

**CORPORATE GOVERNANCE AND THE RISE OF INTEGRATING CORPORATE  
SOCIAL RESPONSIBILITY CRITERIA IN EXECUTIVE COMPENSATION:  
EFFECTIVENESS AND IMPLICATIONS FOR FIRM OUTCOMES**

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Date of Submission: October 1, 2017

**ABSTRACT**

**Research Abstract:** This study examines the integration of corporate social responsibility (CSR) criteria in executive compensation, a relatively recent practice in corporate governance. We construct a novel database of CSR contracting and document that CSR contracting has become more prevalent over time. We further find that the adoption of CSR contracting leads to i) an increase in long-term orientation; ii) an increase in firm value; iii) an increase in social and environmental performance; iv) a reduction in emissions; and v) an increase in green innovations. These findings are consistent with our theoretical arguments predicting that CSR contracting helps direct management's attention to stakeholders that are less salient but financially material to the firm in the long run, thereby enhancing corporate governance.

**Managerial Abstract:** This paper examines the effectiveness and implications of integrating environmental and social performance criteria in executive compensation ("CSR contracting"), a relatively recent practice in corporate governance. We construct a novel database of CSR contracting and document that CSR contracting has become more prevalent over time—which echoes the increased public scrutiny on companies' behavior in the real economy. We further show that the adoption of CSR contracting mitigates corporate short-termism and improves business performance. Firms that adopted CSR contracting experienced a significant increase in firm value. This increase in firm value foreshadowed an increase in operating profits that materialized within three years. We unpack the reasons for these improvements in performance, and find that firms that adopted CSR contracting improved their environmental and social performance, especially with respect to the natural environment and local communities. For example, they reduced their emissions and increased innovations in green technologies. Overall, the findings of this study suggest that CSR contracting helps direct management's attention to stakeholders that are less salient but financially material to the firm in the long run, thereby improving a firm's governance as well as its impact on society and the natural environment. Accordingly, they are of foremost relevance to the IRRC Institute Research Award objective.

Keywords: corporate governance; corporate social responsibility; executive compensation; managerial incentives; long-term orientation.

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\* We thank Ruth Aguilera, Pratima Bansal, Guoli Chen, Olga Hawn, Jiao Luo, Chris Marquis, Mary-Hunter McDonnell, Aldo Musacchio, as well as seminar participants at Korea Advanced Institute of Science & Technology (KAIST), University of British Columbia, University of California Santa Barbara (UCSB), University of Amsterdam, University of Groningen, the 2016 Wharton People and Organizations Conference, the 2016 Institutions and Innovation Conference (Harvard Business School), the 2017 Academy of Management Annual Meeting, the 2017 Alliance for Research on Corporate Sustainability Conference (Erasmus), the 2017 Behavioral Perspectives on Corporate Governance Conference (INSEAD), the 2017 Economics of Social Sector Organisations Conference (LSE/Chicago Booth), the 2017 PRI Academic Network Conference, the 2017 Society for Institutional & Organizational Economics Conference (Columbia University), and the 2017 Milan Strategic Management Society Special Conference (Bocconi University) for helpful comments and suggestions. We are grateful to Hanny Chen, Blossom Lin, Sarah Morrison, Zahra Naqvi, and Charlotte Zhen for excellent research assistance, and Deepak Hegde for sharing his patent data.

## INTRODUCTION

A recent development in corporate governance is the integration of corporate social responsibility (CSR) criteria in executive compensation—that is, linking executive compensation to social and environmental performance (e.g., CO<sub>2</sub> emission targets, employee satisfaction targets, compliance with ethical standards in developing countries). Practitioners commonly refer to this incentive provision as “CSR contracting” or “pay for social and environmental performance” (as opposed to the traditional “pay for (financial) performance”). While this incentive provision has become increasingly prevalent, little is known about this new phenomenon and how it affects firm-level outcomes.

Anecdotal accounts abound with examples of companies—e.g., Alcoa, American Electric Power, Intel, Novo Nordisk, and Xcel Energy—that have adopted CSR contracting, and view the incorporation of CSR criteria in executive compensation as good governance (*GreenBiz*, 2012; *Harvard Business Review*, 2015; *Wall Street Journal*, 2008). For example, Xcel Energy includes a so-called “sustainability quotient” in its salary reviews and bonus allocations. While 75% of its incentives continue to be based on earnings per share growth, the remaining 25% include environmental footprint and decreases in carbon emissions (*Forbes*, 2010). Similarly, Intel ties executive compensation to corporate sustainability goals such as the energy efficiency of its products, reductions in greenhouse gas emissions and energy use, and improvements in environmental leadership reputation (*GreenBiz*, 2012). Xcel and Intel are not the only companies that include CSR criteria in their executive compensation structure; others have introduced similar compensation structures in an attempt to improve their governance and contribute to long-term value creation.<sup>1</sup> In their view, and as Lars Rebien Sørensen—CEO of Novo Nordisk and recently named the “Best-Performing CEO of the World” by *Harvard Business Review*—stated: “corporate social responsibility is nothing but maximizing the value of your company over a long period of time, because in the long term, social and environmental issues become financial issues” (*Harvard Business Review*, 2015).

Apart from anecdotal evidence, little is known about CSR contracting. In this paper, we aim to fill this void in the literature. To do so, we construct a novel database that compiles information on CSR contracting from the compensation information that companies report in their proxy statements filed with the Securities and Exchange Commission (SEC). Our sample covers all S&P 500 firms during a 10-year period (2004-2013). To the best of our knowledge, this database is the first longitudinal database of CSR contracting.

We then explore theoretically and empirically how CSR contracting affects firm outcomes. From a theoretical perspective, our main argument is that CSR contracting helps direct managers’

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<sup>1</sup> The view that CSR contracting is good governance is also reflected in the recent change in ranking methodology of *Harvard Business Review*’s annual “Best Performing CEOs in the World” assessment, which shifted away from only looking at “hard stock market numbers” towards also considering each company’s environmental, social and governance (ESG) performance. The journal states that the revised ranking methodology aims to “account for the many aspects of leadership that go beyond mere market performance” (*Harvard Business Review*, 2015).

attention to stakeholders that are less salient but financially material to the firm in the long run, thereby enhancing corporate governance.

In the empirical analysis, we start by documenting a series of stylized facts pertaining to CSR contracting. First, we show that the integration of CSR criteria in executive compensation is more prevalent in emission-intensive industries (e.g., mining, oil extraction, transportation). Second, we document a strong trend towards more CSR contracting over time. While only 12% of the S&P 500 companies had adopted CSR contracting by 2004, this ratio increased to 37% by 2013. We then examine how CSR contracting affects firm-level outcomes. We find that the adoption of CSR contracting leads to i) an increase in long-term orientation (measured by the long-term index of Flammer and Bansal, 2017); ii) an increase in firm value (measured by Tobin's Q); iii) an increase in social and environmental performance (measured by the KLD-index), especially with respect to less salient stakeholders such as the natural environment and communities; iv) a reduction in emissions (measured by the toxic release inventory (TRI)); and v) an increase in green patents. These findings support our theoretical arguments that CSR contracting enhances the governance of a company by incentivizing managers to adopt a longer time horizon and shift their attention towards stakeholders that are less salient, but contribute to long-term value creation.

Moreover, we explore the moderating role of the substantiveness of CSR contracting. We find that our results are stronger i) when companies specify the amount of CSR-based compensation (i.e., when they are specific instead of vague), and ii) when the share of CSR-based compensation is larger. This suggests that CSR contracting is a more effective governance tool if it is substantive.

These findings are robust to a large number of robustness checks. In particular, we address the potential endogeneity of CSR contracting by using the enactment of state-level constituency statutes as instrumental variable (IV) for CSR contracting. Constituency statutes allow directors to consider stakeholders' interests when making business decisions (Flammer, 2017; Flammer and Kacperczyk, 2016) and hence provide exogenous shifts in companies' propensity to adopt CSR contracting.

This study makes two main contributions to the literature. To the best of our knowledge, it is the first to provide a longitudinal analysis of CSR contracting. As such, it establishes several facts pertaining to CSR contracting, and documents the increasing prevalence of CSR contracting as a new phenomenon in corporate governance. Second, this paper sheds light on how the adoption of CSR contracting affects firm-level outcomes, and highlights a novel mechanism that boards of directors can use to enhance their governance—the integration of CSR criteria in executive compensation. Such criteria incentivize managers to direct their attention to stakeholders that are less salient, but financially material to a firm's operating context and long-term success.

In the remainder of this paper, we develop the theoretical arguments in detail, describe the data and methodology, present the empirical results, and conclude by discussing the implications and limitations of our findings.

## THEORY

### Incentives for stakeholder engagement

Stakeholders are defined as “any group or individual who can affect or is affected by the achievement of an organization’s purpose” (Freeman, 1984, p. 53)—e.g., employees, customers, the environment, and the community at large.<sup>2</sup> A large literature argues that stakeholders can be essential for sustaining a firm’s competitiveness and long-term growth. For example, by treating their employees well, firms can enhance employee engagement (Flammer and Luo, 2017), innovative productivity (Flammer and Kacperczyk, 2016), and ultimately improve firm performance (e.g., Edmans, 2011, 2012). In addition, customers are responsive to companies’ stakeholder engagement. Indeed, stakeholder engagement can serve as valuable signal of the seller’s quality and non-opportunistic behavior, generating goodwill, sales, and profits (e.g., Du, Bhattacharya, and Sen, 2011; Elfenbein, Fisman, and McManus, 2012; Kotler, Hessekiel, and Lee, 2012; Luo and Bhattacharya, 2006). Relatedly, companies’ actions pertaining to communities and the natural environment have been shown to affect financial performance (e.g., Flammer, 2013; Hamilton, 1995; Klassen and McLaughlin, 1996). In particular, by improving their environmental footprint, companies can benefit from a better reputation and cleaner work environment, enhancing the satisfaction of employees and consumers (e.g., Bansal and Roth, 2000; Delmas and Pekovic, 2013; Hart, 1995; Russo and Fouts, 1997). Conversely, eco-harmful behavior can hurt a firm’s bottom line if, e.g., the firm lacks the social license to operate, stricter government regulations are imposed, or the firm is targeted by a boycott (e.g., *Harvard Business Review*, 2015; Henisz, Dorobantu, and Nartey, 2014).<sup>3</sup> In sum, a large literature suggests that stakeholder engagement (or the lack thereof) influences firms’ competitiveness and long-term value creation.<sup>4</sup>

While managers may well perceive the relevance of stakeholder engagement for long-term value creation, they may be reluctant to address all stakeholder claims. First, stakeholder interests are heterogenous and may conflict with each other. For example, customers may have short-term claims about pricing, while local communities have long-term claims about the firm’s social engagement. In this example, the interests of the “customer” stakeholder collide against the interests of the “community” stakeholder. Managers have to balance these conflicting interests (in terms of allocating financial, cognitive, and other resources) and may give preferences to some

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<sup>2</sup> In this paper, we use the expressions “stakeholder engagement” and “investments in CSR” interchangeably. As such, CSR includes any corporate initiative pertaining to the firm’s stakeholders (and hence is not limited to philanthropic initiatives). For a similar terminology see, e.g., Barnett and Salomon (2006), Flammer and Bansal (2017), and Graves and Waddock (2000).

<sup>3</sup> A prime example is the Keystone XL Pipeline project that was supposed to transport carbon-heavy petroleum from the Canadian oil sands to the Gulf Coast. While economically promising, it faced strong resistance from local communities and environmental activists. After a seven-year review, President Obama rejected the Keystone project due to its negative impact on the natural environment (*New York Times*, 2015).

<sup>4</sup> Note that an increase in firm value need not imply that profits increase in the short run. Indeed, value-enhancing projects can entail a temporal separation between (short-term) costs and (long-term) benefits, with a positive net effect on firm value (see, e.g., Flammer and Bansal, 2017).

stakeholders over others.

Second, a large literature in psychology and economics examines individuals' intertemporal decision-making (e.g., Ainslie 1975; Frederick, Loewenstein, and O'Donoghue, 2002; Loewenstein and Prelec, 1992; O'Donoghue and Rabin, 1999; Thaler and Shefrin, 1981). This literature finds that individuals are so-called "hyperbolic discounters," that is, individuals have an excessive preference for the present, preferring short-term rewards over long-term rewards, even if the latter are substantially higher. For executives, this preference for short-term results is reinforced by short-term pressures—such as career concerns (e.g., Gibbons and Murphy, 1992), the provision of short-term executive compensation (e.g., Stein, 1989), and pressures to meet or beat analysts' quarterly earnings expectations (e.g., DeGeorge *et al.*, 1999)—leading managers to favor investments that pay off in the short run at the expense of long-term investments (e.g., Flammer and Bansal, 2017; Graham *et al.* 2005; Holmstrom, 1999; Stein, 1988, 1989). In this vein, perhaps the most striking evidence is provided in a survey by Graham *et al.* (2005), who find that 78% of the surveyed executives would sacrifice projects with positive net present value (NPV) if adopting them resulted in the firm missing quarterly earnings expectations. Accordingly, managers are likely to focus their attention on those stakeholder claims that help in meeting managers' short-term earnings targets.

Taken together, the above arguments suggest that managers have a propensity to give priority to salient stakeholders that contribute to short-term performance (e.g., Eesley and Lenox, 2006; Mitchell, Agle, and Wood, 1997), as opposed to stakeholders that might be less salient but financially material to the firm in the long run.

To redirect managers' attention towards stakeholders that contribute to long-term value creation, boards of directors need to provide proper incentives to their managers. In this vein, a relatively recent corporate governance practice is the integration of CSR criteria in executive compensation—i.e., linking executive compensation to social and environmental performance. Yet, whether or not the adoption of CSR criteria in executive compensation serves as an effective governance tool—that is, a tool that influences corporate actions and contributes to value creation—is far from obvious. Indeed, the extant literature suggests that some governance mechanisms are ineffective as they lack substance and are merely symbolic (e.g., Westphal and Zajac, 1994; Zajac and Westphal, 1995). Moreover, CSR-based compensation may only represent a very small fraction of the overall compensation a manager receives and hence be too incremental to effectively shape managerial incentives. In the following, we discuss the effectiveness of CSR contracting and the implications for firm-level outcomes.

### **Implications for organizational time horizon and long-term value creation**

From the perspective of agency theory, the inclusion of nonfinancial performance measures in executive compensation contracts can increase their effectiveness if the nonfinancial performance measures contain additional information about a manager's effort beyond that of financial measures (Holmstrom, 1979). This holds even if the primary objective is improving stock market performance and managers are already incentivized with stock-based compensation (Feltham and

Xie, 1994).

While financial measures can serve as a reasonable measure of competence in managing a firm's current operations, they do not reflect the benefits of many longer-term strategies, such as investments in new growth opportunities or new product development (Bushman *et al.*, 1996). In contrast, nonfinancial performance measures (e.g., customer satisfaction, employee satisfaction, environmental footprint) are likely indicative of longer-term benefits. Consistent with this argument, several articles document a link between customer satisfaction and long-term financial performance (e.g., Banker, Potter, and Srinivasan, 2000; Behn and Riley, 1999; Ittner and Larcker, 1998; Sen and Bhattacharya, 2001). Similarly, employee satisfaction (e.g., Edmans, 2011, 2012; Flammer, 2015a) and environmental performance (e.g., Flammer, 2013; Klassen and McLaughlin, 1996) have been shown to increase firm value. Accordingly, to the extent that nonfinancial performance measures are predictive of long-term value creation, the inclusion of such measures will likely improve the effectiveness of executive compensation contracts.<sup>5</sup>

Given that the achievement of superior social and environmental performance is typically the outcome of long-term efforts that require a long-term orientation (Eccles, Ioannou, and Serafeim, 2014; Flammer and Bansal, 2017), we expect that providing incentives based on social and environmental performance is likely to shift managers' attention towards a longer-term orientation and ultimately increase the value of the firm.<sup>6</sup> This leads to the following hypotheses:

*Hypothesis 1. The adoption of CSR criteria in executive compensation has a positive impact on organizational time horizons.*

*Hypothesis 2. The adoption of CSR criteria in executive compensation has a positive impact on firm value.*

## **Heterogeneity across stakeholders**

The aim of integrating CSR criteria in executive compensation is to incentivize managers to improve the firm's social and environmental performance in order to create long-term shareholder value. Naturally—assuming that managers are responsive to incentives—we expect managers to expand their stakeholder engagement following the adoption of CSR contracting.

That being said, there might be considerable heterogeneity across stakeholder groups. For example, consumers and employees are key stakeholders that directly contribute to a firm's bottom line. These stakeholders have direct claims, as they are in a formal contractual relationship with the firm and have the necessary "power" (Mitchell *et al.*, 1997) to make their claims heard by the

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<sup>5</sup> Consistent with this view, Ittner, Larcker, and Rajan (1997) find that the use of nonfinancial measures increases with the extent to which a firm pursues innovation- and quality-oriented strategies.

<sup>6</sup> We define "organizational time horizon" as the executive team's attention to long-term firm value. Slawinski and Bansal (2012) argue that an organization's time orientation is reflected by its discourse. In this spirit, in the empirical analysis, we follow Flammer and Bansal (2017) and construct an index of long-term orientation based on the organization's discourse.

management. Hence, there might be less of a need to incentivize managers to address the claims of these stakeholders.

In contrast, the natural environment and the communities in which a firm operates are more likely to benefit from the integration of CSR criteria in executive compensation. This is because neither of these stakeholders have an immediate effect on the company's bottom line, and hence on meeting managers' short-term earnings targets. Moreover, and importantly, they lack the necessary power to make their claims heard as they are "dependent" on the advocacy of other stakeholders (Mitchell *et al.*, 1997)—such as environmentalists, community activists, shareholder activists, advocacy groups, and other entities that are concerned about the long run and the firm's CSR activities.<sup>7</sup> As a result, the claims of these "dependent stakeholders" are less salient (Mitchell *et al.*, 1997), and managers may ignore them absent proper incentives.

The recent years have witnessed dramatic environmental, regulatory, and societal developments. These developments have likely increased the pressure faced by boards of directors to engage with dependent stakeholders. In particular, the prevalence of social media has facilitated the mobilization of social movements (Van Laer and Van Aelst, 2010), exacerbating their potential impact on a firm's financial performance (e.g., King and Soule, 2007; Pruitt and Friedman, 1986).<sup>8</sup> Moreover, shareholder activism demanding improved sustainable practices and a longer-term orientation has increased substantially over the years (Flammer, 2013, 2015a; Flammer and Bansal, 2017), pressuring boards to take action with respect to the environment and local communities.<sup>9</sup> Taken together, these recent developments suggest that stakeholder advocacy in support of dependent stakeholders has become more powerful, pressuring boards of directors to take action. Boards may respond by adopting CSR contracting to incentivize managers to engage with the natural environment and local communities.

In sum, the above arguments suggest that CSR contracting is especially effective with respect to the "dependent" stakeholders, that is, the natural environment and local communities. This motivates the following hypothesis:

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<sup>7</sup> Mitchell *et al.* (1997) call this stakeholder group "dependent stakeholders" due to their dependency on the advocacy by others.

<sup>8</sup> In this vein, Eesley and Lenox (2006) examine the conditions under which community activists, advocacy groups, and others can elicit positive firm responses and advance their interests.

<sup>9</sup> In parallel, governments are increasingly taking actions to curb climate change and impose stricter environmental regulations (e.g., Allen and Shonnard, 2011). For example, at the recent 2015 United Nations Climate Change Conference, 195 nations reached an agreement (the Paris Agreement) that aims to limit global warming to well below two degrees Celsius—which is regarded as the danger zone for climate change when droughts get even worse and low-lying islands disappear. By April 2016, 175 countries had signed the agreement and began adopting it within their own legal systems (CNN, 2016; United Nations, 2016). More generally, (the threat of) stricter environmental regulations can induce firms to reduce emissions (Maxwell, Lyon, and Hackett, 2000), and send a strong signal to investors of carbon-intensive companies. Indeed, a low-carbon future creates a long-term challenge to their business model, even if the financial impact may not be felt immediately. For example, a major financial risk faced by energy companies pertains to so-called "stranded assets"—coal, oil, and gas reserves that companies list as part of their assets, but might in fact be worthless, since those reserves may never be drilled and instead become left stranded by tougher regulations to curb climate change (e.g., *Financial Times*, 2015; *Fortune*, 2015).



*Hypothesis 3. The adoption of CSR criteria in executive compensation has a positive impact on stakeholder engagement, especially with respect to the natural environment and local communities.*

### **Sustainable practices and the development of green innovations**

In the previous section, we argued that the integration of CSR criteria in executive compensation enhances the governance of a company by incentivizing managers to improve the firm's CSR performance, especially with regard to the less salient (or "dependent") stakeholders such as the environment and local communities. In this section, we discuss potential mechanisms through which companies may do so. These mechanisms fall into two broad categories: 1) minimizing detrimental effects on the less salient stakeholders, and 2) increasing their benefits.

First, companies may take actions that reduce the detrimental impact (e.g., emissions) on the natural environment and the local communities in which they operate. As previously mentioned, eco-harmful behavior can negatively impact a firm's financial performance—e.g., if the firm loses its social license to operate, stricter government regulations are imposed, fines are levied, or the firm is boycotted following eco-harmful behavior (e.g., Flammer, 2013; *Harvard Business Review*, 2015; Hennisz *et al.*, 2014; Klassen and McLaughlin, 1996). In particular, Flammer (2013) shows that the detrimental impact of eco-harmful behavior on a firm's financial performance has become more substantial over the past decades. Accordingly, managers—when properly incentivized—may take actions to improve their environmental footprint. For example, they may reduce their use of pesticides, reduce energy consumption, introduce recycling programs, engage their employees in community cleanups and greening initiatives, upgrade their facilities to prevent oil spills and other industrial accidents, construct "green buildings," shift towards using renewable energy and clean fuels, or source from eco-friendly and socially responsible suppliers. Many of these initiatives (e.g., resource efficiency and waste management) are "low-hanging fruits" as they are relatively incremental, require few financial resources, take little time to implement, and pay off relatively quickly (e.g., Clelland *et al.*, 2000; Rusinko, 2007; Russo and Harrison, 2005). Arguably, CSR contracting may induce managers to exploit these low-hanging fruits and, as a result, reduce the firm's emissions.

Second, companies may take actions that benefit the less salient stakeholders. For example, companies can develop "green" products and environmentally-friendly production processes that benefit both the environment and local communities. Such innovations require substantial time and resources to develop and bring to the market. More generally, innovative activities are characterized by long gestation periods, substantial resource commitments, and a high rate of failure (e.g., Aghion and Tirole, 1994; Griliches, 1990; Hall, Jaffe, and Trajtenberg, 2005). Despite these challenges—or rather *due to* these challenges—we expect CSR contracting to foster the pursuit of green innovations. Indeed, as discussed above, CSR contracting is likely to shift managers' attention towards a longer-term orientation, which is essential for innovation (e.g., Aghion, Van Reenen, and Zingales, 2013; Azoulay, Graff Zivin, and Manso, 2011; Flammer and

Bansal, 2017). Moreover, stakeholder orientation can foster a work environment that is more tolerant of failure, thereby encouraging experimentation and enhancing employees' innovative productivity (Flammer and Kacperczyk, 2016).

In sum, we expect that CSR contracting incentivizes managers to i) engage in more sustainable practices that reduce emissions, and ii) increase their efforts in developing “green innovations.” This leads to the following hypothesis:

*Hypothesis 4. The adoption of CSR criteria in executive compensation incentivizes managers to i) reduce emissions, and ii) increase their green innovations.*

### **Symbolic versus substantive adoption of CSR contracting**

The previous arguments suggest that the adoption of CSR criteria in executive compensation serves as an effective governance tool that influences corporate strategy and increases firm value. In this section, we explore the moderating role of the substantiveness of CSR contracting.

The extant literature suggests that some governance mechanisms may lack substance and be merely symbolic. In particular, Westphal and Zajac (1994) show that companies may announce the adoption of pay-for-(financial) performance incentive plans but only implement them incrementally, if at all, suggesting a potential separation of substance and symbol in executive compensation. Arguably, the extent to which an incentive plan is implemented plays a defining role in whether it influences managers' decision-making and ultimately affects value creation. The same may apply to CSR contracting—CSR-based compensation may only represent a very small fraction of the overall compensation and hence be too incremental to be an effective incentive tool.

Moreover, the adoption of CSR criteria may be a PR strategy instead of an incentive scheme. In this vein, the extant literature suggests that external pressures can result in decoupling processes whereby firms' responses to external demands vary in the extent to which they are symbolic or substantive (Marquis and Qian, 2014; Meyer and Rowan, 1977; Okhmatovskiy and David, 2012). For example, Marquis and Qian (2014) examine whether firms comply with government pressure to issue CSR reports only symbolically (i.e., by issuing vague, uninformative reports), or whether they comply by providing substantive details. They find that, in certain situations (i.e., when the risk of government monitoring is low), the reporting of CSR activities might be symbolic rather than substantive. In this spirit—following the increased stakeholder advocacy in support of the natural environment and local communities—boards of directors' responses may vary in the degree to which the incorporation of CSR criteria in executive compensation is symbolic (i.e., vague) or substantive (i.e., specific).

Relatedly—and in contrast to measuring financial performance—quantifying and tracking a firm's social and environmental impact is non-trivial (see, e.g., *The Guardian*, 2011). For example, it is unclear how to quantify and compare employees' volunteering efforts, a company-led training program in sustainable production for suppliers, or recycling efforts. This challenge makes an assessment of the actual CSR target completion difficult and, in turn, may induce boards

of directors to remain vague in the description of CSR performance targets and remuneration. As a result, no clear guidance—and hence incentive—is provided to managers.

Taken together, the above arguments suggest that firms that are specific in the formulation of CSR-based executive compensation, and provide a higher share of CSR-based compensation, are more likely to influence managers' corporate actions and hence serve as an effective governance tool. Accordingly, we expect that the substantiveness of CSR contracting positively moderates the relationship between CSR contracting and firm-level outcomes.

*Hypothesis 5. The adoption of CSR criteria in executive compensation serves as a less effective governance tool, i) if it lacks the indication of a specific CSR compensation amount, and ii) the smaller the extent of CSR compensation (compared to total compensation).*

## **DATA**

### **Data and variable definitions**

#### *CSR contracting*

To construct a database of executive compensation incentives for CSR, we manually collect executive compensation data from annual proxy statements filed with the Securities and Exchange Commission (SEC) for each firm in the Standard & Poor's 500 Index (S&P 500) for the years 2004 through 2013. Our sample consists of 4,533 firm-year observations for which we could retrieve proxy statements (SEC Form DEF 14A) from the SEC's Electronic Data Gathering, Analysis, and Retrieval (EDGAR) database.

Proxy statements provide descriptive information regarding the structure of managerial compensation contracts (e.g., salary, bonus, stock-based compensation) for the top five executives of the firm, including the performance metrics used for performance-based compensation. To identify the provision of incentives for CSR, we manually searched through the description of each executive's compensation to identify performance metrics that were linked to social and environmental performance. Those included the following: community, compliance with ethical standards, corporate social responsibility, diversity, employee well-being, energy efficiency, environmental compliance, environmental goals, environmental performance, environmental projects, greenhouse gas emissions reductions, health, performance relative to a corporate responsibility index (e.g., Dow Jones Sustainability Index), product safety, reduced injury rates, safety, and sustainability. If incentives were provided that were linked to CSR, the executive was coded with a dummy variable equal to one for that year.

For example, Freeport-McMoRan Copper & Gold Inc. bases a significant portion of its executives' performance-based compensation on safety, environmental, and social responsibility metrics. More specifically, according to its 2013 Proxy Statement, the Annual Incentive Plan (AIP) bases 25% of the aggregate award on the achievement of pre-established safety (15%),

environmental and social responsibility performance (10%) goals. Similarly, Valero Energy’s AIP rewards safe operations and environmental responsibility. According to its 2013 Proxy Statement, 13.33% of executives’ AIP is based on the achievement of health, safety, and environmental goals.

To construct a firm-level measure of CSR-based incentives (*CSR contracting*) we compute the percentage of executives whose compensation includes CSR criteria for that year. *CSR contracting* is essentially binary—almost all companies that use CSR-based criteria do so for all executives.<sup>10</sup>

### *Dependent variables*

To test our hypotheses, we regress various dependent variables on the adoption of CSR contracting. In the following, we describe each dependent variable.

*Time horizon.* To measure time horizons, we use the long-term index (“LT-index”) of Flammer and Bansal (2017). The LT-index is obtained by conducting a textual analysis of the companies’ annual reports. The rationale behind this index is that an organization’s time orientation is reflected by its discourse (Slawinski and Bansal, 2012)—companies that use long-term keywords more frequently in their discourse are more likely to have a longer-term orientation. To construct this index, we perform a textual analysis of the firms’ 10-K filings, which are obtained from the SEC’s EDGAR database, and count the number of keywords referring to the short term (“short run,” “short-run,” “short term,” “short-term”) and long term (“long run,” “long-run,” “long term,” “long-term”), respectively. We then compute the LT-index as the ratio of the number of long-term keywords to the sum of long- and short-term keywords.

*Firm value.* We use Tobin’s Q to measure firm value. Tobin’s Q is constructed from Compustat as the ratio of the market value of total assets (obtained as the book value of total assets plus the market value of common stock minus the sum of the book value of common stock and balance sheet deferred taxes) to the book value of total assets. To mitigate the impact of outliers, Tobin’s Q is winsorized at the 5<sup>th</sup> and 95<sup>th</sup> percentiles of its empirical distribution.

*CSR performance.* The CSR data are obtained from the Kinder, Lydenberg, and Domini (KLD) database. KLD is an independent social choice investment advisory firm that compiles ratings of how companies address the needs of their stakeholders. For each stakeholder group, strengths and concerns are measured to evaluate positive and negative aspects of corporate actions toward stakeholders. These ratings are compiled from multiple data sources including annual questionnaires sent to companies’ investor relations offices, firms’ financial statements, annual and quarterly reports, general press releases, government surveys, and academic publications (see KLD, 2010). KLD ratings are widely used in CSR studies (e.g., Chatterji and Toffel, 2010; Flammer, 2015b). We construct a composite KLD-index by adding up the number of CSR strengths with respect to employees, customers, the natural environment, and communities. In the

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<sup>10</sup> More precisely, this is the case for 94% of the firms that use CSR contracting. For ease of exposition, we will interpret *CSR contracting* as a binary variable that indicates whether the company uses CSR-based incentives.

analysis, we also consider subindices based on specific stakeholder groups.<sup>11</sup>

*Emissions.* To measure emissions, we use the Toxic Release Inventory (TRI) data maintained by the U.S. Environmental Protection Agency (EPA). The TRI database contains annual data on emissions of over 650 toxic chemicals from thousands of facilities in the U.S. To create a measure of toxic emissions, we first weigh each chemical by its toxicity. Toxicity-weighted emissions are calculated by multiplying the quantity of each chemical emitted by the inverse of its reportable quantity, following the method used by King and Lenox (2000). Then, toxicity-weighted emissions of each chemical are summed up at the facility level, and ultimately the firm level. The final dependent variable used in the regressions is the logarithm of one plus the toxicity-weighted emissions at the firm level ( $\log(TRI)$ ).

*Green patents.* We obtain the patent data from the NBER patent database, which contains annual information on the patent assignee name, the technology class, the number of citations, and the year of patent.<sup>12</sup> To identify green patents, we use the classification of Amore and Bennedsen (2016, p. 68).<sup>13</sup> The final dependent variable is the ratio of the number of green patents divided by the total number of patents filed by the company that year (*green patents*). In auxiliary analyses, we further distinguish between green patents pertaining to i) pollution and recycling, and ii) renewable energies.

#### *Control variables*

In the regressions, we control for a vector of firm- and compensation-level characteristics that may affect the adoption of CSR contracting and the dependent variables of interest.

All firm-level controls are constructed from Compustat. *Size* is the natural logarithm of the book value of total assets. *Return on assets* (ROA) is the ratio of operating income before depreciation to the book value of total assets. *Leverage* is the ratio of debt (long-term debt plus debt in current liabilities) to the book value of total assets. *Cash holdings* is the ratio of cash and short-term investments to the book value of total assets. To mitigate the impact of outliers, all ratios are winsorized at the 5<sup>th</sup> and 95<sup>th</sup> percentiles of their empirical distribution.

The compensation-level controls are obtained from Execucomp.  $\log(\text{total compensation})$

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<sup>11</sup> In addition to CSR strengths, the KLD database also contains a list of CSR weaknesses, labeled “concerns.” Accordingly, an alternative approach is to construct a “net” KLD-index by subtracting the number of concerns from the number of strengths. In robustness checks, we show that our results are similar if we use this net KLD-index instead.

<sup>12</sup> The NBER patent database ends in 2006, but can be extended using the raw files of the U.S Patent and Trademark Office (USPTO). We thank Deepak Hegde for sharing the 2007-2013 data with us.

<sup>13</sup> The relevant categories are as follows: air pollution control (USPTO codes 015, 044, 060, 110, 123, 422, 423); alternative energy (049, 062, 204, 222, 228, 242, 248, 425, 428, 708, 976); alternative energy sources (062, 222, 425); geothermal energy (060, 436); recycling (060, 075, 099, 100, 106, 162, 164, 198, 201, 205, 210, 216, 229, 264, 266, 422, 425, 431, 432, 460, 502, 523, 525, 536, 902); solid waste control (034, 060, 065, 075, 099, 106, 118, 119, 122, 137, 162, 165, 203, 205, 209, 210, 239, 241, 266, 405, 422, 423, 431, 435, 976); solid waste disposal (122, 137, 239, 241, 405, 523, 588, 976); solid waste prevention (065, 119, 137, 165, 205, 210, 405, 435); water pollution (203, 210, 405); wind energy (073, 104, 180, 242, 280, 340, 343, 374, 422, 440).

is the natural logarithm of total executive pay.<sup>14</sup> The other controls capture the composition of executive pay: *% cash compensation* is the share of cash-based compensation (i.e., salary and bonus), *% stock-based compensation* the share of stock-based compensation; *% option-based compensation* the share of option-based compensation, and *% other compensation* the share of the miscellaneous compensation (e.g., perquisites and other personal benefits).<sup>15</sup>

### Summary statistics and trends in CSR contracting

Table 1 provides descriptive statistics for the variables used in this paper, along with the corresponding correlation matrix. Note that the mean of *CSR contracting* is 0.238, which indicates that about 24% of the S&P 500 companies use CSR criteria in executive compensation.<sup>16</sup>

-----Insert Table 1 about here-----

#### *CSR contracting across industries*

Table 2 provides summary statistics on the prevalence of CSR contracting across industry sectors (partitioned according to SIC major groups). As can be seen, CSR contracting is more prevalent in emission-intensive industries such as “mining” (56.6%) and “transportation, electric, and gas” (45.4%).<sup>17</sup> These results echo well with our prediction that the adoption of CSR contracting is likely to benefit “dependent” stakeholders such as the natural environment—a stakeholder that is especially important in emission-intensive industries.<sup>18</sup>

-----Insert Table 2 about here-----

#### *CSR contracting over time*

In Table 3, we provide summary statistics on the evolution of CSR contracting over time. As can be seen, CSR contracting is becoming increasingly more prevalent over the years. While only

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<sup>14</sup> We take the average across all executives of the firm.

<sup>15</sup> In the regressions, *% other compensation* is used as the base group.

<sup>16</sup> Note that the average executive pay is \$5.3 million, out of which 41% is cash-, 34% stock-, and 20% option-based. These figures are consistent with typical statistics on executive pay that have been reported in the literature (see, e.g., Frydman and Jenter, 2010, p. 80).

<sup>17</sup> CSR contracting appears to be very common in “agriculture, forestry, and fishing” as well. While this sector is emission-intensive, it only represents a very minor fraction of the overall sample (10 firm-year observations).

<sup>18</sup> Managing the environmental impact and obtaining the social license to operate are key elements of business strategy in emission-intensive industries. In particular, the Sustainability Accounting Standards Board (SASB)—a non-profit organization that provides guidance to publicly-listed companies on the disclosure of material sustainability issues in mandatory SEC filings—identifies environmental issues as financially material for firms in emission-intensive industries. In fact, environmental issues are identified as the most important factor influencing financial performance in these industries (Khan, Serafeim, and Yoon, 2016). Relatedly, in their study of the mining industry, Hensiz *et al.* (2014) find that obtaining the social license to operate is essential to conducting business and a key driver of financial performance. Accordingly, the adverse consequences of losing the social license to operate and stricter government regulations due to eco-harmful behavior are particularly pronounced in these industries.

12.1% of the S&P 500 companies had adopted CSR contracting by 2004, this ratio increased to 36.7% by 2013. As discussed above, the recent years have witnessed dramatic environmental, regulatory, and societal developments, which likely increased the pressure on boards of directors to take action with respect to stakeholder engagement, e.g., through the adoption of CSR contracting. The trend in Table 3 is consistent with these arguments.

-----Insert Table 3 about here-----

## METHODOLOGY

### Ordinary least squares (OLS) regressions

To examine whether the adoption of CSR contracting affects firm-level outcomes, we estimate the following regression:

$$y_{it} = \alpha_i + \alpha_t + \beta \times CSR\ contracting_{it-1} + \gamma' \mathbf{X}_{it-1} + \varepsilon_{it}, \quad (1)$$

where  $i$  indexes firms;  $t$  indexes years;  $\alpha_i$  and  $\alpha_t$  are firm and year fixed effects, respectively;  $y$  is the dependent variable of interest; *CSR contracting* is the CSR contracting variable in the preceding year;  $\mathbf{X}$  is the vector of control variables (size, ROA, leverage, cash holdings, total executive pay, and the breakdown of executive pay into its components) in the preceding year;  $\varepsilon$  is the error term. To account for dependence across firms within the same industry, we cluster standard errors at the 2-digit SIC industry level. The coefficient of interest is  $\beta$ , which captures the change in  $y$  following the adoption of CSR criteria in executive compensation (i.e., when *CSR contracting* switches from 0 to 1).

The inclusion of control variables mitigates the possibility that our findings are driven by omitted variables. For example, it could be that more profitable companies are more likely to adopt CSR contracting (since they can more easily afford to devote resources to stakeholder engagement), while at the same time they are more likely to generate, e.g., green patents (since they might be better able to invest in R&D). Controlling for profitability (ROA) addresses this potential confound. Similarly, it could be that boards of directors redesign the executives' entire compensation package when incorporating CSR performance criteria. If, for some reason, boards systematically adjust other components of executive pay (e.g., stock options) when implementing CSR criteria, such adjustments may confound our findings. The inclusion of compensation-level controls (e.g., the share of option-based compensation) alleviates this possibility. In addition, the inclusion of firm fixed effects accounts for any time-invariant firm characteristics that may affect both the adoption of CSR contracting and firm-level outcomes. Finally, the inclusion of year fixed effects accounts for economy-wide factors that could affect both CSR contracting and the outcome variables of interest.

## Two-stage least squares (2SLS) regressions

While the controls and fixed effects help address potential confounds, they do not fully rule out the possibility that *unobservable* time-varying firm characteristics may drive a spurious relationship between *CSR contracting* and  $y$ . In other words, equation (1) is subject to a standard endogeneity problem—the adoption of CSR-based criteria in executive compensation is not random and can correlate with unobservables that may also affect the outcome variables of interest. In such cases, the estimate of  $\beta$  would be inconsistent.

To obtain a consistent estimate of  $\beta$ , we need an instrument for CSR contracting—that is, a variable that triggers exogenous shifts in the propensity to adopt CSR-based criteria in executive compensation. The specific instrument that we exploit in this paper is the enactment of state-level constituency statutes. This follows the methodology of Flammer and Kacperczyk (2016) and Flammer (2017), who use constituency statutes to study the effect of stakeholder orientation on corporate innovation and the allocation of procurement contracts, respectively.

### *Constituency statutes*

Constituency statutes allow corporate officers and directors to take into account the interests of a variety of corporate stakeholders in carrying out their fiduciary duties to the corporation. The statutes suggest that a corporation should, or at least may, be run in the interests of more groups than just shareholders. Hence, under these statutes, a corporation's officers and directors are allowed to consider the interests of employees, customers, suppliers, the environment, the local community, and any other potentially affected constituency (e.g., Orts 1992). Prior to the enactment of stakeholder statutes, corporate directors were not explicitly permitted by written law to consider stakeholders' interests in their decision-making. Therefore, the enactment of constituency statutes sent a strong signal and provided corporate leaders with a mechanism for considering stakeholder interests without breaching their fiduciary obligations to shareholders. Proponents of those statutes sought to reflect their belief that corporations are more than just investment vehicles for owners of financial capital in corporate law (Bainbridge, 1992). For example, the Pennsylvania statute reads:

“In discharging the duties of their respective positions, the board of directors, committees of the board and individual directors of a domestic corporation may, in considering the best interests of the corporation, consider the effects of any action upon employees, upon suppliers and customers of the corporation and upon communities in which offices or other establishments of the corporation are located, and all other pertinent factors.” (15 Pa. Cons. Stat. § 516(a))

Though the language may be state-specific, the core content of the legislation remains the same: constituency statutes emphasize the importance of considering the interests of nonfinancial stakeholders and hence pursuing interests that are not restricted to the bottom line. In fact, most statutes give corporate leaders permission to consider stakeholder interests in any circumstance,



including any structural and operational decisions, or whenever corporate leaders wish to consider them.

To date, a total of 35 states in the U.S. have adopted constituency statutes (see Karpoff and Wittry, 2015). Two of them adopted a constituency statute during the sample period—Texas in 2006 and Nebraska in 2007. Accordingly, we can exploit these two legislations to obtain a 2SLS estimate of the impact of CSR contracting on firm-level outcomes. Importantly, because the enactment of the statutes does not reflect any firm’s strategic decision, such “treatments” offer plausibly exogenous variation in a firm’s propensity to use CSR criteria in executive compensation.

### *First-stage regression*

In the first-stage regression, we regress *CSR contracting* on the enactment of constituency statutes. Specifically, we estimate the following regression:

$$CSR\ contracting_{it} = \alpha_i + \alpha_t + b \times constituency\ statute_{it} + \mathbf{c}'\mathbf{X}_{it} + e_{it}, \quad (2)$$

where *constituency statute* is the “treatment dummy,” which is equal to one if firm *i* is incorporated in a state that has enacted a constituency statute by year *t*.<sup>19</sup> The other variables are the same as in equation (1). Effectively, equation (2) is a difference-in-differences specification, that is, the coefficient *b* measures the change in the probability of adopting CSR contracting after the treatment (first difference) in the treatment versus control groups (second difference).

In their evaluation of the difference-in-differences methodology, Bertrand, Duflo, and Mullainathan (2003) recommend that standard errors be clustered at the dimension of the treatment. Accordingly, when estimating equation (2), we cluster standard errors at the state of incorporation level. (We obtain similar results if standard errors are clustered at the 2-digit SIC level.)

### *Second-stage regression*

The predicted values from equation (2) provide *CSR contracting (instrumented)*—that is, the exogenous component of *CSR contracting*. In the second-stage regression, we then re-estimate equation (1) using *CSR contracting (instrumented)* instead of *CSR contracting*:

$$y_{it} = \alpha_i + \alpha_t + \beta_{2SLS} \times CSR\ contracting\ (instrumented)_{it-1} + \boldsymbol{\gamma}'\mathbf{X}_{it-1} + \varepsilon_{it}. \quad (3)$$

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<sup>19</sup> States of incorporation are obtained from Compustat. A caveat is that Compustat only reports the state of incorporation for the latest available year. Nevertheless, this caveat is unlikely to matter for our results. Indeed, prior research suggests that changes in states of incorporation are very rare (e.g., Cheng, Nagar, and Rajan, 2004; Romano, 1993).

The coefficient  $\beta_{2SLS}$  then provides a consistent estimate of the effect of CSR contracting on  $y$ .

## RESULTS

### CSR contracting and firm-level outcomes

#### *OLS regressions*

In Table 4, we regress firm-level outcomes on CSR contracting. The underlying specification is equation (1)—that is, each regression includes controls as well as firm and year fixed effects. All right-hand side variables are lagged by one year.

-----Insert Table 4 about here-----

*Time horizons.* In column (1), the dependent variable is the long-term index (LT-index). Following the adoption of CSR contracting, the LT-index increases by 1.2 percentage points ( $t = 3.01$ ). These findings are in line with Hypothesis 1 stating that the adoption of CSR contracting has a positive impact on organizational time horizons.

*Firm value.* In column (2), we find that the adoption of CSR contracting is value-enhancing. Following the adoption of CSR contracting, Tobin's Q increases by 0.062 ( $t = 2.00$ ). Since the average Tobin's Q is 1.984 (see Table 1), this corresponds to an increase in firm value by 3.1%.<sup>20</sup> This evidence is supportive of Hypothesis 2 according to which CSR contracting is value-enhancing.<sup>21</sup>

*CSR performance.* In column (3), we examine how the adoption of CSR contracting affects the KLD-index. As is shown, the KLD-index increases by 0.2 index points ( $t = 1.91$ )—since the

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<sup>20</sup> A 3.1% increase in firm value is economically large. It is in the ballpark of the value implications of other governance mechanisms. For example, Cuñat, Giné, and Guadalupe (2012) find that the removal of antitakeover provisions (e.g., poison pills, classified boards) leads to a 2.8% increase in shareholder value; Cuñat, Giné, and Guadalupe (2016) find that the adoption of “say on pay” increases value by 5.8%. Similarly, our estimate is in the ballpark of the value gains associated with higher CSR. In particular, Flammer (2015a) finds that the adoption of CSR provisions increases shareholder value by 1.8%; Edmans (2012) finds that companies listed in the “100 Best Companies to Work For in America” achieve higher valuations by 2.3% to 3.8%.

<sup>21</sup> Formally, firm value  $V$  is the sum of the discounted expected future cash flows, i.e.,  $V = \sum_t \left(\frac{1}{1+r}\right)^t \times E(C_t)$ , where  $r$  is the discount rate and  $C_t$  is the firm's cash flow (“profits”) at time  $t$ . Mechanically, an increase in long-term profits increases  $V$ . In Appendix Table A6, we explicitly distinguish between firm value (Tobin's Q) and firm profits (ROA), and study the dynamics of the effect of CSR contracting on both outcomes. Specifically, we re-estimate our baseline regression, but using as dependent variables *Tobin's Q* <sub>$t$</sub> , *Tobin's Q* <sub>$t+1$</sub> , *Tobin's Q* <sub>$t+2$</sub> , as well as *ROA* <sub>$t$</sub> , *ROA* <sub>$t+1$</sub> , *ROA* <sub>$t+2$</sub> . (Since CSR contracting is measured at  $t-1$ , this captures the effect of CSR contracting 1, 2, and 3 years, respectively, after the adoption of CSR contracting.) As can be seen, Tobin's Q already increases in year  $t$  (and remains high in the subsequent years). In contrast, ROA does not increase in the short run (year  $t$ ), it increases marginally in year  $t+1$ , and it is only in year  $t+2$  that the increase is large and statistically significant. This suggests that it takes a few years for CSR contracting to translate into higher profits. This increase in long-term profits is reflected in an increase in firm value ( $V$  in the above formula). Note that this pattern is consistent with what has been found in the CSR literature. For example, Flammer (2015a) finds that the adoption of CSR initiatives leads to an increase in profitability (ROA) in the long run, yet firm value (Tobin's Q) already increases within a year.

average KLD-index is 3.84, this implies that CSR performance increases by 5.2%. In columns (4)-(5) we further distinguish between the less salient stakeholders (the natural environment and communities) and the more salient ones (employees and customers). As is shown, the increase in CSR performance is more pronounced for the less salient stakeholders. This finding lends support to Hypothesis 3.

*Emissions.* In column (6), we use the TRI data to examine the relationship between CSR contracting and emissions. As can be seen, we find that emissions decrease by 8.7% ( $t = 3.63$ ) following the adoption of CSR contracting. This evidence is supportive of Hypothesis 4 according to which CSR contracting incentivizes managers to reduce emissions.

*Green patents.* In columns (7)-(9), we examine how CSR contracting affects the pursuit of green innovations. In column (7), we find that the ratio of green patents to total patents increases by 2.8 percentage points ( $t = 2.33$ ) following the adoption of CSR contracting, which is consistent with Hypothesis 4. The increase is especially pronounced for green patents pertaining to pollution and recycling (column (8)) as opposed to renewable energies (column (9)).

### *2SLS regressions*

As discussed in the methodology section, a caveat of the analysis presented in Table 4 is the potential endogeneity of CSR contracting with respect to the firm-level outcomes of interest. The inclusion of controls as well as firm and year fixed effects helps mitigate this caveat, but does not fully rule it out. In the following, we further address this point by using the enactment of constituency statutes as an instrument for the adoption of CSR contracting.

The first-stage regression is provided in Appendix Table A1. As can be seen, the enactment of constituency statutes triggers a significant increase in the propensity to adopt CSR contracting. On average, firms incorporated in the treated states are 14.4% more likely to adopt CSR criteria in executive compensation following the enactment of constituency statutes. The  $F$ -statistic of the instrument is 47.0, which lies well above Staiger and Stock's (1997) threshold for "strong" instruments ( $F$ -statistic  $> 10$ ).

The second-stage regressions are provided in Table 5. As is shown, the results mirror very closely those in Table 4. Note that the significance is generally lower in Table 5. This is not surprising given that only two states adopted a constituency statute during the sample period—i.e., relatively few observations contribute to the identification. As such, the second-stage regressions presented in Table 5 have less power. Importantly, however, the point estimates remain similar to the baseline estimates in Table 4.

-----Insert Table 5 about here-----

### *Robustness*

In the Appendix (and Appendix Tables A1-A5), we present several robustness checks that are variants of the baseline specifications used in Tables 4 and 5. In a nutshell, we show that our results

are robust when we i) estimate our regressions without controls; ii) include state  $\times$  year fixed effects to account for unobservable trends at the regional level; iii) include lagged dependent variables as controls and use the GMM estimator of Arellano and Bond (1991); and iv) use alternative measures of social and environmental performance.

### Symbol versus substance

In the analysis so far, we studied CSR contracting as a binary outcome—i.e., whether companies adopt CSR contracting or not. However, there is considerable heterogeneity in how CSR criteria are formulated. In particular, some companies are vague (simply stating in general terms that CSR performance is taken into account), while other companies are specific (indicating the amount of compensation that is linked to CSR performance). Arguably, the latter is more substantive and might be a more effective governance tool.

We examine this question in Table 6. Specifically, we re-estimate our baseline regressions from Tables 4 and 5, but interacting *CSR contracting* with a dummy variable that indicates whether the company specifically indicates the amount of compensation that is linked to CSR performance (*specific*). As can be seen, we indeed find that our results are significantly stronger when companies are specific in the formulation of their CSR-based compensation.<sup>22</sup>

-----Insert Table 6 about here-----

In addition, for those companies that specify the amount of CSR compensation, we can use the dollar amount of CSR-based compensation as another measure of “substantiveness.” More precisely, we compute the share of CSR compensation, which is defined as the ratio of CSR-based compensation to total compensation. The average of this ratio is 4.2% (the standard deviation is 5.3%). We then re-estimate our baseline regressions, but using the continuous variable *share of CSR compensation* instead of the binary variable *CSR contracting*.<sup>23</sup>

The results are presented in Table 7. As can be seen, the results based on the continuous measure are consistent with our baseline results—an increase in the share of CSR-based compensation leads to a significant increase in time horizons, firm value, CSR performance (especially with respect to the less salient stakeholders), and green patenting (especially with respect to pollution and recycling), along with a significant reduction in emissions. The results are economically significant as well. For example, a one-standard deviation increase in the share of CSR compensation leads to an increase in firm value by 2.9%.<sup>24</sup> Similarly, a one-standard deviation increase in the share of CSR compensation leads to an increase in the LT-index by 0.9

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<sup>22</sup> The effect on the salient stakeholders and renewable energies remain insignificant (see columns (5) and (9), respectively), which is consistent with our baseline results.

<sup>23</sup> In the regressions, we set the share of CSR compensation to zero if the company does not use CSR contracting. Companies that use CSR contracting, but do not specify the amount (so that the share of CSR compensation cannot be computed) are excluded from this analysis.

<sup>24</sup> The coefficient in column (2) of the upper panel is 1.090. Since the average Tobin’s Q is 1.984, and the standard deviation of the share of CSR compensation is 0.053, this implies that a one-standard deviation increase in the share of CSR compensation increases firm value by  $0.053 \times 1.090 / 1.984 = 2.9\%$ . Similarly, the coefficient in column (2) of the bottom panel implies an increase in firm value by  $0.053 \times 1.084 / 1.984 = 2.9\%$ .

percentage point, an increase in the KLD-index by 5.6%, a reduction in TRI by 4.9%, and an increase in green patenting by 3.9 percentage points. Overall, the results in Tables 6 and 7 indicate that CSR contracting is a more effective governance tool if it is substantive, which lends support to Hypothesis 5.

-----Insert Table 7 about here-----

## **DISCUSSION AND CONCLUSION**

A recent phenomenon in corporate governance is the inclusion of CSR criteria in executive compensation. In this study, we shed light on this new phenomenon by constructing a novel database that compiles information on CSR contracting covering all S&P 500 firms during a 10-year period (2004-2013). We start by documenting a series of stylized facts pertaining to CSR contracting. First, we show that CSR contracting is more prevalent in emission-intensive industries. Second, we show that CSR contracting has become more prevalent over time.

We then examine how the adoption of CSR contracting affects firm-level outcomes. Our results indicate that the adoption of CSR contracting leads to i) an increase in organizational time horizons, ii) an increase in firm value, iii) an increase in CSR performance (especially with respect to the less salient stakeholders such as the natural environment and local communities), iv) a reduction in emissions, and v) higher engagement in the development of “green” innovations. Overall, these results are consistent with our arguments that CSR contracting helps direct managers’ attention to stakeholders that are less salient but financially material to the firm in the long run, thereby enhancing corporate governance.

Finally, we find that our results are stronger i) when companies specify the amount of CSR-based compensation (that is, when they are specific instead of vague), and ii) when the share of CSR-based compensation is higher. This suggests that CSR contracting as a governance tool is more effective when it is substantive.

Our study contributes to the literature in several ways. First, to the best of our knowledge, this study is the first to explore the rising phenomenon of integrating CSR criteria in executive compensation. This analysis is made possible by the novel database we compiled for this study. As such, our study establishes several key results pertaining to CSR contracting—its evolution over time, its prevalence across industries, and how it affects firm-level outcomes.

Second, this study highlights a new lever in executive compensation that boards of directors can use to influence managerial incentives. As such, our study adds a new dimension—environmental and societal considerations—to the large literature that explores the optimal design of executive compensation (for recent surveys, see Edmans and Gabaix, 2016; Edmans, Gabaix, and Jenter, 2017).

Third, this study explores whether and under what conditions CSR contracting helps improve the governance of a company by shifting managerial attention towards stakeholders that are less salient, yet financially material to the firm in the long run. As such, the insights of this study contribute to the multi-disciplinary dialogue on the role of time horizons and intertemporal

decision-making in organizations (e.g., Flammer and Bansal, 2017; Laverty, 1996, 2004; Slawinski and Bansal, 2015; Souder and Bromiley, 2012), and to the few but notable studies at the intersection of corporate governance and CSR practices (e.g., Aguilera and Jackson, 2003; Aguilera *et al.*, 2006; Amore and Bennedsen, 2016; Berrone and Gomez-Mejia, 2009; Hong, Li, and Minor, 2016; Walls, Berrone, and Phan, 2012). Specifically, while extant work has viewed corporate governance in a traditional sense (i.e., distinct from stakeholder engagement) and examined its relation to CSR practices, we take a fundamentally different approach—we argue that managers’ degree of attention to different stakeholders is *part of* corporate governance.

Fourth, we contribute to the corporate governance literature that examines the symbolism and substance of governance mechanisms (e.g., Westphal and Zajac, 1994; Zajac and Westphal, 1995). This literature suggests that some governance mechanisms may lack substance and be merely symbolic. In this vein, our results indicate that CSR contracting as a governance tool is more likely to be effective when it is substantive (e.g., if the amount of CSR-based compensation is specified), which highlights the importance of the design of CSR contracting.

Our study is subject to several limitations. First, while the enactment of constituency statutes helps address the potential endogeneity of CSR contracting (e.g., companies may adopt CSR contracting in anticipation of future changes in investment decisions or stricter environmental regulations), we caveat that this instrument is only based on a few states (i.e., a few “treatments”) during our sample period—a challenge for future research is to find instruments with broader validity. Second, our data only cover S&P 500 companies, that is, the largest firms in the U.S. Whether our findings generalize to smaller companies and companies outside the U.S., respectively, remains to be established. Third, our study examines CSR incentives of the company’s executives. An open question is how these incentives propagate within the corporate hierarchy (e.g., at the level of the middle management). Shedding light on this question would require detailed micro data on the firm’s organizational structure, along with the detailed compensation information.

Lastly, our study has relevant managerial and policy implications. Our findings indicate that CSR contracting helps direct managers’ attention to less salient stakeholders that are financially material to the company in the long run. As such, CSR contracting provides an additional tool in the “bundle” of governance mechanisms that boards of directors can use to incentivize managers to take value-enhancing actions.<sup>25</sup> From a broader perspective, it is important to note that—although CSR contracting leads to improvements in social and environmental performance—the provision of such private incentives need not lead to the global optimum from a societal perspective. For example, while private incentives may improve firms’ environmental footprint (e.g., through more green innovations), managers are unlikely to internalize the full extent

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<sup>25</sup> Another tool in the bundle of governance mechanisms that may be effective in this context is the provision of long-term executive pay. In this vein, Flammer and Bansal (2017) show that the adoption of long-term executive compensation—such as restricted stocks, restricted stock options, and the so-called LTIPs (long-term incentive plans)—is value-enhancing.

of the firm's negative (and positive) externalities in their decision-making. As a result, private incentives are unlikely to be sufficient to tackle grand challenges such as climate change. Other mechanisms, such as effective government regulations (e.g., carbon pricing), are needed. Exploring these issues is an exciting avenue for future research.

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**Table 1. Summary statistics**

	N	Mean	Std. dev.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 CSR contracting	4,533	0.238	0.423														
2 LT-index	4,533	0.752	0.149	0.09													
3 KLD-index	3,154	3.841	3.545	0.14	0.01												
4 Log(1 + TRI)	4,533	0.265	1.283	0.07	0.05	0.01											
5 Green patents	716	0.232	0.235	0.10	0.14	-0.17	0.09										
6 Tobin's Q	3,478	1.984	1.147	-0.21	-0.18	-0.06	-0.03	-0.23									
7 ROA	4,152	0.038	0.021	-0.10	0.02	-0.01	0.04	-0.10	0.63								
8 Size	4,519	9.495	1.427	0.17	-0.04	0.45	-0.04	-0.01	-0.51	-0.44							
9 Leverage	4,283	0.228	0.149	0.09	0.22	0.04	0.00	0.20	-0.28	-0.18	0.08						
10 Cash holdings	4,519	0.120	0.121	-0.14	-0.22	0.03	-0.04	-0.40	0.57	0.25	-0.25	-0.35					
11 Total compensation (\$1,000)	4,533	5,318	3,902	0.07	0.04	0.27	-0.03	-0.06	-0.04	-0.01	0.39	-0.02	0.04				
12 % Cash compensation	4,533	0.411	0.148	-0.05	-0.02	-0.14	0.03	0.14	-0.03	0.02	-0.08	0.04	-0.09	-0.18			
13 % Stock-based compensation	4,533	0.337	0.184	0.12	0.05	0.14	-0.01	-0.02	-0.13	-0.10	0.16	0.03	-0.02	0.14	-0.51		
14 % Option-based compensation	4,533	0.202	0.161	-0.10	-0.04	-0.01	-0.01	-0.10	0.22	0.12	-0.14	-0.09	0.14	0.03	-0.29	-0.61	
15 % Other compensation	4,533	0.050	0.064	0.04	0.01	-0.02	-0.02	-0.01	-0.10	-0.07	0.07	0.07	-0.09	-0.03	-0.12	-0.15	-0.12

*Notes.* This table reports means, standard deviations, and Pearson correlation coefficients. The sample includes all firm-year observations for companies in the S&P 500 Index from 2004-2013.

**Table 2. CSR contracting across industries**

Major SIC sector	N	% Firms with CSR contracting	
		Mean	Std. dev.
Agriculture, forestry, and fishing	10	0.500	0.527
Construction	59	0.275	0.431
Finance, insurance, and real estate	796	0.114	0.317
Manufacturing	1,819	0.220	0.410
Mining	281	0.566	0.497
Retail trade	383	0.091	0.289
Services	477	0.180	0.378
Transportation, communications, electric, gas, and sanitary services	631	0.454	0.494
Wholesale trade	77	0.026	0.160
All	4,533	0.238	0.423

*Notes.* The sample includes all firm-year observations for companies in the S&P 500 Index from 2004-2013 ( $N = 4,533$ ).

**Table 3. CSR contracting over time**

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% Firms with CSR contracting

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Year	Mean	Std. dev.
2004	0.121	0.321
2005	0.151	0.354
2006	0.206	0.396
2007	0.246	0.422
2008	0.285	0.444
2009	0.227	0.420
2010	0.234	0.424
2011	0.241	0.428
2012	0.261	0.439
2013	0.367	0.483
All	0.238	0.423

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*Notes.* The sample includes all firm-year observations for companies in the S&P 500 Index from 2004-2013 ( $N = 4,533$ ).

**Table 4. CSR contracting and firm outcomes**

Dependent variable:	Long-term orientation	Firm value	CSR performance			Emissions	Green patents		
	LT-index	Tobin's Q	KLD-index	KLD-index (environment & communities)	KLD-index (employees & customers)	Log(1 + TRI)	Green patents	Green patents (pollution & recycling)	Green patents (renewable energies)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CSR contracting	0.012 (0.004)	0.062 (0.031)	0.208 (0.109)	0.130 (0.061)	0.079 (0.079)	-0.087 (0.024)	0.028 (0.012)	0.018 (0.010)	0.010 (0.016)
<i>Controls</i>									
Size	-0.001 (0.005)	-0.313 (0.040)	-0.208 (0.127)	-0.238 (0.071)	0.029 (0.106)	-0.012 (0.023)	-0.003 (0.032)	-0.027 (0.028)	0.024 (0.027)
ROA	0.227 (0.111)	7.342 (1.375)	3.152 (2.787)	-0.583 (1.544)	3.735 (2.331)	0.370 (0.573)	-0.147 (0.271)	0.255 (0.345)	-0.402 (0.352)
Leverage	0.044 (0.027)	-0.430 (0.188)	0.169 (0.483)	0.457 (0.261)	-0.288 (0.362)	0.013 (0.073)	-0.044 (0.062)	-0.137 (0.098)	0.093 (0.114)
Cash	0.000 (0.026)	1.249 (0.298)	-1.602 (0.760)	-0.960 (0.345)	-0.642 (0.594)	-0.137 (0.144)	0.156 (0.093)	0.109 (0.106)	0.047 (0.078)
Log(total compensation)	-0.004 (0.003)	0.037 (0.032)	0.128 (0.086)	0.003 (0.044)	0.125 (0.063)	0.029 (0.015)	-0.015 (0.021)	0.004 (0.019)	-0.020 (0.014)
% Cash compensation	0.025 (0.018)	0.262 (0.167)	-0.765 (0.643)	-0.222 (0.348)	-0.543 (0.588)	0.050 (0.082)	0.100 (0.111)	0.089 (0.138)	0.011 (0.099)
% Stock-based compensation	0.018 (0.017)	0.186 (0.158)	-0.149 (0.671)	0.130 (0.368)	-0.279 (0.612)	0.047 (0.091)	0.139 (0.104)	0.101 (0.122)	0.038 (0.115)
% Option-based compensation	0.007 (0.020)	0.084 (0.173)	-0.103 (0.632)	0.186 (0.359)	-0.289 (0.555)	0.051 (0.087)	0.085 (0.098)	0.066 (0.131)	0.019 (0.122)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.53	0.87	0.84	0.79	0.79	0.93	0.84	0.81	0.60
Observations	3,891	2,996	2,689	2,689	2,689	3,891	592	592	592

*Notes.* All right-hand side variables are lagged by one year. Standard errors (clustered at the 2-digit SIC industry level) are reported in parentheses.

**Table 5. CSR contracting and firm outcomes—2SLS regressions**

Dependent variable:	Long-term orientation	Firm value	CSR performance			Emissions	Green patents		
	LT-index	Tobin's Q	KLD-index	KLD-index (environment & communities)	KLD-index (employees & customers)	Log(1 + TRI)	Green patents	Green patents (pollution & recycling)	Green patents (renewable energies)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CSR contracting (instr.)	0.012 (0.005)	0.062 (0.034)	0.211 (0.122)	0.129 (0.065)	0.082 (0.090)	-0.087 (0.042)	0.028 (0.013)	0.018 (0.011)	0.010 (0.024)
<i>Controls</i>									
Size	-0.001 (0.006)	-0.311 (0.034)	-0.203 (0.114)	-0.234 (0.055)	0.031 (0.086)	-0.014 (0.018)	-0.002 (0.016)	-0.027 (0.016)	0.024 (0.028)
ROA	0.225 (0.085)	7.327 (0.609)	3.103 (1.966)	-0.614 (0.801)	3.716 (1.949)	0.390 (0.316)	-0.154 (0.397)	0.251 (0.208)	-0.404 (0.417)
Leverage	0.042 (0.029)	-0.442 (0.121)	0.130 (0.576)	0.433 (0.323)	-0.303 (0.299)	0.030 (0.150)	-0.049 (0.077)	-0.141 (0.069)	0.092 (0.114)
Cash	-0.000 (0.015)	1.246 (0.244)	-1.613 (0.527)	-0.966 (0.312)	-0.647 (0.434)	-0.132 (0.057)	0.154 (0.110)	0.108 (0.059)	0.046 (0.096)
Log(total compensation)	-0.004 (0.003)	0.037 (0.032)	0.128 (0.092)	0.003 (0.040)	0.125 (0.065)	0.030 (0.009)	-0.015 (0.019)	0.004 (0.019)	-0.020 (0.016)
% Cash compensation	0.024 (0.016)	0.259 (0.206)	-0.774 (0.850)	-0.228 (0.221)	-0.546 (0.776)	0.053 (0.060)	0.099 (0.057)	0.089 (0.089)	0.010 (0.078)
% Stock-based compensation	0.018 (0.014)	0.186 (0.125)	-0.150 (0.767)	0.129 (0.226)	-0.279 (0.711)	0.048 (0.064)	0.139 (0.069)	0.101 (0.091)	0.038 (0.080)
% Option-based compensation	0.006 (0.016)	0.080 (0.167)	-0.116 (0.803)	0.178 (0.217)	-0.294 (0.750)	0.057 (0.076)	0.084 (0.079)	0.065 (0.117)	0.019 (0.100)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.53	0.87	0.84	0.79	0.79	0.93	0.84	0.81	0.60
Observations	3,891	2,996	2,689	2,689	2,689	3,891	592	592	592

*Notes.* All right-hand side variables are lagged by one year. Standard errors (clustered at the 2-digit SIC industry level) are reported in parentheses.



**Table 6. Specific versus vague CSR criteria**

Dependent variable:	Long-term orientation	Firm value	CSR performance			Emissions	Green patents		
	LT-index	Tobin's Q	KLD-index	KLD-index (environment & communities)	KLD-index (employees & customers)	Log(1 + TRI)	Green patents	Green patents (pollution & recycling)	Green patents (renewable energies)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>a. OLS regressions</i>									
CSR contracting	0.010 (0.005)	0.052 (0.030)	0.189 (0.102)	0.110 (0.058)	0.079 (0.075)	-0.074 (0.020)	0.024 (0.014)	0.014 (0.011)	0.010 (0.014)
CSR contracting × Specific	0.007 (0.003)	0.018 (0.008)	0.112 (0.036)	0.102 (0.028)	0.010 (0.026)	-0.069 (0.019)	0.021 (0.008)	0.020 (0.009)	0.001 (0.014)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.53	0.87	0.84	0.79	0.79	0.93	0.84	0.81	0.60
Observations	3,891	2,996	2,689	2,689	2,689	3,891	592	592	592
<i>b. 2SLS regressions</i>									
CSR contracting (instr.)	0.010 (0.005)	0.051 (0.030)	0.191 (0.108)	0.110 (0.061)	0.081 (0.083)	-0.076 (0.041)	0.024 (0.014)	0.015 (0.012)	0.009 (0.022)
CSR contracting (instr.) × Specific	0.007 (0.004)	0.026 (0.014)	0.115 (0.051)	0.100 (0.036)	0.015 (0.041)	-0.066 (0.030)	0.023 (0.011)	0.021 (0.010)	0.002 (0.016)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.53	0.87	0.84	0.79	0.79	0.93	0.84	0.81	0.60
Observations	3,891	2,996	2,689	2,689	2,689	3,891	592	592	592

*Notes.* All right-hand side variables are lagged by one year. Standard errors (clustered at the 2-digit SIC industry level) are reported in parentheses.

**Table 7. CSR-based compensation relative to total compensation**

Dependent variable:	Long-term orientation	Firm value	CSR performance			Emissions	Green patents		
	LT-index	Tobin's Q	KLD-index	KLD-index (environment & communities)	KLD-index (employees & customers)	Log(1 + TRI)	Green patents	Green patents (pollution & recycling)	Green patents (renewable energies)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>a. OLS regressions</i>									
Share of CSR compensation	0.173 (0.086)	1.090 (0.366)	4.115 (2.450)	3.537 (1.323)	0.578 (1.741)	-0.920 (0.377)	0.733 (0.287)	0.488 (0.293)	0.244 (0.394)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.55	0.87	0.84	0.79	0.79	0.93	0.85	0.82	0.56
Observations	3,205	2,436	2,209	2,209	2,209	3,205	473	473	473
<i>b. 2SLS regressions</i>									
Share of CSR compensation (instr.)	0.175 (0.104)	1.084 (0.396)	4.188 (2.499)	3.526 (1.494)	0.662 (1.843)	-0.920 (0.480)	0.736 (0.318)	0.491 (0.297)	0.245 (0.600)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.55	0.87	0.84	0.79	0.79	0.93	0.85	0.82	0.56
Observations	3,205	2,436	2,209	2,209	2,209	3,205	473	473	473

*Notes.* All right-hand side variables are lagged by one year. Standard errors (clustered at the 2-digit SIC industry level) are reported in parentheses.

## APPENDIX

This section presents various robustness checks. All tests are variants of the specifications used in Tables 4 and 5 (henceforth “baseline specifications”).

*Specifications without controls.* In Appendix Table A2, we re-estimate our baseline regressions without controls. As can be seen, the results are very similar to our baseline results, indicating that they are not sensitive to the inclusion of controls.

*Specifications with state by year fixed effects.* In Appendix Table A3, we include state by year fixed effects to account for the possibility that regional trends may correlate with both the dependent variables and CSR contracting (and the constituency statutes, respectively). To identify the company’s state, we use the state of location of the company’s headquarters from Compustat (as opposed to the state of incorporation where the constituency statutes apply). Due to the lack of congruence between states of incorporation and states of location, we can run the IV regression while controlling for state  $\times$  year fixed effects. Effectively, this specification compares companies that are located in the same state, but some are incorporated in a treated state (i.e., a state that passes a constituency statute) and others are not.

*Alternative model specifications.* Our baseline specification is a panel regression with firm and year fixed effects. Due to the inclusion of firm fixed effects, the coefficients are estimated “within firm”—that is, effectively we measure how a change in CSR contracting (i.e., when CSR contracting switches from 0 to 1) induces changes in the dependent variables (e.g., changes in the LT-index, firm value, etc.). In the upper panel of Appendix Table A4, we further account for the dynamic structure of our panel by including the lagged dependent variable as additional control. One concern with this specification is that, by construction, the lagged dependent variable is likely endogenous with respect to the dependent variable itself. To mitigate this concern, in the bottom panel, we use the GMM estimator of Arellano and Bond (1991) that uses lag values of all variables as instruments. As can be seen, our results are robust in both specifications.

*Alternative measure of social and environmental performance.* Finally, in Appendix Table A5, we provide a variant of the analysis in columns (3)-(5) of Tables 4 and 5, in which we use the “net” KLD-index (i.e., the number of KLD strengths net of the number of KLD concerns) instead of the KLD-index based on the number of KLD strengths. As can be seen, the estimates are very similar to those in Tables 4 and 5.

### Appendix Table A1. First-stage regression

Dependent variable:	CSR contracting
	(1)
Constituency Statute	0.144 (0.021)
<i>Controls</i>	
Size	0.026 (0.039)
ROA	-0.236 (0.439)
Leverage	-0.191 (0.127)
Cash	-0.050 (0.148)
Log(total compensation)	-0.002 (0.017)
% Cash compensation	-0.038 (0.100)
% Stock-based compensation	-0.002 (0.078)
% Option-based compensation	-0.063 (0.101)
Year fixed effects	Yes
Firm fixed effects	Yes
R-squared	0.58
Observations	4,519

*Notes.* Standard errors (clustered at the state of incorporation) are reported in parentheses.

**Appendix Table A2. Robustness—specifications without controls**

Dependent variable:	Long-term orientation	Firm value	CSR performance			Emissions	Green patents		
	LT-index	Tobin's Q	KLD-index	KLD-index (environment & communities)	KLD-index (employees & customers)	Log(1 + TRI)	Green patents	Green patents (pollution & recycling)	Green patents (renewable energies)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>a. OLS regressions</i>									
CSR contracting	0.011 (0.004)	0.072 (0.033)	0.206 (0.109)	0.121 (0.061)	0.085 (0.078)	-0.086 (0.024)	0.032 (0.011)	0.020 (0.010)	0.012 (0.015)
Controls	No	No	No	No	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.53	0.86	0.84	0.79	0.79	0.93	0.84	0.81	0.59
Observations	3,891	2,996	2,689	2,689	2,689	3,891	592	592	592
<i>b. 2SLS regressions</i>									
CSR contracting (instr.)	0.012 (0.004)	0.070 (0.035)	0.208 (0.126)	0.124 (0.070)	0.084 (0.090)	-0.086 (0.040)	0.031 (0.012)	0.018 (0.010)	0.013 (0.018)
Controls	No	No	No	No	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.53	0.86	0.84	0.79	0.79	0.93	0.84	0.81	0.59
Observations	3,891	2,996	2,689	2,689	2,689	3,891	592	592	592

Notes. CSR contracting is lagged by one year. Standard errors (clustered at the 2-digit SIC industry level) are reported in parentheses.

**Appendix Table A3. Robustness—specifications accounting for local trends**

Dependent variable:	Long-term orientation	Firm value	CSR performance			Emissions	Green patents		
	LT-index	Tobin's Q	KLD-index	KLD-index (environment & communities)	KLD-index (employees & customers)	Log(1 + TRI)	Green patents	Green patents (pollution & recycling)	Green patents (renewable energies)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>a. OLS regressions</i>									
CSR contracting	0.012 (0.004)	0.054 (0.032)	0.265 (0.122)	0.160 (0.074)	0.105 (0.095)	-0.081 (0.029)	0.034 (0.008)	0.024 (0.006)	0.010 (0.006)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.54	0.90	0.88	0.83	0.85	0.93	0.91	0.90	0.86
Observations	3,891	2,996	2,689	2,689	2,689	3,891	592	592	592
<i>b. 2SLS regressions</i>									
CSR contracting (instr.)	0.012 (0.004)	0.057 (0.033)	0.266 (0.127)	0.161 (0.077)	0.105 (0.098)	-0.081 (0.038)	0.033 (0.009)	0.026 (0.007)	0.008 (0.008)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.54	0.90	0.88	0.83	0.85	0.93	0.91	0.90	0.86
Observations	3,891	2,996	2,689	2,689	2,689	3,891	592	592	592

Notes. All right-hand side variables are lagged by one year. Standard errors (clustered at the 2-digit SIC industry level) are reported in parentheses.

**Appendix Table A4. Robustness—alternative model specifications**

Dependent variable:	Long-term orientation	Firm value	CSR performance			Emissions	Green patents		
	LT-index	Tobin's Q	KLD-index	KLD-index (environment & communities)	KLD-index (employees & customers)	Log(1 + TRI)	Green patents	Green patents (pollution & recycling)	Green patents (renewable energies)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>a. Models with lagged dependent variable as control</i>									
CSR contracting	0.009 (0.004)	0.063 (0.026)	0.184 (0.091)	0.113 (0.056)	0.070 (0.071)	-0.051 (0.022)	0.036 (0.012)	0.025 (0.015)	0.011 (0.019)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.56	0.90	0.86	0.82	0.81	0.95	0.78	0.72	0.61
Observations	3,891	2,812	2,630	2,630	2,630	3,891	505	505	505
<i>b. Arellano-Bond GMM estimator</i>									
CSR contracting	0.010 (0.005)	0.067 (0.032)	0.171 (0.103)	0.105 (0.053)	0.066 (0.088)	-0.092 (0.027)	0.038 (0.017)	0.027 (0.014)	0.011 (0.016)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,275	2,275	2,184	2,184	2,184	3,275	374	374	374

*Notes.* All right-hand side variables are lagged by one year. Standard errors (clustered at the 2-digit SIC industry level) are reported in parentheses.

**Appendix Table A5. Robustness—alternative measures of social and environmental performance**

Dependent variable:	Net KLD-index	Net KLD-index (environment & communities)	Net KLD-index (employees & customers)
	(1)	(2)	(3)
<i>a. OLS regressions</i>			
CSR contracting	0.266 (0.145)	0.177 (0.085)	0.089 (0.096)
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
R-squared	0.79	0.76	0.74
Observations	2,689	2,689	2,689
<i>b. 2SLS regressions</i>			
CSR contracting (instr.)	0.269 (0.146)	0.177 (0.086)	0.092 (0.099)
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
R-squared	0.79	0.76	0.74
Observations	2,689	2,689	2,689

*Notes.* All right-hand side variables are lagged by one year. Standard errors (clustered at the 2-digit SIC industry level) are reported in parentheses.



**Appendix Table A6. Dynamics**

Dependent variable:	Firm value			Operating performance		
	Tobin's Q ( $t$ )	Tobin's Q ( $t + 1$ )	Tobin's Q ( $t + 2$ )	ROA ( $t$ )	ROA ( $t + 1$ )	ROA ( $t + 2$ )
	(1)	(2)	(3)	(4)	(5)	(5)
<i>a. OLS regressions</i>						
CSR contracting	0.062 (0.031)	0.072 (0.033)	0.074 (0.034)	0.0002 (0.0007)	0.0012 (0.0008)	0.0017 (0.0008)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.87	0.87	0.88	0.76	0.77	0.78
Observations	2,996	2,512	2,212	3,587	3,029	2,685
<i>b. 2SLS regressions</i>						
CSR contracting (instr.)	0.062 (0.034)	0.075 (0.038)	0.076 (0.039)	0.0003 (0.0008)	0.0011 (0.0010)	0.0017 (0.0010)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.87	0.87	0.88	0.76	0.77	0.78
Observations	2,996	2,512	2,212	3,587	3,029	2,685

*Notes.* All right-hand side variables are lagged by one year. Standard errors (clustered at the 2-digit SIC industry level) are reported in parentheses.

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