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Corporate social responsibility and CEO compensation revisited: Do disaggregation, market stress, gender matter?

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ABSTRACT

In this paper we examine the relation between corporate social responsibility (CSR) and CEO compensation. Both CSR and CEO compensation are disaggregated into various sub-components. We also consider impact of the market crisis and the relevance of gender. Our results show that there is a negative relation between total compensation and socially responsible firms. However, disaggregation of CSR into its components matters. Dimensions of CSR that are relevant are employee relations, environment and diversity. Our results also show that the financial crisis and gender matter: once they are accounted for interactively in the model, the general relation between CSR and compensation weakens.

1. Introduction

In this paper we examine the linkage between corporate social responsibility (CSR) and CEO compensation. CSR is measured using the rating system from Kinder, Lindenberg, and Domini (KLD) Research and Analytics database where firms are rated based on the strengths or weaknesses of a corporation with respect to their environmental activities, community involvement, product qualities, employee relations and diversity policies.[1] CEO compensation is divided into various components:

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[1] KLD also provide ratings on corporate governance and human rights. These are excluded from our analysis because CEO compensation is intrinsic in governance. Human rights is very specific to certain events in areas such as Burma and South Africa or indigenous relations and hence has a very low sample variation. These exclusions are consistent with Cai et al. (2011).

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Salary, Bonus Cash and long-term compensation. Although the relation between CSR and CEO compensation has been examined in the prior literature (see for example Cai, Jo, & Pan, 2011), our main contribution lies in the consideration of the impact of the recent financial crisis, the relevance of gender and the division of both CEO compensation and the CSR measure into subcomponents. Such a decomposition of the key variables allows a more in-depth analysis of the identified relations.

To hypothesize that there is a relation between CSR and CEO compensation requires an assumption that the reward to a CEO is not just monetary in nature but that there are also intrinsic rewards. Thus, what motivates a CEO and is the reward the same for all CEOs? Intuitively we would expect a range of CEO leadership styles, motives, compensation packages, incentive and personalities. Indeed Chang, Dasgupta, and Gan (2011) suggest that the managerial market is segmented in terms of talent and characteristics. There exists a fit between managers and firms that influences firm outcomes. Research on CEO compensation is traditionally examined in the context of agency theory (Jensen & Meckling, 1976) where the incentives of the CEO are aligned with those of the shareholder. This is an economic theory of explaining compensation (Tosi & Greckhamer, 2004). More recently Van Essen, Otten, and Carberry (2012) argue that managerial power theory (MPT) provides a deeper understanding of the determinants of CEO compensation. MPT allows a focus on board, governance and ownership structures as determinants of compensation. Devers, Cannella, Reilly, and Yoder (2007) provide a cross-disciplinary review of the CEO compensation literature and classifies the majority of studies as addressing the relation between pay and performance and pay and behavior. These relations are potentially endogenous. Tosi and Greckhamer (2004) examine how cultural values are related to CEO compensation. There is a focus on determinants of CEO compensation with an underlying assumption that CEOs seek to maximize their income. However, there is little focus in the literature on the utility function of CEOs and a lack of consideration that reward may be both extrinsic and intrinsic.

Extrinsic rewards are gained from an increase in wealth or consumption. Intrinsic rewards are independent of financial benefits and relate to the utility gained from 'doing the right thing'. CEOs do engage in socially responsible activities at the corporate level. There is a growing awareness of the impact of companies on the community, the environment and a range of stakeholders including consumers and employees. Firms are increasingly disclosing CSR information in response to attention on social and environmental issues among consumers, media, and investors. Firms engaging in CSR take into account the interest of all stakeholders; customers, employees, investors, vendors, the government and the society at large, in contrast to the traditional unitary focus on shareholders. Godfrey, Merrill, and Hansen (2009) argue that CSR is a risk management technique. A socially responsible firm creates goodwill and moral capital. Hence, it is like an insurance policy in the event of unforeseen negative events. Similarly, Godfrey (2005) argues that there is an optimum level of corporate philanthropy which creates a moral capital that ultimately benefits shareholder wealth. The argument in these papers is 'good deeds earn chits'. However, again any intrinsic utility that is earned by the CEO is ignored.

Graafland, Kaptein, and Mazereeuw-van der Duijn Schouten (2010) propose a utility model for executives. They argue that, consistent with Godfrey, there is an optimal level of CSR activity if the CEO is strategically motivated. From this perspective the CEO seeks to increase CSR activity while it results in financial benefits to the shareholder. It is assumed that this increase in shareholder wealth is consistent with an increase in CEO income and, hence, consumption. These CEOs are extrinsically motivated and engage in CSR to raise consumption. However, more altruistic CEOs will derive an intrinsic value from engaging in CSR activity. Hence, they will be prepared to trade off some of their income if they can increase the CSR activity of the firm.

In this paper, we expect that more intrinsically motivated CEOs will engage in more CSR activity. Such CEOs will be prepared to trade-off some of their income for the satisfaction derived from leading a company that behaves in a socially responsible manner. Accordingly, to the extent that this characterizes well the motives of managers, we hypothesize that higher levels of CSR activity will have a negative relation with CEO compensation. Assuming that all CEOs have, other things equal, a highly rewarding salary package, we expect many will engage in CSR activities for strategic purposes. A finding of a negative relation between CSR and CEO compensation will support the existence of intrinsic rewards.

In our analysis we recognize that the economic climate will have a potentially big impact both on firm income and CSR behavior. In an environment in which corporate income is declining, the trade-off between the extrinsic and intrinsic motivation might change dramatically therefore we explore the impact of financial crisis around 2007. Nestled within the CEO compensation and CSR literature is the issue of gender. Women do have an impact on the strengths of CSR (Bear, Rahman, & Post, 2010). Further Adams, Gupta, Haughton, and Leeth (2007) find that a gender gap in executive compensation exists although there is evidence to show that the gap has narrowed over time. Levels of compensation vary between males and females, yet this relation might differ in the context of a CSR-motivated company. While it is quite possible that both male and female CEOs are intrinsically motivated, there is a perceived risk of gender discrimination if female CEOs are paid less than their male counterparts.

Our study contributes to the CEO compensation and CSR literature and, in the context of the above discussion, the core strands of this contribution are neatly characterized by the following questions. Does the CSR impact vary across the different components of CEO compensation, i.e. salary, bonus and long-term compensation? What role do sub-components of CSR play and are some elements of CSR bigger drivers of the relation with CEO compensation than others? Is the relationship between CSR and CEO compensation influenced by times of market stress? Does the CEO's gender matter?

The answers that we find regarding these questions can be readily summarized. Overall, we find that there is a negative relation between CSR and cash, salary and long-term measures of compensation. However, not all components of CSR activity have the same impact. Specifically, it is employee relations, the environment and diversity that drive this negative relation with CEO compensation. Further, we also find that both times of financial crisis and gender matter. Once they are accounted for interactively in the model, the relationship between CSR and compensation is weakened – indeed, the base case, of male CEOs in "normal" (i.e. non-crisis) periods is no longer significant. This result indicates that pre-financial crisis CSR does not impact CEO compensation. Our results are consistent with CEO's receiving intrinsic rewards from their management role.

Our paper is structured as follows. In Section 2 we provide a review of the relevant literature and general background to our study. We then outline our data and research method in Section 3, followed by a discussion of our results in Section 4. The final section provides our conclusions.

2. Literature review and general background

2.1. Background to CSR

While the definition of corporate social responsibility varies, in general CSR can be defined as voluntarily taking actions that go beyond compliance with laws and regulations on environmental and social issues (McWilliams, Siegel, & Wright, 2006; Riyanto & Toolsema, 2007). Over the last century it has been debated as to whether "doing good and doing well", (i.e. employing social principles and considerations; and financial return for shareholders), converge or diverge in a business sense (Wells, 2002). In other words, does stakeholder theory imply different (and superior) outcomes for shareholders compared to shareholder theory?

Although this topic has been heavily discussed in the literature,[2] according to a meta-analysis by Margolis and Elfenbein (2008) the body of literature often indicates that engaging in CSR is not bad for shareholders. They document that only 2% of the studies find a negative relation between CSR and performance, though on the other hand, the correlation is low between doing good and

[2] Zivin and Small (2005) propose that CSR is expensive and likely to be an expense to the shareholder. This view of the presence of a trade-off between CSR and financial performance, and therefore firms engaging in CSR facing an economic disadvantage compared to comparable less responsible firms, has been supported by Auperle, Caroll, and Jatfield (1985), Ullmann (1985) and Vance (1975). On the other hand, Kane (2002) finds that engaging in CSR forgoes short-term profits in exchange for profitability in the long term. Similarly, Hart and Ahuja (1996) show that generally operating performance increases after 2 years of adjusting practices in order to 'be green'. Blanchard (1998) supports this by saying that managing a firm by values is the path to becoming a "Fortune 500" company. These outcomes make sense since engaging in CSR is a taking on a long-term view. This can be evaluated as possibly weighing against the extra costs of being socially responsible. Others find no relation between CSR and profitability, e.g. Auperle et al. (1985).

doing well. Further, they point out that "corporate misdeeds" can have a large negative impact on profitability. Margolis and Elfenbein conclude that even though engaging in CSR might not necessarily increase profits, it is unlikely to impose a major cost on shareholders. Arguably, there are situations in which CSR practices do in fact increase financial benefits. For example, Russo and Fouts (1997) suggest that "...a corporation with a good environmental performance has a positive effect on its employees, technology and reputation, which leads to higher profitability". It is plausible that these factors enhance the overall functioning of an organization, meaning that profitability could be merely a 'by-product' of the process.

2.2. Shareholder vs. stakeholder theory

The core assumption underlying mainstream corporate finance theory is the wealth maximization of shareholders, which is assumed to be synonymous with utility maximization. This "duality" is based on a view that rational agents only permit financial consequences to enter their utility function. Admitting non-financial concerns allows a de-coupling of wealth and utility. In such circumstances, while socially responsible investing possibly violates wealth maximization if SRI produces inferior financial returns, it might still be compatible with utility maximization for many "socially conscious" investors. For example, Zivin and Small (2005) believe that some individuals (investors) experience a form of utility improvement, by charitable actions or by purchasing and holding securities issued by socially responsible firms. This latter view is supported by Bollen (2007) and Baron (2008).

Some studies have shown that inferior returns are associated with engaging in SRI. For example, Renneboog, Ter Horst, and Zhang (2008a) document that, in some countries, the risk-adjusted returns of SRI funds underperform their conventional fund counterparts. Further, in a literature review conducted by Renneboog, ter Horst, and Zhang (2008b), they conclude that "existing studies hint, but do not univocally demonstrate that SRI investment funds perform worse than conventional funds". On the other hand, Derwall, Guenster, Bauer, and Koedijk (2005) find superior portfolio performance for the high-ranked 'eco-efficiency' portfolios. In addition, as cited by Derwall, Koedijk, and Ter Horst (2011), studies by Kempf and Osthoff (2007), Statman and Glushkov (2009), and Galema, Plantinga, and Scholtens (2008) find outperformance of SRI on at least one of the social metrics used by the KLD database. For example, Galema et al. (2008) find (only) "employee relations" is significant.

Clearly, there is no consistent empirical evidence of over- or under-performance of SRI investment strategies. Therefore, it is difficult to reliably deduce the dominant motives for investors to engage in SRI. Indeed, the motives across investors will vary, which is supported by Derwall et al. (2011) who state that there are likely to be two kinds of socially responsible investors: "values-driven" versus "profit seeking" investors.

Turning to the motivations of management to engage in CSR, there are widely varying views/arguments in the literature. Stodder (1998) reports that 42% of the employees in the sample indicated that ethical integrity of a firm influences the choice of employer. Additionally, 86% of those who believe that the company they work for has *positive* ethics were *strongly* committed to their company. These results indicate that employees tend to match the corporate culture. McGuire, Dow, and Argheyd (2003) state that "socially pro-active" CEOs who are most likely to take strong social actions, avoid firms with a "bottom line" orientation. Graafland et al. (2010) hypothesize that executives' may be motivated to engage in socially responsible business conduct (SRBC) for financial, ethical and altruistic reason. They find that the intrinsic motives, ethical and the altruistic motives in particular, appear more important than the extrinsic, financial motive. Further, designing financial compensation around SRBC is often counter-productive as paying for the ethical conduct decreases ethical behavior.

More generally, Bertrand and Schoar (2003) show that managers have unique styles and the 'fixed effect' of a manager does impact firm performance and CEO compensation. Chang, Dasgupta, and Gan (2011) suggest that the managerial market is segmented in terms of talent and characteristics. Managers and firms can be matched and this match will impact the performance of the firm. Critics believe CEOs have non-ethical reasons for engaging in CSR and that CSR actually comes at a cost to shareholders. For example, management might pursue costly entrenchment strategies using CSR. Along these lines, Pagano and Volpin (2005) suggest some managers might build strong employee relations, by

means of higher pay to their workforce, as a tool to protect themselves from hostile takeovers. By providing long-term contracts to employees, a firm is less attractive to raiders. Moreover, Surroga and Tribo (2008) provide empirical evidence that the reinforcement of a managerial entrenchment strategy by means of colluding with outside stakeholders, can have negative effects on financial performance.

Another argument often encountered in the literature is that CSR reduces risk and thus serves as an instrument for risk management (see e.g., Godfrey et al., 2009; Husted, 2005; Orlitzky & Benjamin, 2001). The executive's risk management skill can reduce the risk of bankruptcy (Orlitzky & Benjamin, 2001). One way in which CSR can mitigate risk, is by functioning as an "insurance-like protection" in case of negative events or activities, by means of reducing the adverse impact because stakeholders give 'the firm' the benefit of the doubt due to the established moral capital (Godfrey et al., 2009).

Finally, stakeholder activism and other external pressures influence managerial decision making generally and, in the current context, specifically, the various components of CSR. Mitchell, Agle, and Wood (1997) find that for a stakeholder to have an influence on managers, they will possess at least one of three key attributes: power, legitimacy, and urgency. The level of influence of the stakeholder also depends on the degree of importance across these three attributes (Neville, Bell, & Whitwell, 2004).

In summary, the evidence generally shows that CSR is not associated with substantially poorer financial performance. Second, engaging in CSR is more compatible with a stakeholder perspective. However, in the case of a values-driven shareholder there tends to be an alignment of interests between all stakeholders because CSR increases the utility of the shareholder. Finally, there are various competing views regarding the motives for a CEO engaging in CSR. Indeed, there is much uncertainty as to what are the actual underlying reasons for managers being CSR-conscious. Yes, there are CEOs of CSR firms that shape or are drawn to these types of organization for ethical reasons, and enjoy an intrinsic reward, but on the other hand there will be CEOs that use CSR strategies for more self-interested goals. Accordingly, our baseline empircal prediction can be stated as follows: if a CEO engages in CSR behavior for intrinsic (extrinsic only) reward we expect that they will also be likely (unlikely) to accept lower compensation. In such firms there is less (more) of an agency problem and relatively fewer (more) 'tools' are required to 'control' the CEO.

2.3. The influence of CSR on the different components of CEO compensation

CEO compensation consists of several components. Aggarwal and Samwick (1999) distinguish between short-term and long-term compensation, wheras others distinguish between a base salary component and an incentive component (e.g. Bushman, Indjejikian, & Smith, 1996). Short-term compensation consists of salary and bonus, while long-term compensation mainly of stock-options. The incentive component comprises both bonus and long-term incentive plans, since the payoffs from these two plans are dependent on sophisticated portfolio or performance measures (Bushman et al., 1996). The incentive component is the most important for the alignment of interests between shareholders and executives, because it is the part that is most sensitive to performance.

Salary is the "fixed" component of executive compensation; it is the only payment that is independent of performance (though, in the longer term this might not be so). Risk-averse executives prefer a dollar increase in salary over a dollar increase in a performance-dependent component (Murphy, 1999). Salary can also form the base for the calculation of the bonus and stock options component. Bonus payments reward executives for the achievement of short-term performance targets, rather than for building the firm's long-term performance (Stata & Maidique, 1980). Long-term compensation, on the other hand, is (supposedly) dependent on the long-term performance of the firm. The executive's decisions are assumed to have an influence on the stock price, which will rise with expectations of the company performing well. Usually options become vested (effective) over time and often last 10–15 years, creating the long-term incentive. While a bonus induces a CEO to perform well within a year, and is rewarded accordingly, stock options induce the CEO to perform better every year, so that the employee stock options' value increases every year.

Tying this back to our previous discussion on the various potential reasons for CEOs to engage in CSR activity, we expect that a CEO motivated for intrinsic rewards will accept a relatively 'modest' pay package. A lower base salary likely indicates that, independent of performance, the CEO accepts lower

monetary compensation. On the other hand a lower incentive component indicates that the CEO settles for relatively less compensation for increased short and/or long-term financial performance (since we control for profitability). In contrast, CEOs who do not engage in CSR for intrinsic reward would be less likely to accept a relatively low pay package. Overall, we hypothesize that executives in firms engaging in CSR for (non-) intrinsic reward (do not) accept lower financial compensation across all components of their pay package. Nevertheless, we argue that CEOs are more (less) likely to be intrinsically driven with regard to the non-performance (performance sensitive) part of their compensation, leading to an expectation that the negative CEO compensation/CSR linkage will dominate in the salary component.

2.4. Alternative CSR metrics

The CSR metrics analyzed in the study are in part determined by the availability of reliable measures. The KLD database provides measures for environment, community, product, employee relations, diversity, corporate governance and human rights. However, we exclude the corporate governance and human rights metrics from our analysis.[3]

2.4.1. Environment, community and product

These three metrics of CSR mostly have an effect on stakeholders external to the corporation. The community metric measures any strengths or concerns of a corporation toward the community, for example charitable giving or helping the economically disadvantaged by means of housing or education. Concerns arise when the corporation is involved in community controversies. The environment metric deals with issues such as clean energy, recycling, climate change and emissions. The product metric involves product quality, safety and benefits to consumers. An example of a concern is anti-competitive business practices. Corporations taking responsible actions toward the community, environment or by providing a 'good' product, can do so for moral reasons. In such corporations, CEOs feel a moral responsibility toward society and require less executive compensation. However, the extent to which it is the altruistic motive (Godfrey, 2005) that drives CEO behavior, we would expect that the CSR components having a weaker (or less direct) economic self-interest nature should exhibit the negative CEO compensation/CSR linkage more strongly. There is little economic or self-benefit motivation for engaging in some environmental or community activities. For example, a focus on recycling (without positive cash flows to the firm), or philanthropy, has less direct economic impact than ensuring safe products. Hence, environmental and community engagement are likely to be behaviors linked to intrinsic rewards. As such, the environment and community considerations are more likely to have this weaker economic self-interest dimension (compared to product), and hence the predicted negative effect should be more (less) evident for them (product).

2.4.2. Employee relations

Employee relations strengths include a history of strong union relations, cash-profit sharing programs and programs in place to secure health and safety. Concerns would include poor union relations and strong workforce reductions. Cai et al. (2011) hypothesize and find that employee relations are negatively associated with CEO compensation. A large gap between executive compensation and the compensation of employees is a major reason that employees feel unfairly treated. Also, the higher the pay gap the higher the "power asymmetry" which, for example, tends to align with meanness and mistreatment of employees (Desai, Brief, & George, 2010). Employee relations could also serve as a tool to enhance CEO entrenchment, since paying the workers a higher wage improves the social relations with the workers and also lowers effort in wage bargaining. Hence, we argue (similar to Cai et al., 2011) that if the CEO enhances employee relations because of moral reasons (entrenchment reasons), we expect a negative (positive) relationship with his/her compensation package.

[3] The former is omitted because CEO compensation is intrinsic in the metric – it is represented as a strength if there is low compensation or as a concern if there is high compensation. The human rights measure is very specific to certain events such as in Burma and South Africa, or strengths like indigenous people relations, and, thus, results in a very low sample variance.

2.4.3. Diversity

The diversity metric reflects corporate policies on e.g. women, minority groups and the disabled. In a sense, the diversity metric is concerned with fair treatment of employees and a similar reasoning applies as for employee relations. Therefore, we would expect a CEO who is genuinely concerned with issues of diversity and thus ensuring a diverse workforce, to prevent a large pay gap relative to the workers. In this case we predict a negative linkage between CEO remuneration and diversity. On the other hand, various pressures from inside or outside the company (e.g. community groups, labor unions, regulation) can play a key role in the decision of the CEO to promote diversity. Under this alternative scenario the CEO is not concerned with issues of diversity per se and, thus, we would predict a zero linkage between CEO remuneration and diversity.

2.5. Influence of gender

It is well documented that the overall compensation levels of females is lower than males (Altonji & Blank, 1999; Murphy, 2005). However, there is also research suggesting that this gap is narrowing (Loury, 1997; Stanley & Jarrell, 1998). Adams et al. (2007) and Bertrand and Hallock (2001) find the gender gap is present even more so in executive compensation, with female executives earning 45% less than their male counterparts, but the majority of this gap is explained by factors such as women executives being mainly in smaller companies. However, Adams et al. (2007) find no strong evidence of a gender gap for CEOs.

We expect that the hypothesized baseline effect of CSR on executive compensation might be moderated by gender. Socially responsible firms are especially sensitive to 'unfairness' and unethical behavior. While for a male CEO it might be 'ethically' right to accept relatively little monetary compensation, for a female it can be viewed as 'discrimination' if she is paid less than the industry average. Given the foregoing discussion, the predicted CEO compensation/CSR linkage mediated by gender is indeterminate since it will depend on the relative opposing strength of the underlying altruistic motives of women versus any concerns about perceived female pay exploitation – it could go either way and is thus an empirical question.[4]

2.6. Influence of financial crisis and market extremes

Times of extreme market movement, either upward or downward, challenge any empirical analysis regarding the possibility that such non-normal times might, if ignored, unduly influence inferences drawn based on the overall findings. Across our full sample period, three major examples are identified: (a) the Asian crisis of 1997–1998; (b) the dotcom bubble of 1999–2000; and (c) the financial market crisis of 2007–2008. All three cases had a nontrivial impact on the US economy.

In such times of market stress, there are several factors that tend to reduce CEO compensation (Cheffins, 2003). First, incentive plans lose value since shareholder' returns are all substantially reduced (Lublin, 2001; McFarland, 2002). Second, stock market crashes cause a loss of faith in CEOs by investors and actions are often taken to limit the perceived excess pay packages (Lucchetti, 2002). Therefore, we would expect a general negative effect of the financial crisis on CEO compensation. Salary would be the most robust component of compensation, since it is the component that depends least on performance. However, there have been cases where executives voluntarily 'give back' or reduce their compensation, possibly to boost corporate morale (Moore, 2001). This behavior suggests the presence of an increasing negative relationship between CSR and CEO compensation in a period of financial crisis, since intrinsically motivated managers would want to "share the pain". Renegotiation can take place by "star" managers who in times of crisis seek to secure their pay by increased fixed pay (salary) and less variable pay (Economist, 2001; Lublin, 2001). However, if socially responsible CEOs are truly

[4] A potential concern is that the gender dummy is intrinsic in the diversity metric, representing a strength if the CEO is female or from a minority group, and thus a mechanical correlation between the two might be present. We dismiss this as a major concern in two ways. First, in our sample the two variables display a low correlation of −0.187. Second, in an unreported robustness check we remove "female strength" from the total CSR measure. The inferences relating to the interaction term remain qualitatively similar.

intrinsically motivated, we expect that they would not only accept a cut in long-term compensation, but also in fixed-compensation.

3. Data and empirical analysis

For the social ratings, the Kinder, Lindenberg, and Domini (KLD) Research and Analytics database is used through Wharton Research Data Services (WRDS). All the companies that had a rating available in any one or more year(s) over the period 1996 and 2010 are included in the sample. Data on executive compensation are extracted from Execucomp and data on other company characteristics from the CRSP/Compustat merged database and Risk Metrics, also through WRDS. Companies with missing or invalid data (i.e. values ≤ 0) on assets are removed from the sample, as are any duplicates. Our final sample comprises 1988 firms with 12,311 firm-year observations.

3.1. Measures of corporate social responsibility

Application of the KLD ratings revolves around the presence of certain concerns or strengths for each metric (refer to Appendix A). In this context, McGuire et al. (2003) distinguish between 3 dimensions of CSR: Total CSR, CSR strengths and CSR weaknesses. CSR strengths (weaknesses) represent the sum of strengths (weaknesses) of all social metrics. A 'Total CSR' score is obtained by subtracting the total number of concerns from the total number of strengths – a measure that can be calculated on a certain metric or on all metrics together. The higher the score for a firm, the more socially responsible the firm is deemed to be on that particular metric.[5]

3.2. Measures of CEO compensation

The measures of CEO compensation are taken from Execucomp. A description for each measure is given in Table 1. *Total compensation* is calculated as the sum of *Salary*, *Bonus* and *Long-term compensation*, whereas *Cash compensation* is calculated as the sum of salary and bonus. *Long-term compensation* is defined as "the value of restricted stocks granted, payouts from long-term incentive plans, long-term compensation and all other compensation (e.g., contributions to benefit plans, severance payments)" (Aggarwal & Samwick, 1999, p. 2014). All compensation measures were transformed by taking the natural log, consistent with Brick, Palmon, and Wald (2006).

3.3. Control variables

We include the following control variables – firm characteristics: size, Tobin's Q, leverage and ROA, and governance characteristics: CEO ownership, board size and board independence. This choice of specification is consistent with Cai et al. (2011). The natural log was taken of assets (to measure size) and board size.[6] In addition, we include dummy variables to capture the global financial crisis, the Asian crisis and the dot-com bubble.

3.4. The base model

Formally, our base model is given by:

$$\begin{aligned} Log(Compensation)_{i,t} = {} & \beta_0 + \beta_1 \cdot CSR_{i,t-1} + \beta_2 \cdot LSIZE_{i,t-1} + \beta_3 \cdot TOBQ_{i,t-1} + \beta_4 \cdot LEV_{i,t-1} \\ & + \beta_5 \cdot ROA_{t-1} + \beta_6 \cdot CEOOWN_i + \beta_7 \cdot LBSIZE_i + \beta_8 \cdot BINDEP_t \\ & + \sum \gamma_j \cdot CRISIS_j + \gamma_t + \delta + \varepsilon_{i,t} \end{aligned} \quad (1)$$

[5] It should be acknowledged that the nature of the CSR metrics change over time i.e. there is temporal variation in both the number and the type of strengths and weaknesses (see Appendix A). However, given that we include year dummies in our regressions, the variable nature of the CSR constructs should not greatly affect our analysis.

[6] We test whether any other variables needed to be transformed to satisfy the normality assumption, but the transformations had a negligible effect on the relationship of CSR to CEO compensation. Therefore, these variables enter in their raw form.

Table 1
Definition and source of variables.

Variable name	Description	Source
Panel A: Dependent variables		
Salary	The base salary (cash and non-cash) earned by the CEO during the fiscal year in thousands of dollars.	Execucomp
Bonus	The bonus (cash and non-cash) earned by the CEO during the fiscal year in thousands of dollars	Execucomp
Long-term compensation	The sum of restricted stocks granted valued using the Black–Scholes method (in thousands of dollars), payouts from long-term incentive plans (in thousands of dollars), long-term compensation and all other compensation (in thousands of dollars) earned by the CEO during the fiscal year.	Execucomp
Total compensation	The sum of the previously mentioned salary, bonus and long-term compensation.	–
Panel B: Variables of interest		
CSR	Total CSR ('environment' plus 'corporate governance' plus 'community' plus 'diversity' plus 'employee relations' plus 'human rights' plus 'product') strengths minus total CSR concerns.	KLD
Environment	Total 'environment' score; total 'environment' strengths minus total 'environment' concerns.	KLD
Community	Total 'community' score: total 'community' strengths minus total 'community' concerns.	KLD
Diversity	Total 'diversity' score: total 'diversity' strengths minus total 'diversity' concerns.	KLD
Employee relations	Total 'employee relations' score: total 'employee relations' strengths minus total 'employee relations' concerns.	KLD
Product	Total 'product' score: total 'product' strengths minus total 'product' concerns.	KLD
Panel C: Control variables		
Size	The lag of the natural log of total sales (data item #12)	CRSP/Compustat merged
Tobin's Q	The lag of ratio of the market value of assets (book value of assets (data item #6) plus the difference between the market value of equity (data item #24 × data item #25) and the book value of equity (data item #60)) to the book value of assets (data item #6)	CRSP/Compustat merged
Leverage	Book value of debt (data item #5 + data item #9) over book value of assets (data item #6)	CRSP/Compustat merged
ROA	Operating income before depreciation (data item #13) to the book value of assets (data item #6)	CRSP/Compustat merged
CEO ownership (%)	Percentage ownership of CEO shares (shares of CEO/common shares outstanding)	Risk metrics/CRSP/Compustat
Board size	Total number of directors on the board	Risk metrics
Board independence	Percentage of independent directors on the board	Risk metrics

where *Compensation* takes five alternative forms of CEO compensation for firm *i*: (natural log of) total, salary, bonus, cash (partly salary, partly bonus) and long-term compensation measured at time *t*; $CSR_{t,t-1}$ = CSR defined as the total number of strengths minus the total number of weaknesses across a range of alternative metrics – environment, community, diversity, employee relations and product quality; LSIZE = the log of total assets; TOBQ = Tobin's Q measured as the ratio of market value of assets to the book value of assets; LEV = leverage measured as the ratio of book value of debt to the book value of assets; ROA = operating income before depreciation divided by the book value of assets; CEOOWN = percentage ownership of CEO shares; LBSIZE = log of the number of directors; BINDEP = the percentage of independent directors on the board; and "CRISIS", which takes three alternative forms – GF_CRISIS = 1 for the years 2007–2010, 0 otherwise; ASIAN_CRISIS = 1 for years 1997–1998, 0 otherwise; DOTCOMBUBBLE = 1 for 1999–2000, 0 otherwise; γ_e = year dummies and δ = industry dummies. Consistent with Brick et al. (2006) and Cai et al. (2011), all firm characteristics are lagged one year to

reduce potential endogeneity but governance variables (CEO ownership, board size and independent directors) are measured contemporaneously. Lagged CSR is used to reduce potential endogeneity and to address the possibility of reverse causality. Crisis dummies are measured at time t to capture the impact between compensation and CSR components specific to time periods showing strong economic changes.

A description of the variables is presented in Table 1. Size is expected to positively affect CEO compensation (see for example Bizjak, Brickley, & Coles, 1993; Mehran, 1995). The growth options of a firm, measured by Tobin's Q, is also expected to have a positive relation with executive compensation (see e.g. Bizjak et al., 1993; Clinch, 1991; Gaver & Gaver, 1993). One would expect CEO compensation to be positively linked to profitability. Yet, there is mixed evidence on the association between profitability and executive rewards. Though it is argued that rewards ought to be contingent on overall performance, sales have been found to be a stronger predictor of salary and bonus than profit (Ciscel & Carroll, 1980).

The governance control variables include CEO ownership, number of directors, and the number of independent directors on the board. CEOs with a greater stake in the company have interests more aligned with the shareholder, suggesting a negative relationship (see e.g. Brick et al., 2006; Mehran, 1995; Ryan & Wiggins, 2001). Increased board size is expected to lead to less effective monitoring (Core, Holthausen, & Larcker, 1999). Less effective monitoring indicates weaker governance, which leads to higher executive compensation. Board size has been used in several studies as a control variable, e.g. Conyon and Peck (1998) and Brick et al. (2006). As suggested by Cai et al. (2011), the effect of the number of board members and the number of independent board members on executive compensation remains uncertain.

3.5. Determining the appropriate method of estimation

3.5.1. Heteroskedasticity and clustering

Using the Breusch–Pagan test, we correct for heteroskedasticity following Petersen (2009) to account for clustering of errors.[7] In our panel dataset, we find clustering of errors across both firms and time. However, for the variable of interest, CSR, only clustering of errors across firms is evident. Following Petersen (2009) we cluster by firm only to avoid the risk of higher *t*-statistics associated with double clustering.

3.5.2. Endogeneity

The problem of endogeneity might only be partly solved by using the lag of CSR. Therefore, we test our regressions for potential endogeneity. Following Cai et al. (2011) we use the industry median of CSR as an instrument and use the Durbin–Wu–Hausman test to determine if CSR is endogenous. Our results show that CSR is not an endogenous variable and we proceed with OLS regression as our core results.[8]

3.5.3. Data censoring

The bonus component of CEO compensation has only 5308 positive values and, thus, more than half of our sample has a zero value. This means we have censored data, i.e. a substantial fraction of

[7] After extensive research and comparison across different methods (e.g. Fama-MacBeth/Newey-West/Fixed-effects/Random-effects) of clustering of standards errors (SEs) in panel data, Petersen (2009) suggests a method which should guide how to account for clustering of errors in the most optimal way. By using this method, the source of dependence in the data is exposed. His method suggests that one first produces four regression estimations; one using OLS with White standard errors, OLS with standard errors clustered by firm, time, and by both. By using the White standard errors as a baseline, the heteroskedasticity is taken out and the variation across the different regressions is then only due to within-cluster correlations.

[8] However as a robustness check, similar to Cai et al. (2011), we also conduct 2SLS estimation and the results are qualitatively the same. However, it is noteworthy that the instrument used, median industry CSR, means that we cannot control for industry fixed effects in the 2SLS analysis. Moreover, the identification of an appropriate instrument is problematic and given our lack of evidence to support endogeneity we feel justified proceeding with OLS. This allows us to maintain a clearer focus. For interested readers, the details of the 2SLS analysis are available from the authors upon request.

Table 2
Summary statistics. This table presents various sample descriptive statistics for the variables employed in our analysis: dependent variable (alternative measures of CEO compensation); variables of interest (alternative measures of CSR) and control variables. The sample size is 12,311 firm-year observations.

	Mean	SD	Min	p25	Median	p75	Max
Panel A: Dependent variables							
Salary	792.84	381.88	0	554.50	750	985	8100
Bonus	691.34	1871.69	0	0	129.15	820.75	76,951
L-term compensation	4042.43	9528.15	0	889.98	1573.06	4213.13	600,347.4
Total compensation	2558.26	8903.96	0	58.09	360.67	2366.25	600,347.3
Panel B: Variables of interest							
CSR	0.26	2.54	−9	−1	0	1	16
Environment	−0.07	0.90	−5	0	0	0	5
Community	0.14	0.66	−2	0	0	0	5
Diversity	0.49	1.45	−3	0	0	1	7
Employee relations	−0.06	0.97	−4	−1	0	0	5
Product	−0.24	0.74	−4	0	0	0	3
Panel C: Control variables							
Size	18,871.06	92,169.93	54.45	1010.25	2937.25	9754.00	2,264,909
Tobin's Q	1.96	1.33	0.52	1.17	1.53	2.23	16.14
Leverage	0.22	0.17	0	0.07	0.21	0.33	1.44
ROA	0.14	0.10	−0.86	0.08	0.13	0.19	0.97
CEO ownership	2.58	5.77	0	0.24	0.76	2.10	74.49
Board size	9.88	2.60	4	8.00	10	11	34
Director independence	72.56	14.79	0	62.50	75	84.62	100

the dependent variable takes a limit value, of zero. This problem is solved by using a Tobit model to estimate the bonus regression.

4. Results

4.1. Basic descriptive statistics and baseline regression

Summary statistics are presented in Table 2 and sample correlations in Table 3. With respect to the CSR variable, we observe a median, and often a 75% percentile, of zero, indicating that most firms are 'neutral', i.e. they have no strengths or concerns on a given metric. With respect to the individual components, only the diversity metric has a relatively high variance, followed by employee relations. The negative minimum values of the CSR measure, indicates poor performers on this metric with more concerns than strengths. For example for environment, the total number of concerns possible is 7 (6 before 1999) and the number of strengths possible is 6. The worst performing firm on the environment with a score of −5, either had 0 (5), 1 (6) or 2 (7) strengths (concerns), respectively. Appendix A outlines the strengths and concerns relevant to each metric.

The first column of Table 4 presents the baseline regression results in which total CEO compensation is the dependent variable. As predicted, we establish that CSR has a significant negative relationship with total compensation (at the 1% level). The regression results suggest that an increase in the CSR score of a firm by 1 unit is expected to decrease total CEO compensation by 2.2%. Given the finding of a negative relation between CSR and CEO compensation, this result supports the hypothesis of an intrinsically motivated CEO. Further, there is a significant negative effect of the GFC on total CEO compensation. Total compensation is modeled to be approximately 65% lower in the GFC period.[9] We re-visit the impact of financial crises more extensively later.

[9] The transformation required to convert back from the log form is: $(1/e^{1.030}) - 1 = -0.430$.

Table 3
Sample correlations. This table reports cross-sectional correlations for the sample, covering the period 1996–2010. LSAL, log of salary compensation; LBON, log of bonus compensation; LLTCOMP, log of long-term compensation; LCSHC, log of cash compensation; LSIZE, log of book value of assets; TOBQ, the ratio of market value of assets to book value of assets; LEV, the ratio of book value of debt to book value of assets; ROA, operating income before depreciation divided by book value of assets; CEOOWN, percentage ownership of CEO shares; LBSIZE, log of total number of directors on board; BINDEP, percentage of independent directors on board; GF_CRISIS, a dummy variable taking a value of unity in years 2007–2010.

	LSAL	LBON	LTCOMP	LCASHC	LSIZE	TOBQ	LEV	ROA	CEOOWN	LBSIZE	BINDEP
LBON	0.3241	1									
LTCOMP	0.1439	0.4233	1								
LCASHC	0.7827	0.8644	0.4072	1							
LSIZE	0.2454	0.474	0.3516	0.3465	1						
TOBQ	−0.0981	−0.0163	0.0798	−0.0533	−0.2452	1					
LEV	0.1089	0.1223	0.1075	0.1369	0.279	−0.2492	1				
ROA	−0.0096	−0.0122	0.0006	0.012	−0.194	0.4839	0.0137	1			
CEOOWN	−0.0751	−0.0475	−0.0955	−0.0819	−0.1979	0.0439	−0.0854	0.0289	1		
LBSIZE	0.1983	0.2675	0.2625	0.2503	0.5942	−0.1597	0.1689	−0.1243	−0.1817	1	
BINDEP	0.094	0.0349	−0.0809	0.0086	0.1226	−0.1078	0.052	−0.0797	−0.2015	0.0439	1
GF_CRISIS	0.0219	−0.1965	−0.559	−0.2121	−0.0687	−0.1086	−0.033	−0.0036	0.0126	−0.1185	0.2936

Table 4
Exploring CEO compensation/CSR linkage – does the form of CEO compensation matter? This table reports the results of estimating OLS regressions for the three main components of CEO compensation (natural log transformed); salary, bonus and long-term compensation on a measure of corporate social responsibility and a range of control variables. Also, the estimations of total compensation and cash compensation are included for comparison purposes. The sample is drawn from the companies available in the KLD database over the period 1996–2010. Total compensation is defined as the sum of cash compensation: salary and bonus; and long-term compensation: the total value of restricted stock granted in that year, the Black–Scholes value of stock options granted in that year, long-term compensation and all other compensation. The key test variable is CSR is defined as the total number of strengths minus the total number of weaknesses on the following metrics; environment, community, diversity, employee relations and product. The control variables are defined as follows: LSIZE, log of book value of assets; TOBQ, the ratio of market value of assets to book value of assets; LEV, the ratio of book value of debt to book value of assets; ROA, operating income before depreciation divided by book value of assets; CEOOWN, percentage ownership of CEO shares; LBSIZE, log of total number of directors on board; BINDEP, percentage of independent directors on board; GF_CRISIS, a dummy variable taking a value of unity in years 2007–2010; ASIAN_CRISIS, a dummy variable taking a value of unity in years 1997–1998; DOTCOMBUBBLE, a dummy variable taking a value of unity in years 1999–2000 Estimation is achieved with OLS, except for bonus which is achieved using a Tobit model, and includes firm and industry dummies and standard errors are adjusted for correlations across firms. Coefficient estimates are reported with the associated *p*-value in parentheses.

Form of CEO compensation					
	Total	Cash	Salary	Bonus	Long-term
CSR	−0.022***	−0.017**	−0.018**	0.008	−0.022**
	(0.003)	(0.017)	(0.014)	(0.774)	(0.031)
LSIZE	0.314***	0.222***	0.142***	0.233***	0.499***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
TOBQ	0.056***	−0.065***	−0.084***	0.009	0.102***
	(0.005)	(0.008)	(0.002)	(0.866)	(0.000)
LEV	0.224**	0.247**	0.261*	0.332	0.204
	(0.032)	(0.036)	(0.053)	(0.471)	(0.216)
ROA	0.639***	1.393***	1.161***	2.319**	0.562
	(0.000)	(0.000)	(0.000)	(0.011)	(0.107)
CEOOWN	−0.007**	−0.004	−0.003	−0.014	−0.007
	(0.022)	(0.251)	(0.330)	(0.413)	(0.223)
LBSIZE	0.123	0.171	0.227	0.128	0.190
	(0.305)	(0.211)	(0.148)	(0.701)	(0.140)
BINDEP	0.004***	0.002**	0.003***	0.001	0.010***
	(0.000)	(0.026)	(0.005)	(0.866)	(0.000)
GF_CRISIS	−1.030***	−0.292***	0.155***	−7.102***	−2.599***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
ASIAN_CRISIS	0.132**	0.057	0.022	0.035	0.089
	(0.018)	(0.177)	(0.650)	(0.855)	(0.355)
DOTCOMBUBBLE	0.256***	0.149**	0.038	−0.044	0.416***
	(0.000)	(0.010)	(0.439)	(0.837)	(0.000)
Constant	4.8111****	4.8592****	4.7286****	2.8821*	1.3273****
	(0.000)	(0.000)	(0.000)	(0.076)	(0.000)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes	Yes	Yes
Number of observations	12,303	12,253	12,246	12,311	12,097
Adjusted R^2	0.4429	0.2276	0.120	0.1438 (pseudo)	0.548
Model	OLS	OLS	OLS	TOBIT	OLS

* Indicate statistical significance at the 10% level.
** Indicate statistical significance at the 5% level.
*** Indicate statistical significance at the 1% level.
**** Indicate statistical significance at the 0.1% level.

4.2. Does the form of CEO compensation matter?

To explore whether the form of CEO compensation impacts the strength of the negative relationship, we successively regress the four alternative measures of CEO compensation on CSR, focusing particular attention on the three main components: salary, bonus and long-term compensation. The results are presented in the remaining columns of Table 4.

In short, the answer to the question is yes – the form of CEO compensation does matter. CSR has a significant negative relationship with both salary and long-term compensation, but not with the bonus component. The negative relation between salary and CSR is consistent with our expectation that CEOs who are employed in CSR firms accept a lower level of compensation, other things equal. The lack of relation between CSR and the bonus shows that CEOs are not rewarded in the short term for higher CSR performance. This might indicate that these CEOs are comfortable de-coupling their CSR motives from that part of their compensation which links to short-term performance, but not to the extent that they would reverse it to manifest in a positive linkage. Further, long-term compensation is not linked, in a positive way, to CSR performance. Again an intrinsically motivated CEO does not require a long-term incentive to engage in CSR or there is no need for the firm to offer this incentive due to lower agency costs.

4.3. Does the disaggregation of CSR into its components matter?

To answer this question, the different forms of CEO compensation are regressed on the alternative CSR metrics: environment, community, employee relations, diversity and product quality. In Table 5 we present only the results of the key variables to keep attention focused on the core research

Table 5
Exploring CEO compensation/CSR linkage – does the disaggregation of CSR into its components matter? This table reports the results of estimating OLS regressions for the 5 alternative measures of CEO compensation (natural log transformed) on the 5 metrics of CSR; environment, community, employee relations, diversity and product quality and a range of control variables. Control variables are included in all estimated models as described in the main text, but not tabulated to conserve space. The sample is drawn from the companies available in the KLD database over the period 1996–2010. Total compensation is defined as the sum of cash compensation: salary and bonus; and long-term compensation: the total value of restricted stock granted in that year, the Black–Scholes value of stock options granted in that year, long-term compensation and all other compensation. The key test variable is CSR, defined as the total number of strengths minus the total number of weaknesses on the following metrics; environment, community, diversity, employee relations and product. Estimation is achieved with OLS except for bonus which is achieved using a Tobit model, and includes firm and industry dummies and standard errors are adjusted for correlations across firms. Coefficient estimates are reported with the associated *p*-value in parentheses.

Form of CEO compensation					
CSR Component	Total	Cash	Salary	Bonus	Long-term
CSR (Agg)	−0.022***	−0.017**	−0.018**	0.008	−0.022**
	(0.003)	(0.017)	(0.014)	(0.774)	(0.031)
Environment	−0.045**	−0.032*	−0.041**	0.018	−0.030
	(0.028)	(0.077)	(0.017)	(0.808)	(0.279)
Community	0.012	0.007	−0.010	0.129	−0.017
	(0.600)	(0.757)	(0.695)	(0.149)	(0.591)
Employee relations	−0.052****	−0.039***	−0.038***	0.090	−0.072***
	(0.000)	(0.002)	(0.010)	(0.199)	(0.001)
Diversity	−0.023**	−0.025**	−0.015	−0.139**	0.001
	(0.041)	(0.022)	(0.111)	(0.016)	(0.938)
Product	−0.030	−0.012	−0.024	0.195**	−0.060*
	(0.162)	(0.573)	(0.274)	(0.033)	(0.064)

* Indicate statistical significance at the 10% level.
** Indicate statistical significance at the 5% level.
*** Indicate statistical significance at the 1% level.
**** Indicate statistical significance at the 0.1% level.

question and conserve space (though the complete specification of Eq. (1) is estimated). In row 1, for the purposes of comparison, we repeat the aggregate CSR result from Table 4.

Referring to the first column of results, we see that the significant negative relation between employee relations and total CEO compensation (at the 1% level) corroborates the main finding of Cai et al. (2011). However, our results also show a strong negative relation between the firm's score on 'environment' and 'diversity' and total compensation (at the 5% level of significance). As such, we present evidence that strongly qualifies the message coming from Cai et al. – dimensions other than employee relations are also important and they show very similar economic importance.

Our disaggregation of the components of CEO compensation allows several further key insights. A firm's score on 'environment' is negatively associated with the salary component (significant at the 5% level), whereas a firm's score on 'diversity' is mainly (negatively) driven by the bonus component, and to a lesser extent the cash component (both significant at the 5% level). Interestingly, while we do not find a relationship between total CEO compensation and the score on 'Product Quality' of a firm, if we look at the components we see that the bonus component is positively related to the score on 'Product Quality' (at the 5% level). This finding with regard to the product dimension accords with the prediction outlined earlier based on the argument that product is less likely (than community and the environment) to align with a true underlying altruistic motive, since product quality is more directly linked to the economic self-interest of mangers. For example, there might be a material drop in bonus as a consequence of concerns regarding product safety or anti-trust, i.e. when a firm has had to pay substantial fines relating to the safety of their product or anti-trust violations. Such concerns could lead to a substantial loss of short-term performance for the CEO for which he or she is penalized in terms of a sharp reduction in bonus.

These results suggest that a firm with many policies in place regarding environmental impact, such as recycling, alternative fuels and pollution prevention, pay their executives relatively less salary. On the other hand, firms that have had a particular negative environmental impact pay their executives more than firms that do 'environmentally good'. For example, a hypothetical firm that has 3 strengths and no concerns pays the executive about 25% less salary than a counterpart firm that has 3 environmental concerns and no strengths. The estimated coefficient on long-term compensation is negative as well, so overall these results confirm the hypothesis that (other things equal) an environmentally-proactive CEO accepts lower pay.[10] Further, our results suggest that a CEO concerned with diversity issues such as benefits provided to the family of employees, women contracting and gay and lesbian policies, receives a lower bonus than firms where there are controversies regarding these possible issues.

So, in short, the answer to the question posed here is also yes – disaggregation of CSR into its components does matter. Notably, our main message is that the conditional linkage between CSR components and CEO compensation components is somewhat richer in nature than that implied by Cai et al. (2011).

4.4. Do financial crises matter? Does gender matter?

To explore a possible moderating effect of financial crisis or gender on the CEO compensation/CSR linkage, relevant interaction terms with CSR are added to the model. Specifically, CSR is interacted with a dummy variable for Crisis (capturing the global financial crisis, taking a value of unity for the years 2007–2010). For completeness, the crisis dummy is also interacted with the control variables.[11] Table 6 presents the key estimation results for this augmented model in which the gender dummy, Female, is

[10] We note it is feasible to suggest that a lower measure on the environment dimension may increase the risks of being sued and, hence, the CEO would demand higher compensation. We thank an anonymous referee for allowing us to reflect on this position. An increase in the risk of being sued coupled with an increase in compensation would have a negative outcome for both shareholders and stakeholders. It is anticipated that such a scenario could not persist in the long term.

[11] To keep the modeling complexity under control, we limit the focus here to the most recent and major financial crisis, the GFC.

Table 6
Exploring CEO compensation/CSR linkage – does gender and/or financial crisis matter? This table reports the results of estimating OLS regressions for the 5 different measures of CEO compensation (natural log transformed) on a measure of CSR, an interaction term of CSR with the Global Financial Crisis and an interaction term of CSR with Female. Control variables are included in all estimated models as described in the main text, but not tabulated to conserve space. Total compensation is defined as the sum of cash compensation: salary and bonus; and long-term compensation: the total value of restricted stock granted in that year, the Black–Scholes value of stock options granted in that year, long-term compensation and all other compensation. CSR is defined as the total number of strengths minus the total number of weaknesses (aggregate); the Global Financial Crisis variable is a dummy that takes a value of unity for the years 2007–2010, and the dummy variable female takes a value of unity if the CEO is male. Estimation is performed with OLS, except for bonus, which is performed using a Tobit model, and includes firm and industry dummies and standard errors are adjusted for correlations across firms. *p*-Values for the derived CSR estimates for combinations of crisis/gender, are obtained using the Wald test of joint significance. Coefficient estimates are reported with the associated *p*-value in parentheses.

Form of CEO compensation					
	Total	Cash	Salary	Bonus	Long-term
Panel A: CSR-related model estimates					
CSR	−0.009	−0.006	−0.012	0.052*	−0.013
	(0.197)	(0.408)	(0.128)	(0.063)	(0.277)
CSR*crisis	−0.025*	−0.026*	−0.019	−0.089	−0.016
	(0.064)	(0.074)	(0.164)	(0.202)	(0.302)
CSR*female	0.032**	0.032*	0.047***	−0.168	0.059*
	(0.045)	(0.056)	(0.003)	(0.177)	(0.052)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes	Yes	Yes
Number of observations	12,302	12,251	12,246	12,311	12,097
Adjusted R^2	0.489	0.242	0.123	0.1311 (pseudo)	0.556
Model	OLS	OLS	OLS	TOBIT	OLS
Panel B: Derived CSR estimates for combinations of crisis/gender					
Male and no crisis	−0.009	−0.006	−0.012	0.052*	−0.013
	(0.197)	(0.409)	(0.128)	(0.063)	(0.277)
Male and crisis	−0.034**	−0.032**	−0.031**	−0.037	−0.029*
	(0.026)	(0.046)	(0.026)	(0.137)	(0.088)
Female and no crisis	0.023*	0.026	0.035**	−0.116	0.046
	(0.098)	(0.160)	(0.011)	(0.119)	(0.115)
Female and crisis	−0.002**	−0.000**	0.016**	−0.205	0.030**
	(0.035)	(0.061)	(0.010)	(0.182)	(0.091)

* Indicate statistical significance at the 10% level.
** Indicate statistical significance at the 5% level.
*** Indicate statistical significance at the 1% level.

also interacted with CSR, and with the analysis repeated for the various different components of CEO compensation.[12]

The results show that both the crisis and gender have an effect on the relationship between total compensation and cash compensation; with CSR. Crisis has a negative and significant moderating effect for both total and cash compensation (at the 10% level). However, what is most notable is that during the non-crisis period, the relation between CEO compensation and CSR is insignificant (at the 5% level or better) for each component of compensation.[13] The CEO being female is also a significant and positive moderator for total compensation (5% level), cash compensation (10% level), salary (1% level), and long-term compensation (10% level). Finding that CSR increases the pay of female CEOs compared to male CEOs suggests that, other things equal, these socially responsible firms are particularly keen to avoid any concerns of gender discrimination in pay packages – so much so, that it dominates the ability to detect any inherent altruistic behavior exhibited by females.

[12] All the previously identified control variables are included in each estimation, but are not tabulated to conserve space.
[13] Only for Bonus compensation is the effect of CSR positive and (mildly) significant at the 10% level.

5. Conclusion

Our paper revisits the relationship between corporate social responsibility (CSR) and CEO compensation, building on and extending Cai et al. (2011). Using the sample period 1996–2010, we seek answers to the following questions. Does the CSR impact vary across the different components of CEO compensation, i.e. salary, bonus and long-term compensation? What role do sub-components of CSR play? Do some elements of CSR drive the relationship more strongly than others? Is the relationship influenced by times of market stress? Does the CEO's gender matter?

We have two main findings. First, disaggregation of CSR into its components matters. We document evidence suggesting that while employee relations, the environment and diversity are important, generally, community and product quality are not. Second, we find that both times of crisis and gender matter. Once they are accounted for interactively in the model, the general relationship between CSR and CEO compensation weakens.

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Appendix A.

Concerns and strengths across various dimensions of CSR.

	Strengths	Concerns
Environment	- Beneficial products and services - Pollution prevention - Recycling - Clean energy - Management systems strength - Other strength	- Hazardous waste - Regulatory problems - Ozone depleting chemicals - Substantial emissions - Agriculture chemicals - Climate change (from 1999) - Negative impact of products and services (from 2010) - Land use and biodiversity (from 2010) - Non carbon releases (from 2010) - Other concerns
Corporate governance	- Limited compensation - Ownership strength - Transparency strength (from 1996) - Political accountability strength (from 2005) - Public policy strength (from 2007) - Other strength	- High compensation - Ownership concern - Accounting concern - Transparency concern (from 2005) - Political accountability concern (2005–2007) - Public policy concern (from 2007) - Governance structures controversies (from 2010) - Other concerns
Community	- Charitable giving - Innovative giving - Support for housing - Support for education - Non-US charitable giving - Volunteer programs - Community engagement (from 2010) - Other strengths	- Investment controversies - Negative economic impact - Tax disputes - Other concerns

Appendix A (*Continued*)

	Strengths	Concerns
Diversity	- CEO - Promotion - Board of directors - Work-life benefits - Women and minority contracting - Employment of the disabled - Gay and lesbian policies - Employment of underrepresented groups (from 2010) -Other strength	- Controversies - Non-representation - Board diversity - Other concerns
Employee relations	- Union relations - Cash profit sharing - Employee involvement - Retirement benefits strength - Health and safety strength (from 2003) - Supply chain policies, programs and initiatives (from 2002) - Other strengths	- Union relations - Health and safety concern - Workforce reductions - Retirement benefits concern - Supply chain controversies (from 1998) - Other concerns
Human rights	- Positive record in S. Africa (1994–1995) - Indigenous peoples relations strength (from 2000) - Labor rights strength (from 2002) - Other strengths	- South Africa (1991–1994) - Northern Ireland (1991–1994) - Burma concern - Mexico (1994–2001) - Labor rights concern (from 1998) - Indigenous peoples relations concern (from 2000) - Operations in Sudan (from 2010) - Other concerns
Product	- Quality - R and D, innovation - Benefits to economically disadvantaged - Access to capital - Other strengths	- Product safety - Marketing-contracting concern - Antitrust - Other concerns

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