptions that would have been used to value each grant on the original grant date are not available, I am approximating them using the annual assumptions provided by the firm.

The following table outlines the stock option grants in which the CEO had outstanding (i.e., unexercised) options as of fiscal year-end 2010 and 2011, as well as the Black-Scholes fair value that I calculated for each grant, rounded to two decimal places:

| | FYE 2010 | | | FYE 2011 | | |
|--------|-------------------------|---------------------|------------|-------------------------|---------------------|------------|
| | Stock Option Grant Date | Outstanding Options | Fair Value | Stock Option Grant Date | Outstanding Options | Fair Value |
| | 1/18/2005 | 15,000 | 22.26 | 1/18/2005 | 15,000 | 11.93 |
| | 2/7/2006 | 22,000 | 23.90 | 2/7/2006 | 22,000 | 13.35 |
| | 1/30/2007 | 20,000 | 23.27 | 1/30/2007 | 20,000 | 12.75 |
| | 1/28/2008 | 25,000 | 26.68 | 1/28/2008 | 25,000 | 15.58 |
| | 6/26/2008 | 11,250 | 26.66 | 6/26/2008 | 11,250 | 15.50 |
| | 1/28/2009 | 100,000 | 38.72 | 1/28/2009 | 100,000 | 26.97 |
| | 1/27/2010 | 82,150 | 26.55 | 1/27/2010 | 82,150 | 21.85 |
| | | | | 1/26/2011 | 62,030 | 19.17 |
| Total: | 12/31/2010 | 275,400 | \$8,345.11 | 12/31/2011 | 337,430 | \$6,972.62 |

To calculate the total fair value of the stock options portfolio at each fiscal year-end (shown in the last row of the table above), I multiply the outstanding options per grant by the fair value for the grant and then add them together. Finally, I take the difference between these two totals to calculate the stock options component of Total CEO Compensation.

In comparison, the CEO's stock option portion of TDC1 for fiscal year-end 2011 includes only the grant he received on 1/26/2011. Furthermore, this grant was valued using a binomial-lattice option valuation model (as opposed to a Black-Scholes model). Although this type of model also considers the risk-free rate, volatility, and dividend yield, it is more complex to use

and requires other estimates (e.g., number of discrete time periods within each option grant) that are not readily available. However, in the company's 2011 10-K, it notes that the weighted average fair value per option at 12/31/2011 is \$20.83, which is very similar to the Black-Scholes fair value I calculated above of \$19.17.

Despite the use of different option valuation models, this is a good example of the cumulative effect that stock options can have on CEO wealth. If a CEO has outstanding options from numerous grants, many of which were made in previous periods, then how the value of all his outstanding options changes over time will impact how the CEO's wealth also changes over time. In this particular case, although the CEO was granted more options in 2011 the fair value of his overall portfolio decreased from 2010, causing a reduction in his wealth in 2011. If the only grant considered as compensation in 2011 is the new grant made that year, then it ignores the potential downside (or upside) of the changes in wealth associated with the CEO's remaining outstanding stock options.

1.2 Restricted stock

The restricted stock component in Total CEO Compensation is calculated as the average percentage of unvested restricted stock shares/units held by the CEO at fiscal year-end 2010 and fiscal year-end 2011, multiplied by the product of the company's annual stock return for fiscal year 2011 and the company's market capitalization at fiscal year-end 2011. The following table outlines the restricted stock grants in which the CEO had unvested shares/units as of fiscal year-end 2010 and 2011:

| | FYE 2010 | | FYE 2011 | |
|---------------------------|------------------------|-----------------------------|------------------------|-----------------------------|
| | Stock Award Grant Date | Unvested Stock Shares/Units | Stock Award Grant Date | Unvested Stock Shares/Units |
| | 1/27/2010 | 9,286 | | |
| Total: | 12/31/2010 | 9,286 | 12/31/2011 | 0 |
| Total outstanding shares: | 12/31/2010 | 49,445,000 | 12/31/2011 | 45,509,000 |
| Unvested stock (%): | 12/31/2010 | 0.0204% | 12/31/2011 | 0 |

Incorporating the entirety of the CEO's outstanding restricted stock portfolio at each fiscal year-end results in an average unvested restricted stock holding of 0.0102% for fiscal year 2011. The company had an annual return of -15.02% in fiscal year 2011 and the market capitalization (in thousands) at fiscal year-end 2011 was \$2,214,015. As a result, the restricted stock component of Total CEO Compensation for fiscal year 2011 is -\$33.93 (0.0102% x -15.02% x \$2,214.02).

The restricted stock component in TDC1 is calculated as the grant date fair value of the restricted stock awards made to the CEO in fiscal year 2011. According to the company's proxy statement, the CEO received one restricted stock award in 2011 of 7,542 time-based restricted stock units and it is valued at \$51.49. Therefore, the value of the restricted stock component of *TDC1* for fiscal year 2011 is the product of the two, or \$388.34. Although there is a slight discrepancy between what ExecuComp reported for the CEO's restricted stock holdings as of fiscal year-end 2011 (nothing) and what is being included in TDC1 for the 2011 restricted stock grants, this still does not address the fact that the CEO's restricted stock grant from 2010 is still outstanding in 2011, and as such, has decreased in value as a result of the company's performance. Restricted stock, similar to the stock options, illustrates that even with new equity grants in a period, the CEO can still experience wealth reductions (or increases) as a result of the loss (gain) in value of any previously granted restricted stock shares. This wealth effect is not captured in TDC1.

1.3 Common stock

The common stock component in Total CEO Compensation is calculated as the average percentage of outstanding common stock, excluding stock options, held by the CEO at fiscal year-end 2010 and fiscal year-end 2011, multiplied by the product of the company's annual stock return for fiscal year 2011 and the company's market capitalization at fiscal year-end 2011. The following table outlines the outstanding common stock held by the CEO as of fiscal year-end 2010 and 2011:

| | FYE 2010 | | FYE 2011 | |
|-------------------------------|------------|------------|------------|------------|
| Total CEO outstanding shares: | 12/31/2010 | 60,774 | 12/31/2011 | 66,147 |
| Total outstanding shares: | 12/31/2010 | 49,445,000 | 12/31/2011 | 45,509,000 |
| Common stock (%): | 12/31/2010 | 0.123% | 12/31/2011 | 0.145% |

Incorporating the entirety of the CEO's outstanding common stock shares, excluding stock options, at each fiscal year-end results in an average common stock holding of 0.134% for fiscal year 2011. The company had an annual return of -15.02% in fiscal year 2011 and the market capitalization (in thousands) at fiscal year-end 2011 was \$2,214,015. As a result, the common stock component of Total CEO Compensation for fiscal year 2011 is -\$446.05 (0.134% x -15.02% x \$2,214,015). There is no allowance for a change in the value of the CEO's common stock holdings within *TDCI*.

Appendix C – Excerpts from CSR disclosures

Example 1 – Chesapeake Energy, 2014 Corporate Responsibility Report

The following excerpt comes from the “Letter to our Stakeholders”, written by Robert D. Lawler, President, Chief Executive Officer and Director, on page 1 (emphasis added):

“This performance is the foundation for our goals in 2015 as we aim to further improve our safety and spills records for the benefit of our employees and the areas where we operate. Although we face a challenging commodity price environment, our commitment to operating responsibly remains at the forefront of our company culture. ***We will not sacrifice the safety of our employees or business partners, the livelihood of our communities or the reputation of our company for financial gain.***”

The following highlights are also noted on page 1 of the report (emphasis added):

“KEY CORPORATE RESPONSIBILITY ACCOMPLISHMENTS

- » Achieved the best safety performance in the company’s history
- » Reduced cumulative reportable spill volume by more than 40%
- » Introduced a revised Supplier Code of Conduct and trained nearly 3,000 business partners
- » ***Launched a program that aligns employee compensation to top financial and operational metrics, including safety and environmental performance***”

This excerpt comes from a section entitled, “Board Accountability and Oversight”, on page 7 of the report (emphasis added):

“Introducing Chesapeake’s core values in 2013 helped establish a culture of accountability across the organization. To maintain and grow this values-based culture requires continued commitment at the Board of Directors and executive level. The committees of the Board...have selective oversight over corporate responsibility matters, and ***the entire Board is responsible for Chesapeake’s overall responsibility performance. For further accountability, the Board established an executive compensation program that aligns pay with performance. When determining executive compensation, directors review both the company’s performance and the executive’s performance according to strategic financial, environmental and safety goals set each year. Both of these objective evaluation measures reward actions that drive shareholder value.***”

Example 2 – Texas Instruments, 2014 Corporate Citizenship Report

The following excerpt comes from the “Executive Statement”, written by Rich Templeton, Chairman, President, and CEO, on page 2 of the report (emphasis added):

“During the year, we asked our employees, customers, investors, community leaders and others for their perspective on *the most important social and environmental issues* related to TI operations. *We took that feedback and used it to identify new ways to advance our performance. In 2014, through our efforts to engage people, support our communities and innovate solutions, we strengthened TI, and at the same time reduced the environmental impact of our operations and improved the way people live around the world.*”

The following excerpt is in the “Report Overview” section, on page 3 of the report (emphasis added):

“Citizenship is a commitment to hold ourselves accountable for our social, environmental and economic impact around the world. We strive to measure and learn from our performance annually. Operating responsibly is the way we do business. TI’s 2014 Corporate Citizenship Report provides a comprehensive overview of the company’s social and environmental performance in fiscal year 2014. *As part of this process, we conducted a formal stakeholder assessment that included peer benchmarking, an employee survey and stakeholder interviews. The assessment helped us understand which environmental, social and governance initiatives are most important to our stakeholders and determine where to focus our efforts.*”

The following excerpt comes from the “Business continuity” section, on page 18 of the report (emphasis added):

“The purpose of TI’s business continuity program is to identify risks and prepare for potential business impacts to minimize or avoid any resulting interruption to TI’s operations or supply chain. *We monitor risks at each of our locations and within our supply chain such as earthquakes, extreme weather events and water-related issues that could reduce or disrupt our supply chain and/or production. We conduct more formal risk assessments every two years, or as major changes require, such as the purchase of new facilities. This assessment process includes the identification of existing controls (such as supplemental power generation) or the need for additional controls.* Our facilities in Texas and China have become more vulnerable to prolonged droughts. Our facilities in Texas, Asia and Japan are also susceptible to hurricanes, tornadoes and typhoons. See more in Climate change and Water use. In 2014, we completed scheduled training and exercises for TI assembly and test facilities, further enhanced our supply-chain response plan, and worked with our suppliers to mitigate raw material and component risks. *In 2015, TI will further refine and improve its crisis management and business continuity program by implementing strict metrics through a new company initiative called Readiness 2 Recover. This will improve our ability to measure effectiveness and compliance with business continuity program requirements.*”

Appendix D – Excerpts from proxy statements

Example 1 – The Coca-Cola Company proxy statement, 3/5/2009

The following excerpt comes from the “Annual Incentive” section of the proxy statement, on page 39, and refers to the compensation for E. Neville Isdell, the CEO of Coca-Cola from June 2004 through June 30, 2008, and Chairman of the Board of Directors through April 22, 2009 (emphasis added):

“In utilizing its discretion, the Compensation Committee considered a number of quantitative and qualitative factors, including, but not limited to, volume growth, earnings per share growth, global volume and value share gains and overall Company operating performance in the current economic climate. *In addition, the Compensation Committee also considered performance against individual goals as follows:*

Mr. Isdell: Mr. Isdell led a seamless Chief Executive Officer transition, enabling management and employees to focus on delivering business results. *In addition, in his continued role as Chairman of the Board, Mr. Isdell continued to enhance the external perception of the Company in the areas of social responsibility and diversity.* Mr. Isdell's strategic leadership in the first half of the year as Chief Executive Officer contributed substantially to the Company's solid operating performance.

Example 2 – Philip Morris International, Inc. proxy statement, 4/1/2011

The following excerpt comes from the “Executive Compensation” section of the proxy statement, on page 29, within the “Analysis of 2010 Performance Ratings” subsection (emphasis added):

“In addition to these six performance measures, *the Committee also evaluated our performance on the following key strategic initiatives:*

- the highly promising transaction with Fortune Tobacco in the Philippines, which widened our share leadership in Asia;
- our continued efforts to pursue comprehensive, evidence-based regulation governing the manufacture, marketing, sale, use and taxation of tobacco products;
- our product and other innovation initiatives;
- achievement of our three-year productivity target of \$1.5 billion in gross savings set at the time of the spin-off;
- *our efforts and results in improving our environmental, health and safety record;*
- our continued progress in nurturing and developing our talent pool and future leadership; and
- our robust control, compliance and integrity programs.”

Appendix E – Breakdown of data points underlying CSR variables in Bloomberg

In order for Bloomberg to calculate its proprietary CSR variables (ESG_Score, ENV_Score, SOC_Score, and GOV_Score), they examine 758 data points (as of February 2016), as reflected in the ESG portion of their terminals. The following is a list of those data points by CSR variable (as of February 2016):

Environmental (ENV_Score) (276)

Audit/Verification (3)

- Verification Type
- Assurance Auditor
- Latest Period End Date

Certifications (3)

- ISO 14001 Certified Sites
- Number of Sites
- % Sites Certified

Damages (5)

- Number of Spill
- Number of Environmental Fines
- Environmental Fines (Amount)
- Amount of Spills (Th Tonnes)
- Hydrocarbon Spills

Emission (69)

- Mercury Emissions
- Direct CO2 Emissions (Th Tonnes)
- Indirect CO2 Emissions (Th Tonnes)
- Total CO2 Emissions (Th Tonnes)
- CO2 Intensity (Tonnes)
- Total GHG Emissions (Th Tonnes)
- Travel Emissions (Th Tonnes)
- Nitrogen Oxide Emissions (Th Tonnes)
- Sulphur Dioxide Emissions (Th Tonnes)
- VOC Emissions (Th Tonnes)
- Carbon Monoxide Emissions (Th Tonnes)
- Methane Emissions (Th Tonnes)
- ODS Emissions (Th Tonnes)
- Particulate Emissions (Th Tonnes)
- Emissions Reduction Initiatives
- GHG Scope 1
- GHG Scope 2
- GHG Scope 3
- Sulphur Oxide Emissions (Th Tonnes)
- Direct Nitrous Oxide Emissions
- Direct Sulfur Hexafluoride Emissions
- Direct Methane Emissions in CO2 Equivalent
- Direct Nitrous Oxide Emissions in CO2 Equivalent
- Direct HFC Emissions in CO2 Equivalent

Direct PFC Emissions in CO2 Equivalent
 Direct SF6 Emissions in CO2 Equivalent
 Carbon Dioxide Intensity per Sales Calculation
 Total Greenhouse Gas / Carbon Dioxide Emissions
 Scope 1 Greenhouse Gas / Carbon Dioxide Emissions
 Scope 2 Greenhouse Gas / Carbon Dioxide Emissions
 Sulphur Dioxide / Sulphur Oxide Emissions
 Total GHG CO2 Emissions Intensity per Sales
 Scope 1 GHG CO2 Emissions Intensity per Sales
 Scope 2 GHG CO2 Emissions Intensity per Sales
 Total GHG CO2 Emissions Intensity per EBITDA
 Total GHG CO2 Emissions Intensity per Energy
 Total GHG CO2 Emissions Intensity per Employee
 Total GHG CO2 Emissions Intensity per Assets
 Total GHG CO2 Emissions Intensity per MBOE
 Total GHG CO2 Emissions Intensity per Vehicle Sold
 Tot GHG CO2 Emissions Intensity per Elec Sold
 Total GHG CO2 Emissions Intensity per RPM
 Total GHG CO2 Emissions Intensity PSF Meter
 Embedded Carbon in Total Reserves
 Embedded Carbon in Oil Reserves
 Embedded Carbon in Gas Reserves
 Gas Flaring per MBOE
 NOx Emissions per Sales
 SOx Emissions per Sales
 GHG Scope 1 Intensity per Power Generated
 Greenhouse Gas Intensity per Sales
 Greenhouse Gas Intensity per EBITDA
 Greenhouse Gas Intensity per Energy Consumption
 Greenhouse Gas Intensity per Employee
 Greenhouse Gas Intensity per Retail Elec Sold
 Travel Related Greenhouse Gas per Employee
 Carbon Dioxide Intensity per EBITDA
 Carbon Dioxide Intensity per Employee
 Carbon Dioxide Intensity per Retail Elec Sold
 Travel Related Carbon Dioxide per Employee
 Greenhouse Gas Intensity per Assets
 Carbon Dioxide Intensity per Assets
 GHG Scope 1 Intensity per Sales
 GHG Scope 2 Intensity per Sales
 Travel Emissions per Sales
 Greenhouse Gas Intensity per MBOE
 Carbon Dioxide Intensity per MBOE
 GHG Intensity per Vehicle Sold
 CO2 Intensity per Vehicle Sold

Industry Specific (89)

Energy (74)

Utilities (74)

Coal Energy Capacity
Gas Energy Capacity
Fossil Fuels Energy Capacity
Nuclear Energy Capacity
Hydro Energy Capacity
Wind Energy Capacity
Solar Energy Capacity
Biomass Energy Capacity
Waste Energy Capacity
Other Renewables Energy Capacity
Total Renewables Energy Capacity
Coal % Energy Capacity
Gas % Energy Capacity
Fossil Fuels % Energy Capacity
Nuclear % Energy Capacity
Hydro % Energy Capacity
Wind % Energy Capacity
Solar % Energy Capacity
Biomass % Energy Capacity
Waste % Energy Capacity
Other Renewables % Energy Capacity
Total Renewables % Energy Capacity
Coal Energy Production
Gas Energy Production
Fossil Fuels Energy Production
Nuclear Energy Production
Hydro Energy Production
Wind Energy Production
Solar Energy Production
Biomass Energy Production
Waste Energy Production
Other Renewables Energy Production
Total Renewables Energy Production
Purchased Electricity
Purchased Electricity Coal
Purchased Electricity Gas
Purchased Electricity Fossil Fuels
Purchased Electricity Nuclear
Purchased Electricity Hydro
Purchased Electricity Wind
Purchased Electricity Solar
Purchased Electricity Biomass
Purchased Electricity Waste
Purchased Electricity Other Renewables

Purchased Electricity Total Renewables
 Electricity Gen Capacity Thermal Coal/Lig MW
 Electricity Generation Capacity Thermal Oil MW
 Electricity Generation Capacity Thermal CHP MW
 Electricity Gen Capacity Thermal Multifuel MW
 Electricity Gen Capacity Renewables Geothermal MW
 Electricity Gen Cap Therm Oth Non Renewables MW
 Electricity Generation Capacity Thermal Lignite %
 Electricity Generation Capacity Thermal Oil %
 Electricity Generation Capacity Thermal CHP %
 Electricity Generation Capacity Thermal Multiple %
 Electricity Generation Capacity Geothermal %
 Electricity Gen Capacity Other Non Renewable %
 Electricity Produced Thermal Coal and Lignite GWh
 Electricity Produced Thermal Oil Gigawatt Hours
 Electricity Produced Thermal CHP GWh
 Electricity Produced Thermal Multifuel GWh
 Electricity Produced Renewables Geothermal GWh
 Electricity Produced Therm Oth Non Renewables GWh
 Fuel Used in Electricity Generation NatGas GWh
 Fuel Used in Electricity Gen Fuel Oil Thousand MT
 Fuel Used in Electricity Gen Biomass Thousand MT
 CO2 Emissions Less Allowances Mil MT Under EU ETS
 Carbon Dioxide Allowances Million MT Under EU ETS
 Electricity Generation Capacity Thermal Coal/LC MW
 Electricity Produced Thermal Coal/LC GWh
 Electricity Generation Capacity – Total Megawatts
 Carbon Dioxide Emissions Million MT under EU ETS
 Heat Generation Capacity Thermal CHP in MW
 Heat Produced Thermal CHP in GWh

Other (15)

Gas Flaring (Th Tonnes)
 Nuclear % of Total Energy Production
 Solar % of Total Energy Production
 Phones Recycled
 SRI Assets Under Management
 Greenhouse Gas Intensity per RPM
 Carbon Dioxide Intensity per RPM
 Fuel Consumption per RPM
 SRI Assets % Total AUM
 Greenhouse Gas Intensity per Square Foot
 Carbon Dioxide Intensity per Square Foot
 Energy Intensity per Square Foot
 Water Intensity per Square Foot
 Greenhouse Gas Intensity per GWh Sold
 Carbon Dioxide Intensity per GWh Sold

Other (14)

Green Building Policy
Environmental Quality Management Policy
Investments in Operational Sustainability
Climate Change Policy
Environmental Accounting Cost
Biodiversity Policy
Climate Change Opportunities Discussed
Risks of Climate Change Discussed
Taxes Paid to Governments
Consistent Reporting Basis
R&D Expenditures per Cash Flow
ESG Disclosure Score
Environmental Disclosure Score
Sustainable Investment/Capital Expenditures

Product (3)

BNEF New Energy Exposure Rating
BNEF Nuclear Exposure Rating
New Products – Climate Change

Resource Consumption (69)

Total Energy Consumption (MWh)
Renewable Energy Use (MWh)
Total Water Use
% Water Recycled
Discharges to Water
Paper Consumption (Th Tonnes)
Raw Materials Used (Th Tonnes)
% Recycled Materials
Energy Efficiency Policy
Sustainable Packaging
Electricity Used
Water per Unit of Production
Total Power Generated
Waste Sent to Landfills
Fuel Used – Coal/Lignite
Fuel Used – Natural Gas
Fuel Used – Crude Oil/Diesel
Process Water Used
Surface Water Withdrawals
Groundwater Withdrawals
Salt Water Withdrawals
Municipal Water Use
Reclaimed Water Use
Total Water Recycled
Chemical Oxygen Demand of Discharges
Biological Oxygen Demand of Discharges

Cooling Water Inflow
Cooling Water Outflow
Water Policy
Mining Overburden
Total Water Withdrawal
Water Use/Withdrawal
Water Use/Withdrawal Intensity per Sales
Water Use/Withdrawal Intensity per EBITDA
Water Use/Withdrawal Intensity per Energy Consumed
Water Use/Withdrawal Intensity per MBOE
Water Use/Withdrawal Intensity per Employee
Water Use/Withdrawal Intensity per Assets
Water Use/Withdrawal Intensity per Power Generated
Waste Intensity per Employee
Energy Intensity per Revenue Passenger Miles/Kms
NOx Intensity per Revenue Passenger Miles/Kms
SO2/SOx Intensity per Revenue Passenger Miles/Kms
GHG/CO2 Intensity per Power Generated
GHG Intensity per Power Generated
CO2 Intensity per Power Generated
NOx Intensity per Power Generated
SO2/SOx Intensity per Power Generated
NOx Intensity per MBOE
SO2/SOx Intensity per MBOE
Spills per MBOE
CO2 Intensity per Energy Consumed
Water Use per Power Generated
Energy Intensity per Sales
Energy Intensity per EBITDA
Energy Intensity per Employee
Energy Intensity per MBOE Produced
Water Intensity per Sales
Water Intensity per EBITDA
Water Intensity per Energy Consumption
Water Intensity per Employee
Paper Consumption per Employee
Energy Intensity per Assets
Water Intensity per Assets
Paper Consumption per Sales
Water Usage Efficiency Rate
Water Intensity per MBOE
Energy Intensity per Vehicle Sold
Water Intensity per Vehicle Sold

Scope of Coverage (2)

Percent of Disclosure
Scope of Disclosure

Supply Chain (7)

Environmental Supply Chain Management
Number of Suppliers Audited
Number of Supplier Audits Conducted
Social Supply Chain Management
Number Supplier Facilities Audited
Number of Customer Complaints
Total Recordable Incident Rate

Waste Management (12)

Hazardous Waste (Th Tonnes)
Total Waste (Th Tonnes)
Waste Recycled (Th Tonnes)
Paper Recycled (Th Tonnes)
Waste Reduction Policy
Total Water Discharged
Drilling Waste
Tailings Waste
Water Discharge Percent
Waste Generated per Assets
Waste Generated per Sales
Waste Generated per Vehicle Sold

Social (SOC_Score) (50)**Community (10)**

Community Spending
Sustain Sup Guidelines Encomp ESG Area Pub Disclsd
Intellectual Property Rights Protection Policy
Quality Assurance and Recall Policy
Consumer Data Protection Policy
Equator Principles Signatory
Community Spending/Profit Before Tax
Social Disclosure Score
Community Spending Percentage of EBITDA
Community Spending Percentage of Total Equity

Employee (40)

Number of Employees – CSR
Employee Turnover %
% Employees Unionized
% Women in Management
% Women in Workforce
% Minorities in Management
% Minorities in Workforce
Workforce Accidents – Employees
Lost Time from Accidents
Fatalities – Contractors
Fatalities – Employees

Fatalities – Total
Health and Safety Policy
Equal Opportunity Policy
Human Rights Policy
Training Policy
Fair Remuneration Policy
Employee Average Age
% Disabled in Workforce
Lost Time Incident Rate
Employee CSR Training
Employee Training Cost
Fatalities – Third Party
Total Hours Spent by Firm – Employee Training
Number of Part-Time Employees
Number of Temporary Employees
Number of Contractors
Total Accidents – Contractors
Lost Time Incident Rate – Contractors
Total Recordable Incident Rate – Contractors
Policy Against Child Labor
BBBEE Rating Level
BBBEE Overall Score
BBBEE and Black/HDSA Ownership Percentage
Actual Cash Flow per Employee
Actual Personnel Expenses per Employee
Training Spending per Employee
Fatalities per 1000 employees
Accidents per 1000 employees
Lost Time per Employee

Governance (GOV_Score) (432)

Audit/Verification (7)

GRI Criteria Compliance
UN Global Compact Signatory
Bloomberg Survey Completed
PRI Signatory
Global Reporting Initiatives Checked
Auditor Ratification
Years Auditor Employed

Board (125)

Board Size
Non Executive Directors on Board
% Non Exec Directors on Board
Employee Reps on Board
Non Employee Directors on Board
CEO Duality

Executive Chair (Y/N)
 CEO Promoted from Within
 Youngest Director Age
 Oldest Director Age
 Board Age Range
 Board Average Age
 Number of Executives
 Size of Audit Committee
 # Execs on Audit Committee
 # Non Execs on Audit Committee
 # Members of Comp Committee
 # Execs on Comp Committee
 # Non Execs on Comp Committee
 # CEOs on Comp Committee
 Size of Nomination Committee
 # Execs on Nomination Committee
 # Non Execs on Nomination Committee
 CSR/Sustainability Committee (Y/N)
 Average Exec Tenure
 Average Board Tenure
 Tenure of Longest Serving Board Member
 # Non Employee Board Members Holding Shares
 % Non Employee Board Members Holding Shares
 % Shares Outstanding Held by Non Emp Board Members
 % Shares Outstanding Held by CEO
 % Shares Outstanding Held by Chair
 Size of Executive Committee
 # Non Exec Directors on Exec Committee
 CEO on the Board (Y/N)
 Is CEO on Compensation Committee?
 # Comp Cmte Members in Comp Cmte List of Other Org
 % Non Executive Directors on Audit Committee
 % Non Executive Directors on Comp Committee
 % Non Executive Directors on Nomination Committee
 % Non Executive Directors on Executive Committee
 Longest Serving Board Member Name
 # Board Members Serving > 5 Years
 # Board Members Serving > 10 Years
 Highest # Boards Any Director Serves Ex CEO
 Name of Director with Highest # Board Positions
 Average Executive Age
 Chief Executive Officer Tenure
 % Non Executive Directors on 3+ Boards
 % of Executive Directors on 2+ Boards
 % Audit Committee Members on 3+ Boards
 % Comp Cmte Members in Comp Cmte List of Other Org

IR Title
IR Tenure
Chief Executive Officer Age
Chairman Age
Chairman Tenure
Chief Financial Officer Name
Number of Chair Positions Chairman Holds
Size of the Board
Number of Independent Directors
% Independent Directors
Board Duration (Years)
Number of Board Meetings for the Year
Board Meeting Attendance %
% Women on Board
Board Average Age
Board Age Limit
CEO Duality
Audit Committee Meetings
Independent Lead Director
Presiding Director
Outside Compensation Advisors Appointed
Classified Board System
BOD Nominees Legal Proceedings
Fees Paid to Compensation Consultants
Unitary or Two Tier Board System
Number of Executives/Company Managers
ESG Linked Compensation for Board
Independent Chairperson
Former CEO or its Equivalent on Board
Female Chairperson or Equivalent
Size of Board of Corporate Auditors
Number of Outside Corporate Auditors
Number of Independent Corporate Auditors
Number of Corporate Executive Officers also on BOD
Percentage of Corp Executive Officers also on BOD
Number of Non Executive Directors on Board
Percentage of Non-Executive Directors on Board
Executive Director Board Duration
Num of Directors Attending less than 75% of Mtg
Family Council
Number of Women on Board
Number of Employee Representatives on the Board
Age of the Youngest Director
Age of the Oldest Director
Board of Directors Age Range
Independent Directors Board Meeting Attendance %

Size of Audit Committee
Number of Independent Directors on Audit Committee
Pct of Independent Directors on Audit Committee
Independent Audit Committee Chairperson
of Non-Executive Directors on Audit Committee
Audit Committee Meeting Attendance Percentage
Size of Compensation Committee
Num of Independent Directors on Compensation Cmte
% of Independent Directors on Compensation Committee
Independent Compensation Committee Chairperson
of Non-Executive Directors on Compensation Cmte
Number of Compensation Committee Meetings
Compensation Committee Meeting Attendance %
Size of Nomination Committee
Num of Independent Directors on Nomination Cmte
% of Ind Directors on Nomination Committee
Independent Nomination Committee Chairperson
of Non-Executive Directors on Nomination Cmte
Number of Nomination Committee Meetings
Nomination Committee Meeting Attendance Percentage
CSR/Sustainability Committee
Non-Executive Director with Responsibility for CSR
Executive Director with Responsibility for CSR
Size of Fiscal Council/Fiscal Board
Related Party Committee
Strategy Committee
Average Length Srvc Independent Directors Brd

Compensation (248)

Board (9)

Total Board of Director Compensation Paid
Total Board of Director Fees Paid in Cash
Total Board of Director Stock Awards Given
Number of Board of Director Changes During FY
Date of Last Board of Directors Change
Directors Included Compensation Paid During FY
Latest Period End Date Exec Board of Director Comp
Average Board of Director Total Compensation
Percent Board of Director Comp Pd in Stock Awards

Executives (239)

Aggregate (39)

Total Compensation Paid to Executives
Total Salaries Paid to Executives
Total Bonuses Paid to Executives
All Other Compensation Paid to Executives
Total Stock Awards Given to Executives
Total Option Awards Given to Executives

Total Non Equity Incentives Given to Executives
 Tot Pension & Nonqualified Def Pens Given to Execs
 Total Other Compensation Paid to Executives
 Total Salaries and Bonuses Paid to Executives
 Number of Executive Changes During Fiscal Year
 Date of Last Executive Change
 # Executives Included Compensation Paid During FY
 Tot Top Three Highest Tot Top Compensation Amt Pd
 Total Top Three Highest Salary Amount Paid
 Total Top Three Highest Bonus Amount Paid
 Total Top Three Highest All Other Comp Amount Paid
 Total Top Three Highest Stock Awards Amount Paid
 Total Top Three Highest Option Awards Amount Paid
 Tot Top Three Highest Non Eqty Incentive Amt Paid
 Tot Top 3 Highest Pens Non Qual Deferred Amt Pd
 Tot Top Three Highest Other Compensation Amt Paid
 Tot Top Five Highest Tot Top Compensation Amt Paid
 Total Top Five Highest Salary Amount Paid
 Total Top Five Highest Bonus Amount Paid
 Tot Top Five Highest All Other Compensation Amt Pd
 Total Top Five Highest Stock Awards Amount Paid
 Total Top Five Highest Option Awards Amount Paid
 Total Top Five Highest Non Eqty Incentive Amt Paid
 Tot Top Five Highest Pens Non Qual Deferred Amt Pd
 Total Top Five Highest Other Compensation Amt Paid
 Total Executive Pay as Percent Tot Personnel Expn
 Total Executive Pay as Percent SG&A Net R&D
 Total Executive Pay as Percent Operating Expense
 Clawback Provision for Executive Compensation
 Executive Compensation Consultant Srvcs Provided
 Executive Comp Advisory Fees Pd to Comp Adv
 % of Compensation Advisory Fees Paid to Comp Adv
 Chg of Ctrl Benefits/Golden Parachute Agreements

C-Suites (65)

Total Compensation Paid to CEO and Equivalent
 Total Salaries Paid to CEO and Equivalent
 Total Bonuses Paid to CEO and Equivalent
 All Other Compensation Paid to CEO and Equivalent
 Total Stock Awards Given to CEO and Equivalent
 Total Option Awards Given to CEO and Equivalent
 Tot Non Eqty Incentives Given to CEO & Equivalent
 Tot Pens & Nonqual Def Pens Given to CEO & Equivalent
 Total Other Compensation Paid to CEO & Equivalent
 Total Salaries & Bonuses Paid to CEO & Equivalent
 Total Compensation Paid to CFO and Equivalent
 Total Salaries Paid to CFO and Equivalent

Total Bonuses Paid to CFO and Equivalent
 All Other Compensation Paid to CFO and Equivalent
 Total Stock Awards Given to CFO and Equivalent
 Total Option Awards Given to CFO and Equivalent
 Tot Non Eqty Incentives Given to CFO & Equivalent
 Tot Pens & Nonqual Def Pens Given to CFO & Equivalent
 Total Other Compensation Paid to CFO & Equivalent
 Total Salaries & Bonuses Paid to CFO & Equivalent
 Total Compensation Paid to COO and Equivalent
 Total Salaries Paid to COO and Equivalent
 Total Bonuses Paid to COO and Equivalent
 All Other Compensation Paid to COO and Equivalent
 Total Stock Awards Given to COO and Equivalent
 Total Option Awards Given to COO and Equivalent
 Tot Non Eqty Incentives Given to COO & Equivalent
 Tot Pens & Nonqual Def Pens Given to COO & Equivalent
 Total Other Compensation Paid to COO & Equivalent
 Total Salaries & Bonuses Paid to COO & Equivalent
 Total Compensation Paid to CIO and Equivalent
 Total Salaries Paid to CIO and Equivalent
 Total Bonuses Paid to CIO and Equivalent
 All Other Compensation Paid to CIO and Equivalent
 Total Stock Awards Given to CIO and Equivalent
 Total Option Awards Given to CIO and Equivalent
 Tot Non Eqty Incentives Given to CIO & Equivalent
 Tot Pens & Nonqual Def Pens Given to CIO & Equivalent
 Total Other Compensation Paid to CIO & Equivalent
 Total Salaries & Bonuses Paid to CIO & Equivalent
 Number of CEO and Equivalent Changes During FY
 Compensation Linked Last CEO and Equivalent Chg Dt
 # CEO & Equivalent Included Compensation Pd Dur FY
 Number of CIO and Equivalent Changes During FY
 Date of Last CIO and Equivalent Change
 # of CIO & Equivalent Included Comp Pd Dur the FY
 Number of CFO and Equivalent Changes During FY
 Date of Last CFO and Equivalent Change
 # CFO & Equivalent Included Compensation Pd Dur FY
 Number of COO and Equivalent Changes During FY
 Date of Last COO and Equivalent Change
 # COO & Equivalent Included Compensation Pd Dur FY
 Chief Executive Officer Tenure as of FY End
 Chief Financial Officer Tenure as of FY End
 Chief Operating Officer Tenure as of FY End
 Latest Period End Date Exec Board of Director Comp
 Average Executive Total Compensation
 Average Executive Salary Plus Bonus Amount

Last Chief Executive Officer Start Date
Last Chief Financial Officer Start Date
Last Chief Operating Officer Start Date
Last Chief Information Officer Start Date
Last Executive Start Date
Last Board Start Date

Ranked Figures (135)

Highest Total Compensation Amount Paid
Highest Salary Amount Paid
Highest Bonus Amount Paid
Highest All Other Compensation Amount Paid
Highest Stock Awards Amount Paid
Highest Option Awards Amount Paid
Highest Non Equity Incentive Amount Paid
Highest Pension Non Qualified Deferred Amount Paid
Highest Other Compensation Amount Paid
Second Highest Total Compensation Amount Paid
Second Highest Salary Amount Paid
Second Highest Bonus Amount Paid
Second Highest All Other Compensation Amount Paid
Second Highest Stock Awards Amount Paid
Second Highest Option Awards Amount Paid
Second Highest Non Equity Incentive Amount Paid
Second Highest Pension Non Qual Deferred Amt Pd
Second Highest Other Compensation Amount Paid
Third Highest Total Compensation Amount Paid
Third Highest Salary Amount Paid
Third Highest Bonus Amount Paid
Third Highest All Other Compensation Amount Paid
Third Highest Stock Awards Amount Paid
Third Highest Option Awards Amount Paid
Third Highest Non Equity Incentive Amount Paid
Third Highest Pension Non Qual Deferred Amt Pd
Third Highest Other Compensation Amount Paid
Fourth Highest Total Compensation Amount Paid
Fourth Highest Salary Amount Paid
Fourth Highest Bonus Amount Paid
Fourth Highest All Other Compensation Amount Paid
Fourth Highest Stock Awards Amount Paid
Fourth Highest Option Awards Amount Paid
Fourth Highest Non Equity Incentive Amount Paid
Fourth Highest Pension Non Qual Deferred Amt Pd
Fourth Highest Other Compensation Amount Paid
Fifth Highest Total Compensation Amount Paid
Fifth Highest Salary Amount Paid
Fifth Highest Bonus Amount Paid

Fifth Highest All Other Compensation Amount Paid
Fifth Highest Stock Awards Amount Paid
Fifth Highest Option Awards Amount Paid
Fifth Highest Non Equity Incentive Amount Paid
Fifth Highest Pension Non Qual Deferred Amt Pd
Fifth Highest Other Compensation Amount Paid
Highest Total Compensation Paid Executive Name
Second Highest Tot Comp Paid Executive Name
Third Highest Tot Compensation Paid Executive Name
Fourth Highest Total Comp Paid Executive Name
Fifth Highest Tot Compensation Paid Executive Name
Highest Total Compensation Paid Executive Title
Second Highest Total Comp Paid Executive Title
Third Highest Total Comp Paid Executive Title
Fourth Highest Total Comp Paid Executive Title
Fifth Highest Tot Compensation Paid Executive Title
Highest Salary Paid Executive Name
Second Highest Salary Paid Executive Name
Third Highest Salary Paid Executive Name
Fourth Highest Salary Paid Executive Name
Fifth Highest Salary Paid Executive Name
Highest Salary Paid Executive Title
Second Highest Salary Paid Executive Title
Third Highest Salary Paid Executive Title
Fourth Highest Salary Paid Executive Title
Fifth Highest Salary Paid Executive Title
Highest Bonus Paid Executive Name
Second Highest Bonus Paid Executive Name
Third Highest Bonus Paid Executive Name
Fourth Highest Bonus Paid Executive Name
Fifth Highest Bonus Paid Executive Name
Highest Bonus Paid Executive Title
Second Highest Bonus Paid Executive Title
Third Highest Bonus Paid Executive Title
Fourth Highest Bonus Paid Executive Title
Fifth Highest Bonus Paid Executive Title
Highest All Other Compensation Paid Executive Name
Second Highest All Other Comp Paid Exec Name
Third Highest All Other Comp Paid Exec Name
Fourth Highest All Other Comp Paid Exec Name
Fifth Highest All Other Comp Paid Exec Name
Highest All Other Comp Paid Executive Title
Second Highest All Other Comp Paid Exec Title
Third Highest All Other Comp Paid Exec Title
Fourth Highest All Other Comp Paid Exec Title
Fifth Highest All Other Comp Paid Exec Title

Highest Stock Awards Paid Executive Name
Second Highest Stock Awards Paid Executive Name
Third Highest Stock Awards Paid Executive Name
Fourth Highest Stock Awards Paid Executive Name
Fifth Highest Stock Awards Paid Executive Name
Highest Stock Awards Paid Executive Title
Second Highest Stock Awards Paid Executive Title
Third Highest Stock Awards Paid Executive Title
Fourth Highest Stock Awards Paid Executive Title
Fifth Highest Stock Awards Paid Executive Title
Highest Option Awards Paid Executive Name
Second Highest Option Awards Paid Executive Name
Third Highest Option Awards Paid Executive Name
Fourth Highest Option Awards Paid Executive Name
Fifth Highest Option Awards Paid Executive Name
Highest Option Awards Paid Executive Title
Second Highest Option Awards Paid Executive Title
Third Highest Option Awards Paid Executive Title
Fourth Highest Option Awards Paid Executive Title
Fifth Highest Option Awards Paid Executive Title
Highest Non Equity Incentive Paid Executive Name
Second Highest Non Eqty Incentive Pd Executive Nm
Third Highest Non Eqty Incentive Pd Executive Nm
Fourth Highest Non Eqty Incentive Pd Executive Nm
Fifth Highest Non Eqty Incentive Pd Executive Nm
Highest Non Equity Incentive Paid Executive Title
2nd Highest Non Eqty Incentive Pd Executive Title
3rd Highest Non Eqty Incentive Pd Executive Title
4th Highest Non Eqty Incentive Pd Executive Title
5th Highest Non Eqty Incentive Pd Executive Title
Highest Pension Non Qual Deferred Pd Exec Name
2nd Highest Pension Non Qual Deferred Pd Exec Name
3rd Highest Pension Non Qual Deferred Pd Exec Name
4th Highest Pension Non Qual Deferred Pd Exec Name
5th Highest Pension Non Qual Deferred Pd Exec Name
Highest Pension Non Qual Deferred Pd Exec Title
2nd Highest Pension Non Qual Deferred Pd Exec Ttl
3rd Highest Pension Non Qual Deferred Pd Exec Ttl
4th Highest Pension Non Qual Deferred Pd Exec Ttl
5th Highest Pension Non Qual Deferred Pd Exec Ttl
Highest Other Compensation Paid Executive Name
2nd Highest Other Compensation Paid Executive Name
3rd Highest Other Compensation Paid Executive Name
4th Highest Other Compensation Paid Executive Name
5th Highest Other Compensation Paid Executive Name
Highest Other Compensation Paid Executive Title

2nd Highest Other Compensation Pd Executive Title
3rd Highest Other Compensation Pd Executive Title
4th Highest Other Compensation Pd Executive Title
5th Highest Other Compensation Pd Executive Title

Executives (31)

Executives Holding Shares
% Executives Holding Shares
% Shares Outstanding Held by Executives
CEO Name
Chair Name
Lead Director Name
Exec Positions Chair Holds
Board Positions Chair Holds
Exec Positions CEO Holds
Board Positions CEO Holds
CEO Founder (Y/N)
Avg # of Public Comp BOD Serve as BOD (Ex-CEO)
of Non-Executive Board Members on 3+ Boards
Executive Directors on 2+ Boards
Audit Committee Members on 3+ Boards
Insiders on Audit Committee
Insiders on Comp Committee
Insiders on Nomination Committee
IR Contact Name
IR Phone Number
IR Email Address
IR Address First Line
IR Address Second Line
IR Address Third Line
Number of Executives / Company Managers
CEO or Equivalent Appointed from Within
Female Chief Executive Officer or Equivalent
Corporate Executive Officer System Indicator
Number of Female Executives
Percentage of Female Executives
Women Management to Employees Ratio

Other (8)

Political Donations
Business Ethics Policy
Executive Compensation Linked to ESG
Employee Protection / Whistle Blower Policy
Anti-Bribery Ethics Policy
Unequal Voting Rights Stocks Issued Includes Pfd
Political Donations/Profit Before Tax
Governance Disclosure Score

Practice (2)

Blank Check Preferred Authorized
Dual Class Unequal Voting Rights

Shareholder (11)

% Ownership Required for Special Meeting

Say On Pay Provision

Poison Pill Plan

Shareholder Approved Poison Pill

Poison Pill TIDE Provision

Poison Pill Sunset Provision

% Poison Pill Trigger Threshold

Frequency of Say on Pay Votes

Say on Pay Number of Votes FOR

Say on Pay Number of Votes AGAINST

Say on Pay Support Level

Appendix F – Excerpts from SEC filings on climate change and CDP disclosures

Example 1A – Microsoft Corporation, SEC filing on climate change

The following excerpt comes from the Microsoft Corporation Form 10-K for the fiscal year ended 6/30/2012, filed on 7/26/2012. It appears in the section titled “Item 1A. Risk Factors”, and is the second to last factor listed in the section on page 21 of the report (emphasis added):

“Catastrophic events or geo-political conditions may disrupt our business. A disruption or failure of our systems or operations because of a major earthquake, weather event, cyber-attack, terrorist attack, or other catastrophic event could cause delays in completing sales, providing services, or performing other mission-critical functions...*The long-term effects of climate change on the global economy in general or the information technology industry in particular are unclear. Environmental regulations or changes in the supply, demand or available sources of energy may affect the availability or cost of goods and services, including natural resources, necessary to run our business.* Changes in weather where we operate may increase the costs of powering and cooling computer hardware we use to develop software and provide cloud-based services. New regulations may require us to find alternative compliant and cost-effective methods of distributing our products and services.”

Example 1B – Microsoft Corporation, CDP disclosure

The following excerpts come from the Microsoft Corporation Investor CDP 2012 disclosure for the year ended 12/31/2011 (emphasis added):

Module: Introduction

Page: Introduction

Item: 0.1

Introduction

Please give a general description and introduction to your organization

“We know that climate change is a serious challenge that requires a comprehensive and global response from all sectors of society. We are committed to measuring, transparently reporting, and reducing the carbon footprint of our own operations. We are also searching for opportunities to minimize our environmental impact, reduce waste, and conserve water and other raw materials. In pursuing these goals, we follow strict policies to ensure that the company remains fully compliant with international environmental regulations and the specific environmental requirements of each country/region where we do business.”

Module: Risks and Opportunities

Page: 2012-Investor Risks & Opps – Climate Change Risks

Items: 5.1, 5.1e, and 5.1f

5.1

Have you identified any climate change risks (current or future) that have potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

“Risks driven by changes in regulation
Risks driven by changes in physical climate parameters
Risks driven by changes in other climate-related developments”

5.1e

Please describe your risks that are driven by changes in other climate-related developments

“Risk Driver: Reputation

Description: Nature of the effect: *The IT industry as a whole is drawing increased attention for its impact on the environment and climate change, and consumers, businesses, and institutional investors are increasingly making investment decisions based on how environmentally responsible companies are. Microsoft is one of the largest IT organizations in the world, and so the perceived impact of our products and services on the environment is heightened. If Microsoft does not appear to take measures to reduce its impact on climate change to the same or greater extent as our competitors, we could potentially lose business.*

Location of the effect: Microsoft's reputation has implications globally because we operate throughout the world; in our experience, the area where businesses and consumers emphasize climate change the most in their buying decisions currently is in Europe, where environmental issues are gaining the greatest attention.

Potential Impact: Reduced demand for goods/services

Timeframe: Current

Direct/Indirect: Direct

Likelihood: Likely

Magnitude of Impact: Unknown”

5.1f

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk; (iii) the costs associated with these actions

- (i) **Financial implications**: “Without knowing the magnitude of impact of this risk, it is difficult to quantify the potential financial implications. *However, theoretically if we were to lose—for example—3% of our business to competitors because of a perceived insufficient investment in climate change mitigation, the result could be a 3% reduction in revenue. In 2011, that would have been worth >\$2 billion USD.*”
- (ii) **Management**: “We are actively working on an internal footprint reduction strategy to get our own house in order and reduce the impact of Microsoft operations on the environment. *As part of this strategy we have set a goal to reduce Microsoft greenhouse gas (GHG) emissions by 30% per unit of revenue by 2012 from our 2007 baseline.*
Changes we are making to reduce our footprint include:
 - We are implementing an energy management program that will drive systematic energy efficiencies across our offices in Puget Sound, WA; *based on the results of our initial pilot, we expect 6-10% energy savings for the campus. Ultimately, we plan to expand this program globally.*

Microsoft is a board member and active participant in several industry consortia to drive energy efficiency in the design and use of IT, including The Green Grid, The Climate Savers Computing Initiative, and the Global e-Sustainability Initiative (GESI).

We are also among the founding members of the ICT for Energy Efficiency (ICT4EE) Forum.

Finally, *we proactively communicate with the public and stakeholders about our efforts to reduce our impact on climate change*, such as through annual Carbon Disclosure Project (CDP) reporting, our Software Enabled Earth blog (<http://blogs.msdn.com/b/see>), and our annual Citizenship Report (www.microsoft.com/about/corporatecitizenship). In 2011, Computerworld recognized our efforts to reduce energy use by naming Microsoft one of the top green IT vendors.

By making strategic investments to reduce our own footprint, deliver energy-efficient products and services, and participate globally in the movement to use ICT to mitigate the effects of climate change, it should be unlikely that Microsoft's reputation will suffer as a result of our approach to climate change (in fact, we may even improve our reputation), and the magnitude of any impact should be low. In terms of timeframe, we are already seeing the benefits of these efforts."

- (iii) **Costs:** "Our investments in an internal footprint reduction strategy include labor costs and capital outlay. We anticipate having upwards of 50 FTEs contributing to footprint reduction activities at ~\$7.5 million in annual salaries. The energy management program will cost <5% of the annual energy costs for our Puget Sound campus. For the lab chargeback model in Puget Sound, it cost \$1.8 million to implement the monitoring systems; there are no additional costs other than labor costs of ~\$4,000/year to compile lab chargeback data. Constructing new data centers that use adiabatic cooling over traditional large chillers does not add costs; in fact, it is typically 30% cheaper. In addition, ultimately we will save money through reduced maintenance and energy costs. There are modest capital expenses to retrofit our existing facilities for increased efficiency; however, these costs are minimal and typically quickly repaid through reduced operating expenses. Any additional costs are primarily labor costs, which represent ~\$250,000-500,000/facility annually"

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