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RESEARCH ARTICLE

Corporate governance and the rise of integrating corporate social responsibility criteria in executive compensation: Effectiveness and implications for firm outcomes

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***Research Summary*:** 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 (a) an increase in long-term orientation; (b) an increase in firm value; (c) an increase in social and environmental initiatives; (d) a reduction in emissions; and (e) 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 Summary*:** This paper examines the effectiveness and implications of integrating environmental and social performance criteria in executive compensation (CSR contracting)—a recent practice in corporate governance that is becoming more and more prevalent. We show that CSR contracting mitigates corporate short-termism and improves business performance. Firms that adopt CSR contracting experience a significant increase in firm value, which foreshadows an increase in long-term operating profits. Furthermore, firms that adopt CSR contracting improve their environmental and social performance, especially with respect to the environment and local communities. Overall, our findings suggest that CSR contracting directs 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 and its impact on society and the natural environment.

KEYWORDS

corporate governance, corporate social responsibility, executive compensation, long-term orientation, managerial incentives

1 | 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_2 emission targets, employee satisfaction, 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—for example, 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. 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' 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 toward 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 (a) an increase in long-term orientation (measured by the long-term index of Flammer & Bansal, 2017); (b) an increase in firm value (measured by Tobin's Q); (c) an increase in social and environmental initiatives (measured by the Kinder, Lydenberg, and Domini [KLD]-index), especially with respect to less salient stakeholders such as the natural environment and communities; (d) a reduction in emissions (measured by the toxic release inventory [TRI]); and (e) 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 toward stakeholders that are less salient, but contribute to long-term value creation. Moreover, we find that our results are stronger when the share of CSR-based compensation (compared to total compensation) is larger, suggesting that CSR contracting is a more effective governance tool when it is substantive.

Our findings withstand 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, 2018a; Flammer & Kacperczyk, 2016) and hence provide plausibly 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.

2 | THEORY

2.1 | Corporate governance and the need for CSR incentives

In this paper, we follow corporate practice and define CSR contracting as the integration of CSR criteria in executive compensation, that is, the linking of executive compensation to social and environmental performance (e.g., CO_2 emission reductions, employee satisfaction goals, compliance with ethical standards in developing countries). CSR includes any corporate initiative pertaining to the firm's stakeholders, that is, "any group or individual who can affect or is affected by the achievement of an organization's purpose" (Freeman, 1984, p. 53)—such as employees, customers, the environment, and the community at large—and hence is not limited to philanthropic initiatives.

A large literature argues that stakeholders can be essential for sustaining a firm's competitiveness and long-term growth (e.g., Flammer, 2015a, 2015b). For example, by treating their employees well, firms can enhance employee engagement (Flammer & Luo, 2017), innovative productivity (Flammer & Kacperczyk, 2016), and ultimately improve firm performance (e.g., Edmans, 2011, 2012). In addition, customers are responsive to companies' CSR initiatives. Indeed, CSR can serve as valuable signal of the seller's quality and nonopportunistic behavior, generating goodwill, sales, and profits (e.g., Du, Bhattacharya, & Sen, 2011; Elfenbein, Fisman, & McManus, 2012; Kotler, Hessekiel, & Lee, 2012; Luo & Bhattacharya, 2006). Relatedly, companies' actions pertaining to communities and the natural environment have been shown to affect financial performance (e.g., Flammer, 2013, 2018b; Hamilton, 1995; Klassen & 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 & Roth, 2000; Delmas & Pekovic, 2013; Hart, 1995; Russo & Fouts, 1997). Conversely, eco-harmful behavior can hurt a firm's bottom line if, for example, 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, & Nartey, 2014). In sum, a large literature suggests that CSR contributes to firms' competitiveness and long-term value creation.

While managers may well perceive the relevance of CSR for long-term value creation, they may be reluctant to address all stakeholder claims. First, stakeholder interests are heterogeneous 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 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 & 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, Patel, & Zeckhauser, 1999)—leading managers to favor investments that pay off in the short run at the expense of long-term investments (e.g., Flammer & Bansal, 2017; Graham, Harvey, & Rajgopal, 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 & Lenox, 2006; Mitchell, Agle, & 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 toward stakeholders that contribute to long-term value creation, boards of directors need to provide appropriate incentives to their managers. In this vein, a relatively

recent corporate governance practice is the integration of CSR criteria in executive compensation—that is, 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 & Zajac, 1994; Zajac & 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.

2.2 | Incentives for CSR: Implications for organizational time horizon and long-term value creation

In the previous section, we argued that—absent proper incentives—managerial short-termism is likely to prevent managers from undertaking long-term investments in stakeholder initiatives that contribute to long-term value creation. In this section, we provide arguments as to how CSR incentives might help mitigate this governance issue.

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 & Xie, 1994). In particular, 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 (e.g., Bushman, Indjejikian, & Smith, 1996), and companies' engagement in social and environmental initiatives that only pay off in the long run (e.g., Edmans, 2011, 2012; Flammer, 2013, 2015a; Henisz et al., 2014; Klassen & McLaughlin, 1996; Sen & Bhattacharya, 2001).

Achieving superior social and environmental performance is typically the outcome of long-term efforts that require a long-term orientation (Eccles, Ioannou, & Serafeim, 2014; Flammer & Bansal, 2017). For example, by actively engaging with local communities and contributing to their well-being, firms can gain their trust over time and obtain the social license to operate. Similarly, firms can improve their environmental footprint by, for example, investing in the development of clean technology, sustainable energy, and other environmental initiatives—investments that take time before showing any material results. Accordingly, to the extent that nonfinancial performance measures are indicative of a long-term orientation and long-term value creation, we posit that the inclusion of such measures will likely improve the effectiveness of executive compensation contracts. Specifically, we expect that providing incentives based on social and environmental performance goals is likely to shift managers' attention toward longer-term efforts, leading them to adopt a longer time horizon.[1] This, in turn, reduces their tendency to turn down valuable long-term stakeholder initiatives, thereby increasing firm value.[2] This leads to the following hypotheses:

[1]We define "organizational time horizon" as the executive team's attention to the long term.

[2]Firm value captures the (expected) future profits of the firm. Formally, firm value V is the sum of the discounted expected future cash flows, i.e., $V=\sum_t \left(\frac{1}{1+r}\right)^t \times \mathrm{E}(C_t)$, where r is the discount rate and C_t is the firm's cash flow (profits) at time t. If companies engage in "valuable long-term projects"—that is, projects whose long-term benefits outweigh the potential short-term costs—V increases.

Hypothesis (H1) *The adoption of CSR criteria in executive compensation has a positive impact on organizational time horizons.*

Hypothesis (H2) *The adoption of CSR criteria in executive compensation has a positive impact on firm value.*

2.3 | Heterogeneity across stakeholder groups

The aim of integrating CSR criteria in executive compensation is to incentivize managers to improve the firm's social and environmental performance. Naturally—assuming that managers are responsive to incentives—we expect managers to increase their CSR initiatives following the adoption of CSR contracting.

However, considerable heterogeneity may exist 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 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. 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 & Van Aelst, 2010), exacerbating their potential impact on a firm's financial performance (e.g., A. A. King & Soule, 2007; Pruitt & Friedman, 1986). Moreover, shareholder activism demanding improved sustainable practices and a longer-term orientation has increased substantially over the years (Flammer, 2013, 2015a; Flammer & Bansal, 2017), pressuring boards to take action with respect to the environment and local communities. Taken together, these recent developments suggest that stakeholder advocacy in support of the dependent stakeholders has become more powerful, pressuring boards of directors to take action. Boards may respond by adopting CSR contracting to incentivize managers to improve their environmental footprint and community relations.

Overall, the previous arguments suggest that CSR contracting incentivizes managers to increase their investments in CSR, and especially in CSR initiatives pertaining to the dependent stakeholders, that is, the natural environment and local communities (whereas managers are likely to undertake CSR initiatives pertaining to their key stakeholders regardless of the provision of CSR incentives). In this vein, another relevant dimension is the specificity of the CSR criteria. Incentives are likely to be more effective when the criteria are well-specified—in this case, if executive compensation is linked directly to the natural environment and local communities. In contrast, if the contracting terms are general or unrelated to the dependent stakeholders, the incentives might be less effective.[3]

Accordingly, we expect CSR contracting provisions that are linked directly to the natural environment and local communities to provide managers with stronger incentives to expand their CSR initiatives pertaining to these stakeholders.

In sum, the above arguments suggest that the linking of executive compensation to CSR criteria has a positive impact on a firm's CSR initiatives, especially on initiatives related to the "dependent" stakeholders (i.e., the natural environment and local communities), and even more so if the contracting provisions are directly linked to these stakeholders. This motivates the following hypothesis:

Hypothesis (H3) *The adoption of CSR criteria in executive compensation has a positive impact on CSR initiatives, especially with respect to the natural environment and local communities, and even more so when the contracting provisions are specifically targeted at these stakeholders.*

2.4 | 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, 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: (a) minimizing detrimental effects on the less salient stakeholders, and (b) 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—for example, 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; Henisz et al., 2014; Klassen & 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," or shift toward using renewable energy and clean fuels. As a result of such initiatives, we would expect firms' emissions to drop.

Second, companies may take actions that are beneficial to 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 & Tirole, 1994; Griliches, 1990; Hall, Jaffe, & Trajtenberg, 2005). Despite these challenges—or rather, *due to* these challenges—we expect CSR contracting to foster the pursuit of

[3]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, community support 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.

green innovations. Indeed, as discussed above, CSR contracting is likely to shift managers' attention toward a longer-term orientation, which is essential for innovation (e.g., Aghion, Van Reenen, & Zingales, 2013; Azoulay, Graff Zivin, & Manso, 2011; Flammer & 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 & Kacperczyk, 2016).

In sum, we expect that CSR contracting incentivizes managers to (a) engage in more sustainable practices that reduce emissions, and (b) increase their efforts in developing "green innovations." Moreover, in keeping with the previous arguments, we expect these responses to be more pronounced when the CSR contracting provisions are specifically targeted at the natural environment and local communities. This leads to the following hypothesis:

Hypothesis (H4) *The adoption of CSR criteria in executive compensation incentivizes managers to (a) reduce emissions, and (b) increase their green innovations, especially when CSR contracting provisions are specifically targeted at the natural environment and local communities.*

2.5 | 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 the following, we argue that the effectiveness of this governance tool varies depending on the nature of its implementation.

The existing literature identifies a potential separation between substance and symbol in executive compensation (e.g., Westphal & Zajac, 1994; Zajac & Westphal, 1995). In this vein, some governance mechanisms may remain ineffective as they lack substance. Arguably—while the adoption of an incentive plan may signal to managers that the board of directors considers a specific issue as important—the degree to which such plan is implemented plays a defining role in whether it influences managers' decision-making and ultimately affects value creation.

Similarly, in the context of CSR contracting, we expect that the provision of CSR incentives is likely to be more effective as a governance mechanism if its implementation is more substantive. CSR-based compensation that represents only a small fraction of the overall compensation a manager receives may be too incremental to effectively shape managerial incentives. In contrast, CSR-based compensation that represents a large fraction of the overall compensation package is more likely to shift managers' attention toward longer-term efforts and direct their initiatives toward stakeholders that are less salient but financially material to the firm in the long run, thereby improving a firm's governance and its impact on society and the natural environment. Accordingly, we expect the ratio of CSR-based compensation to moderate the relationships between CSR contracting and the various firm-level outcomes we discussed before. Specifically, we expect the adoption of CSR criteria in executive compensation to have a stronger impact on (a) organizational time horizons; (b) firm value; (c) social and environmental initiatives; (d) emissions; and (e) green innovations, the larger the extent of CSR compensation compared to total compensation. This motivates the following hypothesis:

Hypothesis (H5) *The adoption of CSR criteria in executive compensation has a stronger impact on (a) organizational time horizons; (b) firm value; (c) social and environmental initiatives; (d) emissions; and (e) green innovations, the larger the extent of CSR compensation compared to total compensation.*

3 | DATA

3.1 | Data and variable definitions

3.1.1 | 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 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 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, CSR, 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, Xcel Energy bases a significant portion of its executives' performance-based compensation on safety, environmental, and social metrics. According to their 2013 proxy statement, the Annual Incentive Plan (AIP) bases 40% of the aggregate award on the achievement of pre-established safety (15%), employee satisfaction (5%), and environmental (20%) goals. Similarly, Valero Energy's AIP rewards safe operations and environmental responsibility. According to Valero's proxy statement, 13.33% of the 2013 AIP is based on the achievement of health, safety, and environmental goals.[4]

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.[5]

3.1.2 | 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.

Long-term orientation

To measure a company's time horizon, 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

[4]As an illustration, a screenshot from Valero's proxy statement is provided in Appendix S1. This screenshot reports the breakdown of Valero's 2013 AIP into the different components.

[5]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. Note that, in our sample of S&P 500 companies, 19.7% of executives are CEOs and 15.8% are CFOs. The remaining executives span a wide range of executive roles including, for example, COO (Chief Operating Officer), CIO (Chief Information Officer), and CMO (Chief Marketing Officer).

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 5th and 95th percentiles of its empirical distribution.

Corporate social responsibility

The CSR data are obtained from the 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 & Toffel, 2010; Flammer, 2015b). We construct a composite KLD-index by summing up the number of CSR strengths with respect to employees, customers, the natural environment, and communities. In the analysis, we also consider subindices based on specific stakeholder groups. In robustness checks, we further show that our results are similar if we use the "net" KLD-index—that is, the number of KLD strengths net of the number of KLD concerns—instead.

Emissions

To measure emissions, we use the 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 United States. 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 aggregated 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.[6] To identify green patents, we use the classification of Amore and Bennedsen (2016, p. 68).[7] The final dependent variable is the ratio of the number of green patents divided by the total number of patents filed

[6]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.

by the company that year (*green patents*). (Since this ratio is only well-defined for patenting companies, the sample used for this analysis is smaller by construction.) In auxiliary analyses, we further distinguish between green patents pertaining to (a) pollution and recycling, and (b) renewable energies.

3.1.3 | 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 5th and 95th percentiles of their empirical distribution.

The compensation-level controls are obtained from Execucomp. *Log(total compensation)* is the natural logarithm of executive pay (using the average across all executives of the firm). 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).[8]

3.2 | 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.

3.2.1 | CSR contracting across industries

Panel A of 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%).[9] These results echo well with our prediction that the adoption of CSR contracting is likely to benefit "dependent" stakeholders, namely the natural environment and local communities—stakeholders that have been identified by the Sustainability Accounting Standards Board (SASB) as being financially material in emission-intensive industries.

[7]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).

[8]In the regressions, we omit *% other compensation* (since the 4% add up to 1 by construction).

[9]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).

TABLE 1 Summary statistics

		N	Mean	*SD*	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, *SD*s, and Pearson correlation coefficients. The sample includes all firm-year observations for companies in the S&P 500 Index from 2004 to 2013.

TABLE 2 CSR contracting across industries and over time

Panel A. CSR contracting across industries			
		% Firms with CSR contracting	
Major SIC sector	***N***	**Mean**	***SD***
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

Panel B. CSR contracting over time		
	% Firms with CSR contracting	
Year	**Mean**	***SD***
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

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

3.2.2 | CSR contracting over time

In Panel B of Table 2, 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 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 the firm's stakeholders, for example, through the adoption of CSR contracting. The trend in Table 2 is consistent with these arguments.

4 | METHODOLOGY

4.1 | Fixed effects regressions

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

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

where i indexes firms; t indexes years; α_i and α_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; **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; ε is the error term. To account for dependence across firms within the same industry, we cluster *SE*s at the two-digit SIC industry level. The coefficient of interest is β, 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 CSR), while at the same time they are more likely to generate, for example, 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.

4.2 | 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 β would be inconsistent.

To obtain a consistent estimate of β, 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 (2018a), who use constituency statutes to study the effect of stakeholder orientation on corporate innovation and the allocation of procurement contracts, respectively.

4.2.1 | 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, 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 United States have adopted constituency statutes (see Karpoff & Wittry, 2018). 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.

4.2.2 | First-stage regression

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

$$CSR\,contracting_{it} = a_i + a_t + b \times constituency\,statute_{it} + c'X_{it} + e_{it}, \quad (2)$$

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.[10] 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).[11]

4.2.3 | 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 reestimate Equation 1 using *CSR contracting (instrumented)* instead of *CSR contracting*:

[10]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 rare (e.g., Cheng, Nagar, & Rajan, 2004).

[11]In their evaluation of the difference-in-differences methodology, Bertrand, Duflo, and Mullainathan (2004) 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.)

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

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

5 | RESULTS

5.1 | CSR contracting and firm-level outcomes

5.1.1 | Fixed effects regressions

In Table 3, 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 1 year.

Long-term orientation

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% points ($p = 0.003$). These findings are consistent 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 ($p = 0.046$). Since the average Tobin's Q is 1.984 (see Table 1), this corresponds to an increase in firm value by 3.1%.[12] This evidence is supportive of Hypothesis 2 according to which CSR contracting is value-enhancing.[13]

Corporate social responsibility

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 ($p = 0.055$)—since the average KLD-index is 3.84, this implies that CSR 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

[12]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 2.3–3.8%.

[13]In Table A9 in Appendix S1, 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 reestimate our baseline regression, but using as dependent variables *Tobin's* Q_t, *Tobin's* Q_{t+1}, *Tobin's* Q_{t+2}, as well as ROA_t, ROA_{t+1}, ROA_{t+2}. (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 already in year t (since firm value captures expectations about future profits). 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.

TABLE 3 CSR contracting and firm outcomes

	Long-term orientation	Firm value	CSR			Emissions	Green patents		
Dependent variable:	**LT-index**	**Tobin's Q**	**KLD-index**	**KLD-index (environment and communities)**	**KLD-index (employees and customers)**	**Log(1 + TRI)**	**Green patents**	**Green patents (pollution and recycling)**	**Green patents (renewable energies)**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
CSR contracting	0.012 (0.003)	0.062 (0.046)	0.208 (0.055)	0.130 (0.033)	0.079 (0.316)	−0.087 (0.000)	0.028 (0.019)	0.018 (0.083)	0.010 (0.536)
Controls									
Size	−0.001 (0.833)	−0.313 (0.000)	−0.208 (0.101)	−0.238 (0.001)	0.029 (0.782)	−0.012 (0.624)	−0.003 (0.927)	−0.027 (0.326)	0.024 (0.369)
ROA	0.227 (0.041)	7.342 (0.000)	3.152 (0.258)	−0.583 (0.706)	3.735 (0.109)	0.370 (0.519)	−0.147 (0.587)	0.255 (0.461)	−0.402 (0.253)
Leverage	0.044 (0.096)	−0.430 (0.022)	0.169 (0.727)	0.457 (0.080)	−0.288 (0.427)	0.013 (0.855)	−0.044 (0.477)	−0.137 (0.159)	0.093 (0.413)
Cash	0.000 (0.995)	1.249 (0.000)	−1.602 (0.035)	−0.960 (0.005)	−0.642 (0.279)	−0.137 (0.341)	0.156 (0.093)	0.109 (0.307)	0.047 (0.548)
Log(total compensation)	−0.004 (0.225)	0.037 (0.240)	0.128 (0.134)	0.003 (0.941)	0.125 (0.049)	0.029 (0.042)	−0.015 (0.453)	0.004 (0.827)	−0.020 (0.149)
% Cash compensation	0.025 (0.167)	0.262 (0.118)	−0.765 (0.234)	−0.222 (0.523)	−0.543 (0.356)	0.050 (0.546)	0.100 (0.365)	0.089 (0.517)	0.011 (0.913)
% Stock-based compensation	0.018 (0.308)	0.186 (0.239)	−0.149 (0.824)	0.130 (0.724)	−0.279 (0.648)	0.047 (0.601)	0.139 (0.182)	0.101 (0.409)	0.038 (0.741)
% Option-based compensation	0.007 (0.734)	0.084 (0.628)	−0.103 (0.871)	0.186 (0.604)	−0.289 (0.603)	0.051 (0.554)	0.085 (0.384)	0.066 (0.615)	0.019 (0.875)
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^2	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 1 year. *SE*s are clustered at the two-digit SIC industry level; *p*-values are reported in parentheses.

(employees and customers). As is shown, the increase in CSR 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% ($p = 0.000$) 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% points ($p = 0.019$) 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)).

5.1.2 | 2SLS regressions

As discussed in the methodology section, a caveat of the analysis presented in Table 3 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 the Online Appendix, Table A1 in Appendix S1. 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).[14]

The second-stage regressions are provided in Table 4. As is shown, the results mirror very closely those in Table 3. Note that the significance is generally lower in Table 4. This is not surprising given that only two states adopted a constituency statute during the sample period—that is, relatively few observations contribute to the identification. As such, the second-stage regressions presented in Table 4 have less power. Importantly, however, the point estimates remain similar to the baseline estimates in Table 3.

Finally, we caveat that the instrument for CSR contracting—the enactment of constituency statutes—may not fulfill the exclusion restriction in the regressions where CSR (as measured by the KLD-index) is used as dependent variable. Constituency statutes are likely to directly affect both (a) the adoption of CSR contracting, and (b) the adoption of CSR policies. As such, we caution that the KLD regressions are suggestive and need not warrant a causal interpretation.

5.1.3 | Robustness

In the Appendix S1 (and Tables A3–A8), we present several robustness checks that are variants of the specifications used in Tables 3 and 4. In a nutshell, we show that our results are robust when we (a) estimate our regressions without controls; (b) include state × year fixed effects to account for

[14]Table A2 in Appendix S1 further examines the dynamics of the treatment effect. As can be seen, there is no pre-trend, and the higher propensity to adopt CSR contracting materializes 1 year after the enactment of the constituency statutes.

TABLE 4 CSR contracting and firm outcomes—2SLS regressions

	Long-term orientation	Firm value	CSR			Emissions	Green patents		
Dependent variable	LT-index	Tobin's Q	KLD-index	KLD-index (environment and communities)	KLD-index (employees and customers)	Log(1 + TRI)	Green patents	Green patents (pollution and recycling)	Green patents (renewable energies)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CSR contracting (instr.)	0.012 (0.009)	0.062 (0.072)	0.211 (0.083)	0.129 (0.047)	0.082 (0.360)	−0.087 (0.038)	0.028 (0.041)	0.018 (0.098)	0.010 (0.695)
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 1 year. *SE*s are clustered at the two-digit SIC industry level; *p*-values are reported in parentheses.

unobservable trends at the regional level; (c) include lagged dependent variables as controls and use the GMM estimator of Arellano and Bond (1991); (d) use alternative CSR measures; (e) control for KLD concerns; and (f) include the constituency statute as control in the noninstrumented regressions.

5.2 | Stakeholder-specific contracting provisions

In Panel A of Table 5, we reestimate our baseline specification in Equation 1 replacing *CSR contracting* with a set of three dummies that indicate whether the CSR contracting provisions are targeted at (a) the dependent stakeholders (i.e., the natural environment and local communities), (b) the key stakeholders (i.e., employees and consumers), or (c) whether no specific stakeholder is mentioned.[15]

A caveat of this analysis is that we lose power since each coefficient is estimated from a subset of our data. Nevertheless, this analysis is informative. As can be seen, the coefficients are only significant for CSR provisions pertaining to the environment and local communities. This heterogeneity is especially pronounced in columns (4), (7), and (8)-(9)—that is, with regard to the KLD subindex pertaining to the environment and local communities, emissions, and green patents, respectively. As such, these results are consistent with Hypotheses 3 and 4.[16]

5.3 | Share of CSR-based compensation

In the analysis so far, we studied CSR contracting as a binary outcome—that is, whether companies adopt CSR contracting or not. For the subset of companies that indicate a dollar amount of CSR contracting, we can use a continuous measure of CSR contracting that captures the extent of CSR compensation. As such, this measure allows us to study how the "substantiveness" of CSR contracting affects firm-level outcomes.

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 *SD* is 5.3%). We then reestimate our baseline regressions, but using the continuous variable *share of CSR compensation* instead of the binary variable *CSR contracting*.[17]

The results are presented in Panel B of Table 5. 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 long-term orientation, firm value, CSR (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-*SD* increase in the share of CSR compensation leads to an increase in firm value by 2.9%.[18] Similarly, a one-*SD* increase in the share of CSR compensation leads to an increase in the LT-index by 0.9% points, 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% points. (The corresponding 2SLS results

[15]Out of the companies that use CSR contracting, 49% have contracting provisions that are specific to the dependent stakeholders, 37% refer to the salient stakeholders, and 28% do not mention a specific stakeholder group. Note that the percentages add up to more than 100%, since some companies target several stakeholder categories.

[16]Note that there is no 2SLS equivalent of these regressions since this would require three instruments, one for each of the three CSR contracting subgroups.

[17]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.

[18]The coefficient in column (2) is 1.090. Since the average Tobin's Q is 1.984, and the *SD* of the share of CSR compensation is 0.053, this implies that a one-*SD* increase in the share of CSR compensation increases firm value by $0.053 \times 1.090/1.984 = 2.9\%$.

TABLE 5 Heterogeneity in CSR contracting and in the share of CSR-based compensation

	Long-term orientation	Firm value	CSR			Emissions	Green patents		
	LT-index	Tobin's Q	KLD-index	KLD-index (environment and communities)	KLD-index (employees and customers)	Log(1 + TRI)	Green patents	Green patents (pollution and recycling)	Green patents (renewable energies)
Dependent variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
Panel A. Contracting provisions pertaining to specific stakeholders									
CSR contr. (environment and communities)	0.014 (0.009)	0.078 (0.018)	0.263 (0.069)	0.226 (0.042)	0.037 (0.742)	−0.129 (0.003)	0.049 (0.011)	0.034 (0.045)	0.015 (0.539)
CSR contr. (employees and customers)	0.007 (0.131)	0.044 (0.164)	0.166 (0.224)	0.023 (0.790)	0.143 (0.195)	−0.039 (0.254)	0.007 (0.594)	0.004 (0.754)	0.003 (0.855)
CSR contr. (not specified)	0.006 (0.336)	0.026 (0.677)	0.061 (0.737)	0.030 (0.796)	0.032 (0.838)	−0.030 (0.426)	0.003 (0.895)	0.002 (0.929)	0.002 (0.911)
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^2	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
Panel B. CSR compensation relative to total compensation									
Share of CSR compensation	0.173 (0.045)	1.090 (0.003)	4.115 (0.093)	3.537 (0.008)	0.578 (0.740)	−0.920 (0.015)	0.733 (0.011)	0.488 (0.096)	0.244 (0.536)
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^2	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. *SE*s are clustered at the 2-digit SIC industry level; *p*-values are reported in parentheses.

reported in Table A10 in Appendix S1 are very similar.) Overall, these results indicate that CSR contracting is a more effective governance tool if it is substantive, which lends support to Hypothesis 5.

6 | 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 (a) an increase in long-term orientation, (b) an increase in firm value, (c) an increase in CSR (especially with respect to the less salient stakeholders such as the natural environment and local communities), (d) a reduction in emissions, and (e) 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. In addition, our results are stronger when the share of CSR-based compensation is higher, suggesting 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 a recent survey, see Edmans, Gabaix, & Jenter, 2017).

Third, this study explores whether and under what conditions CSR contracting helps improve the governance of a company by shifting managerial attention toward 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 multidisciplinary dialogue on the role of time horizons and intertemporal decision-making in organizations (e.g., Flammer & Bansal, 2017; Laverty, 1996, 2004; Slawinski & Bansal, 2015; Souder & Bromiley, 2012), and to the few but notable studies at the intersection of corporate governance and CSR practices (e.g., Aguilera & Jackson, 2003; Aguilera, Williams, Conley, & Rupp, 2006; Amore & Bennedsen, 2016; Berrone & Gomez-Mejia, 2009; Hong, Li, & Minor, 2016; Walls, Berrone, & Phan, 2012). Specifically, while extant work has viewed corporate governance in a traditional sense (i.e., distinct from CSR) 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 & Zajac, 1994; Zajac & 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, which highlights the importance of the design of executive compensation.

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 United States. Whether our findings generalize to smaller companies and companies outside the United States, 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 microdata on the firm's organizational structure, along with detailed compensation information. Fourth, future work could explore the conditions under which CSR contracting—be it symbolic or substantive—is more effective. For example, are there specific conditions under which symbolic CSR contracting may benefit companies? Under what conditions are substantive changes in CSR contracting more or less effective? Making ground on these questions is an exciting avenue for future research.

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.[19] 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 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 challenge for future research.

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[19]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.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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ONLINE APPENDIX FOR

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

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Appendix A. Example of CSR contracting

The table below provides the breakdown of Valero Energy's 2013 Annual Incentive Plan (AIP) into the different components (reproduced from p. 24 of SEC Form DEF 14A of Valero Energy, filed March 21, 2014).

Annual Incentive Bonus Performance Goals

Component	Weighting
Financial Performance Goal	
I. EPS *($/share)* (2)	40.00%
Operational	
II. Health, Safety, and Environmental (3)	13.33%
III. Mechanical Availability (4)	13.33%
IV. Cost Management and Expense Control *($ in millions)*	13.34%
subtotal	40.00%
Strategic	
V. Company Goals and Objectives (5)	20.00%
Total	100.00%

Appendix B. First-stage regression

Table A1 reports the coefficients from the first-stage regression. As can be seen, the enactment of constituency statutes leads to an increase in the propensity of adopting CSR contracting by 14.4%. This increase in significant at all conventional significance levels (p-value = 0.000). Moreover, this instrument is "strong" in statistical sense—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).

Table A2 examines the dynamics of the treatment effect. This is done by re-estimating the first-stage specification in equation (2), replacing *constituency statute* with a set of four dummy variables that indicate the year prior to the enactment (*constituency statute(-1)*), the year of the enactment (*constituency statute(0)*), one year after the enactment (*constituency statute(1)*), and

two or more years after the enactment of the statutes (*constituency statute(2+)*). As is shown, there is no pre-trend (the coefficient of *constituency statute(-1)* is small and insignificant); the effect is only significant after the first year following the enactment of the statutes.

Appendix C. Robustness

Tables A3-A8 present various robustness checks that are variants of the specifications used in Tables 3 and 4. In the following, we describe each of them.

Specifications without controls. In Table A3, we re-estimate our main regressions without controls. As can be seen, the results are very similar, indicating that they are not sensitive to the inclusion of controls.

Specifications with state by year fixed effects. In Table A4, 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 × 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. As is shown, the estimates are similar to those in Tables 3 and 4.

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 Table A5, 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 of Table A4, 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 CSR measures. In Table A6, we provide a variant of the analysis in columns (3)-(5) of Tables 3 and 4, 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 3 and 4.

Controlling for KLD concerns. In Table A7, we include the number of KLD concerns as additional control. As is shown, the estimates remain similar to those in Tables 3 and 4.

Controlling for the enactment of constituency statutes. Finally, in Table A8, we re-estimate our (un-instrumented) regressions, including the constituency statute dummy as control. As can be seen, our results are robust to this inclusion.

Appendix D. Extensions

Performance in the short vs. long run. Table A9 repeats our main analysis for firm value (Tobin's Q) and firm profits (ROA), considering both outcome variables at times t, t+1, and t+2. (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 is shown, Tobin's Q already increases in year t and remains high subsequently. 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 significant.

Share of CSR-based compensation. Table A10 provides the 2SLS estimates pertaining to the regressions in Panel B of Table 5, in which the share of CSR-based compensation (relative to total compensation) is used in lieu of the CSR contracting dummy.

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Table A1. First-stage regression

Dependent variable:	CSR contracting
	(1)
Constituency Statute	0.144
	(0.000)
Controls	
Size	0.026
	(0.512)
ROA	-0.236
	(0.590)
Leverage	-0.191
	(0.132)
Cash	-0.050
	(0.738)
Log(total compensation)	-0.002
	(0.912)
% Cash compensation	-0.038
	(0.707)
% Stock-based compensation	-0.002
	(0.981)
% Option-based compensation	-0.063
	(0.534)
Year fixed effects	Yes
Firm fixed effects	Yes
R-squared	0.58
Observations	4,519

Notes. Standard errors are clustered at the state of incorporation level; *p*-values are reported in parentheses.

Table A2. First-stage regression—dynamics

Dependent variable:	CSR contracting
	(1)
Constituency Statute (-1)	0.017
	(0.591)
Constituency Statute (0)	0.047
	(0.108)
Constituency Statute (1)	0.132
	(0.000)
Constituency Statute (2+)	0.158
	(0.000)
Controls	Yes
Year fixed effects	Yes
Firm fixed effects	Yes
R-squared	0.58
Observations	4,519

Notes. Standard errors are clustered at the state of incorporation level; *p*-values are reported in parentheses.

Table A3. Robustness—specifications without controls

	Long-term orientation	Firm value	CSR			Emissions	Green patents		
Dependent variable:	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)
Panel A. Fixed effects regressions									
CSR contracting	0.011	0.072	0.206	0.121	0.085	-0.086	0.032	0.020	0.012
	(0.003)	(0.030)	(0.059)	(0.047)	(0.276)	(0.000)	(0.005)	(0.040)	(0.426)
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
Panel B. 2SLS regressions									
CSR contracting (instr.)	0.012	0.070	0.208	0.124	0.084	-0.086	0.031	0.018	0.013
	(0.003)	(0.047)	(0.099)	(0.076)	(0.351)	(0.031)	(0.011)	(0.073)	(0.476)
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. All right-hand side variables are lagged by one year. Standard errors are clustered at the 2-digit SIC industry level; *p*-values are reported in parentheses.

Table A4. Robustness—specifications accounting for local trends

	Long-term orientation	Firm value	CSR			Emissions	Green patents		
Dependent variable:	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)
Panel A. Fixed effects regressions									
CSR contracting	0.012	0.054	0.265	0.160	0.105	-0.081	0.034	0.024	0.010
	(0.002)	(0.087)	(0.030)	(0.031)	(0.269)	(0.005)	(0.000)	(0.000)	(0.117)
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
Panel B. 2SLS regressions									
CSR contracting (instr.)	0.012	0.057	0.266	0.161	0.105	-0.081	0.033	0.026	0.008
	(0.003)	(0.089)	(0.036)	(0.037)	(0.284)	(0.034)	(0.000)	(0.001)	(0.289)
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 are clustered at the 2-digit SIC industry level; *p*-values are reported in parentheses.

Table A5. Robustness—alternative model specifications

	Long-term orientation	Firm value	CSR			Emissions	Green patents		
Dependent variable:	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)
Panel A. Models with lagged dependent variable									
CSR contracting	0.009	0.063	0.184	0.113	0.070	-0.051	0.036	0.025	0.011
	(0.026)	(0.015)	(0.043)	(0.044)	(0.324)	(0.021)	(0.003)	(0.092)	(0.563)
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
Panel B. Arellano-Bond GMM estimator									
CSR contracting (instr.)	0.010	0.067	0.171	0.105	0.066	-0.092	0.038	0.027	0.011
	(0.045)	(0.039)	(0.097)	(0.048)	(0.453)	(0.001)	(0.025)	(0.055)	(0.488)
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 are clustered at the 2-digit SIC industry level; *p*-values are reported in parentheses.

Table A6. Robustness—alternative CSR measures

Dependent variable:	Net KLD-index	Net KLD-index (environment & communities)	Net KLD-index (employees & customers)
	(1)	(2)	(3)
Panel A. Fixed effects regressions			
CSR contracting	0.266	0.177	0.089
	(0.066)	(0.037)	(0.353)
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
Panel B. 2SLS regressions			
CSR contracting (instr.)	0.269	0.177	0.092
	(0.066)	(0.040)	(0.354)
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 are clustered at the 2-digit SIC industry level; *p*-values are reported in parentheses.

Table A7. Robustness—controlling for KLD concerns

	Long-term orientation	Firm value	CSR			Emissions	Green patents		
Dependent variable:	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)
Panel A. Fixed effects regressions									
CSR contracting	0.010	0.059	0.209	0.134	0.075	-0.113	0.040	0.029	0.012
	(0.011)	(0.078)	(0.053)	(0.034)	(0.305)	(0.000)	(0.023)	(0.074)	(0.627)
Controls	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	0.84	0.81	0.62
Observations	3,081	2,369	2,630	2,630	2,630	3,081	481	481	481
Panel B. 2SLS regressions									
CSR contracting (instr.)	0.010	0.060	0.211	0.131	0.080	-0.114	0.040	0.028	0.012
	(0.021)	(0.088)	(0.074)	(0.044)	(0.311)	(0.026)	(0.045)	(0.107)	(0.654)
Controls	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	0.84	0.81	0.62
Observations	3,081	2,369	2,630	2,630	2,630	3,081	481	481	481

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

Table A8. Robustness—controlling for constituency statutes in the fixed effects regressions

	Long-term orientation	Firm value	CSR			Emissions	Green patents		
Dependent variable:	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	0.062	0.214	0.129	0.085	-0.087	0.027	0.018	0.009
	(0.003)	(0.047)	(0.050)	(0.034)	(0.277)	(0.000)	(0.020)	(0.087)	(0.540)
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 are clustered at the 2-digit SIC industry level; *p*-values are reported in parentheses.

Table A9. Dynamics

	Firm value			Operating performance		
Dependent variable:	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)
Panel A. Fixed effects regressions						
CSR contracting	0.062	0.072	0.074	0.0002	0.0012	0.0017
	(0.046)	(0.029)	(0.031)	(0.720)	(0.132)	(0.035)
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
Panel B. 2SLS regressions						
CSR contracting (instr.)	0.062	0.075	0.076	0.0003	0.0011	0.0017
	(0.072)	(0.048)	(0.049)	(0.712)	(0.270)	(0.084)
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 are clustered at the 2-digit SIC industry level; *p*-values are reported in parentheses.

Table A10. Share of CSR compensation—2SLS regressions

	Long-term orientation	Firm value	CSR			Emissions	Green patents		
Dependent variable:	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)
Share of CSR compensation (instr.)	0.175	1.084	4.188	3.526	0.662	-0.920	0.736	0.491	0.245
	(0.093)	(0.006)	(0.094)	(0.018)	(0.720)	(0.056)	(0.021)	(0.099)	(0.683)
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 are clustered at the 2-digit SIC industry level; *p*-values are reported in parentheses.