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The role of executive compensation in improving sustainable performance: The impact of CSR contracting on firm financial and ESG performance

Name student: Thomas de Jong
Student ID number: 476325

Supervisor: A. Yang
Second assessor:

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Abstract

Recently, it has become more common for companies to integrate corporate social responsibility (CSR) criteria in executive compensation contracts. This potentially serves as a new corporate governance tool for the board of directors to incentivize managers to implement more CSR initiatives. Using a sample of S&P 500 firms from 2002 to 2020, I study the impact of the use of CSR contracting on firm financial and ESG performance. My results show that the use of CSR contracting positively impacts firm value, and social and governance performance. The results on environmental performance are contradictory. CSR contracting has a negative effect on the environmental score, but it also decreases CO₂ emissions. Long-term analysis also shows a positive effect on firm performance. The incentives provided by the use of CSR contracting have the potential to mitigate the misalignment of interests between managers and non-shareholder stakeholders, while it also improves firm financial, social and governance performance.

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1. Introduction

Traditionally, executives' main responsibility was to maximize the profits of the firm (Friedman, 1970). Executives took decisions that were in the best interest of the targeted stakeholders, which were only the shareholders of the firm. Shareholder wealth maximization was at the center of this shareholder governance model. Over time, the pressure on firms to behave in more socially responsible ways increased. The increased attention for environmental, social, and governance (ESG) issues, changing regulations, and emerging investor activism has forced firms to shift their attention to a broader group of stakeholders (Goranova & Ryan, 2014). Executives do not only act as agents for shareholders anymore, but also for other stakeholders such as customers, local communities, the environment, employees, and the government (Freeman, 1984).

One of the major problems of the shareholder theory of governance is the agency problem that arises from the separation of ownership and control (Berle & Means, 1932; Jensen & Meckling, 1976). The day-to-day decisions are taken by the managers, while the shareholders are the owners. The agency problem arises because the interests of managers and shareholders are often not aligned. While managers' horizon is limited to their time at the firm, shareholders tend to have a long-term horizon (Jensen & Smith, 1985). Because of this shorter horizon and, for example, strong pressures to meet analysts' earnings forecasts, executives tend to take on projects that pay off in the short term and forgo projects that are more profitable in the long term (Degeorge et al., 1999). Tying executive compensation to performance has been an often used solution to align the incentives of managers to those of shareholders. In the stakeholder theory of governance, the problem has the same base, the misalignment of interests between managers and stakeholders. For example, the community wants more investments towards improving the environmental performance of the firm, while managers focus solely on profits. Again, the board of directors needs to use a governance tool to provide incentives to their managers that redirect their attention towards stakeholders. Again, executive compensation is a strong tool to do this.

Recently, it has become more common for companies to link executive compensation to corporate social responsibility (CSR) performance. Integrating CSR criteria (e.g., carbon dioxide (CO₂) emission targets, community involvement, employee satisfaction) in executive compensation contracts is referred to as "CSR contracting" (Flammer et al., 2019). From the beginning of the 2010s, CSR contracting has gained more attention and is also increasingly encouraged at the international level (Singer, 2012; United National Principles for Responsible Investment, 2012, 2016). The increased attention has also led to more companies integrating CSR criteria in their executive compensation plans, both in the United States (US) and worldwide (Flammer et al., 2019; Tsang et al., 2021). However, research on CSR contracting is quite scarce. This is because of two reasons (Cavaco et al.,

2020). First, data on CSR contracting are scarce. Second, empirical identification can be hard, because of possible unobservable variables that influence both the adoption of CSR contracting and firm-level outcomes. Because firm-level outcomes may drive the adoption of CSR contracting, the possible existence of reverse causality is an added issue.

Research on CSR contracting has, for example, shown that it leads to lower financial performance but higher extra-financial (CSR) performance (Cavaco et al., 2020). Maas (2018) shows that CSR contracting does not lead to higher corporate social performance (CSP) and Tsang et al. (2021) find that integrating CSR criteria in executive compensation plans leads to a greater innovation output. The only study that has studied the effect of CSR contracting on a broader level of firm outcomes is Flammer et al. (2019). They find that the adoption of CSR contracting leads to an increase in long-term orientation, firm value, social and environmental initiatives, and green innovations. The adoption of CSR contracting also leads to a reduction in CO₂ emissions. To enlarge the knowledge of the effect of CSR contracting on firm-level outcomes, I extend the research by Flammer et al. (2019). Therefore, my research question is:

What is the impact of CSR contracting on firm financial and ESG performance in the US?

To answer my research question, I use a sample of S&P 500 companies for the years 2002-2020. I construct a comprehensive dataset from four different databases. The main variable, CSR contracting, is collected from Thomson Reuters' ESG Scores (ASSET4) database. Several dependent variables of interest on ESG performance are also collected from this database. I collect data from the Morgan Stanley Capital International (MSCI) ESG STATS database to construct another variable, CSR performance, which is used to proxy governance performance. The remainder of the data is collected from Compustat's North America Fundamentals Annual and Execucomp databases. The main variable in my research, CSR contracting, is included in my sample as a binary variable. It takes a value of one when the answer to the question "Is the senior executive's compensation linked to CSR/Health & Safety (H&S)/Sustainability targets?" is yes, and zero otherwise (Thomson Reuters, 2015). Six hypotheses are tested that examine the impact of the integration of CSR criteria in executive compensation contracts on a firm's financial and ESG performance. I study the impact of CSR contracting on firm value, financial performance, the environmental pillar score, CO₂ emissions, the social pillar score, and the governance pillar score.

To test my hypotheses, I follow the empirical approach by Flammer et al. (2019). The main analysis is conducted with a fixed effects regression model. I control for time-invariant firm characteristics and economy-wide factors, which could affect both CSR contracting and the dependent variable of interest, by including firm and year fixed effects. I also add several control variables to

address possible omitted variable bias. The inclusion of fixed effects and control variables does not fully rule out the endogeneity problem. I, therefore, also use a two-stage least squares (2SLS) model to test my hypotheses. I use the enactment of state-level constituency statutes as the instrumental variable for CSR contracting. Constituency statutes allow corporate directors to consider the interests of a variety of stakeholders when making corporate decisions (Springer, 1999). The enactment of constituency statutes, therefore, provides an exogenous shift in a company's tendency to integrate CSR criteria in its executive compensation plans. I also conduct several robustness tests to verify my results.

In preliminary analysis, I find that the percentage of firms using CSR contracting was rising until 2013, but has been declining since then. At the high in 2013, almost half of the firms in the S&P 500 were integrating CSR criteria in executive compensation, while not even a third of the firms were doing this in 2020. I also find that the use of CSR contracting is higher in emission-intensive industries, for example in the mining and transportation industries. Examining the impact of CSR contracting on firm financial performance, I find some evidence that the integration of CSR criteria in executive compensation plans positively impacts firm value. Long-term analysis also shows a positive impact on firm performance. The impact of CSR contracting on environmental performance is somewhat contradictory. While CO₂ emissions decrease, the environmental score also decreases after the adoption of CSR contracting. Further, I find that CSR contracting positively impacts the social and governance performance of firms. My results withstand several robustness tests. For example, using another measure for governance performance, I find the same results. Further, my results are not driven by the large number of firms incorporated in Delaware. In additional analyses, I find some evidence for cross-sectional heterogeneity between firms in high and low-polluting industries.

My thesis contributes to the literature in several ways. First, I add to the relatively nascent and scarce literature on CSR contracting. Only very few papers study the effects of CSR contracting on firm-level outcomes (e.g., Flammer et al., 2019; Cavaco et al., 2020). My thesis enhances the knowledge on the effect of integrating CSR criteria on firm-level outcomes by using a larger sample than Flammer et al. (2019) and by examining the effect on a different set of outcome variables compared to both papers.

Second, I add to the wide literature on agency theory. The literature on agency theory predominantly focuses on the conflict of interest between managers and shareholders, arising from the separation of ownership and control. My thesis focuses on the agency problem arising from the conflict of interest between managers and non-shareholder stakeholders. I show that tying executive compensation to CSR criteria has the potential to incentivize managers to increase their investments in CSR, reducing the agency problem.

Third, I add to the literature on the optimal design of executive compensation. As established in the literature, executive compensation is an important lever for boards of directors to influence managerial incentives. My findings show that CSR criteria are possibly another important component that needs to be considered when designing executive compensation contracts.

The remainder of my thesis is structured as follows. In section 2 I review the literature and develop my hypotheses. In section 3, the data collection process and variables are described. I also show descriptive statistics of my sample. Section 4 describes my empirical methodology. In section 5 I present the empirical results of my main analyses, robustness tests, and additional analysis. The last section, section 6, summarizes and presents my concluding remarks.

2. Literature review and hypotheses development

2.1 Corporate social responsibility (CSR) and stakeholder theory

The idea that including CSR practices in its business operations is potentially beneficial for a firm has been known for a long time. For example, Henry Gantt (1919) wrote: “The business system must accept its social responsibility and devote itself primarily to service, or the community will ultimately make the attempt to take it over in order to operate it in its own interest” (p. 15). Even though this statement is over 100 years old, it could not be more relevant today. With CSR practices already being around for such a long time, one would expect that there is a straightforward definition of what it exactly entails. But, unfortunately, this is not true. Defining CSR is difficult because of three reasons (Matten & Moon, 2008). First, CSR is an essentially contested concept. This means that CSR is a concept that will always lead to endless disputes when its proper use is discussed (Gallie, 1956). Second, CSR is more an umbrella term overlapping different relations than a term that can be specifically linked to a certain relationship. Third, CSR is a dynamic phenomenon that places more importance on different aspects over the years (Carroll, 1990). The main takeaway from these three reasons is that CSR has different explanations and implications for the different groups it concerns. Thus, a more high-level definition consists of the focus on clearly articulated and communicated policies and practices by companies, which reflect business responsibility for a wider societal good (Matten & Moon, 2008).

The societal good indicates that CSR activities are not only focused on the shareholders of the firm. Here it also includes other stakeholders. To be precise, the firm’s stakeholders are “any group or individual who can affect or is affected by the achievement of an organization’s purpose” (Freeman, 1984, p. 53). Important other stakeholders are customers, local communities, the environment, employees, and the government. With time, the focus of businesses has shifted away from only making decisions that are beneficial for the shareholders, towards decisions that also value the demands and

expectations of other stakeholders. This stakeholder theory of governance indicates that all stakeholders must be considered when making important decisions because a firm's responsibility goes beyond financial performance. It also indicates that doing this is important for long-run value creation (Freeman & Velamuri, 2006).

A lot of research has shown that this indeed is the case. For example, Margolis et al. (2007) find, using a meta-analysis of almost 200 effects in more than 150 studies, that there is a positive small effect of CSP on corporate financial performance.¹ Also looking at CSR practices in general, Flammer and Kacperczyk (2016) find that more attention to nonfinancial stakeholders increases innovation. Since innovation is an important driver for growth, the focus on nonfinancial stakeholders leads to long-run value creation (e.g., Grossman & Helpman, 1994). More specifically focused on certain stakeholders, customers react positively to CSR. Bhattacharya and Sen (2004) show that CSR activities in a firm lead to better reviews, increased well-being of consumers, and more customer spending. Also, positive CSR associations can improve the evaluation of a company and of its products, which should produce more revenues (Brown & Dacin, 1997). Initiatives pertaining to the natural environment enhance firm value through, for example, an increase in labor productivity (Delmas & Pekovic, 2013). Russo and Fouts (1997) show that "it pays to be green", finding a small positive relationship between environmental performance and economic performance. Employees also react positively to CSR practices. Flammer and Luo (2017) find that CSR can stimulate, motivate, and engage employees, resulting in less adverse behavior. CSR initiatives also increase employees' work commitment, job satisfaction, and creativity (Rupp & Mallory, 2015). Integrating CSR initiatives in its business operations also improves the position of a company in the market for government procurement contracts (Flammer, 2018). The government values CSR initiatives, hence, firms receive more procurement contracts when their social and environmental performance is better.

While the previous examples show that CSR initiatives pertaining to nonfinancial stakeholders positively impact financial performance and long-run value creation, satisfying all different stakeholders is complex. This may lead to the reluctance of executives to address all stakeholder demands. This is caused by heterogeneous stakeholder claims that often contradict each other (Flammer et al, 2019). For example, customers' short-term claims about pricing contradict the interests of community stakeholders that have long-term claims about the firm's social engagement. A second reason for the reluctance of executives to address all stakeholder demands follows from executives' short-termism. The focus of executives on short-term performance is, for example, shown by Graham

¹ In the literature, it is most common to use the term corporate social responsibility (CSR). However, some studies use the term corporate social performance (CSP). Theorists have attempted to distinguish the two terms, where some claim that CSP is under the umbrella of CSR and others claim that CSR is under the umbrella of CSP (Margolis et al., 2007). Consequently, CSR and CSP are used interchangeably in empirical studies. I will use the term CSR, except when I am citing literature that explicitly uses the term CSP.

et al. (2005). Of the executives they surveyed, 78% indicated that they would sacrifice a positive net present value project if adopting it would lead to a missed quarterly earnings expectation. What follows is that executives may focus more on stakeholder claims that benefit the firm's financial performance in the short run.

2.2 CSR contracting

2.2.1 Motivating CSR contracting

Managerial short-termism has several causes. First, an executive often gets more compensation when the performance of the company in a specific year is better. For example, Jensen and Murphy (1990) show that for every \$1000 change in stockholder wealth, the wealth of the chief executive officer (CEO) changes by \$3.25. Second, reputational concerns. When a new executive starts in a firm, they feel the pressure to show the managerial labor market that they have strong abilities. Therefore, executives have incentives to invest in projects that pay off in the short run (Campbell & Marino, 1994). Furthermore, by taking decisions that pay off in the short run, executives hope to increase their reputation in the early stages of their term, improving their bargaining position and boosting their compensation (Narayanan, 1985). Related to this are career concerns, as described by Gibbons and Murphy (1992). The market uses a worker's current performance to form a belief about the worker's ability. Then, future wages are determined based on this belief about ability. Hence, strong short-term results pay off. A third reason to favor projects that pay off in the short run is strong market pressure to meet analysts' earnings forecasts (DeGeorge et al., 1999). Earnings give important information for investment decisions. Meeting the earnings forecasts is therefore critical in keeping up the investment flows into the firm.

To counteract managerial short-termism, the most used measure is to include long-term incentives in the compensation contracts of executives. This can have a positive effect. For example, Holthausen et al. (1995) find that the proportion of total compensation tied to long-term components in CEO compensation is positively related to future innovation. Similarly, Lerner and Wulf (2007) show that more long-term incentives in compensation contracts, such as stock options and restricted stocks, of research and development (R&D) heads, are associated with more heavily cited patents and patents of greater originality. Also, Flammer and Bansal (2017) find a positive causal effect of long-term executive compensation on business performance. Adopting shareholder resolutions on long-term compensation led to a significant increase in operating profits and the stock price.

The examples focused on counteracting managerial short-termism are predominantly focused on improving firm performance. This means that the effects of the long-term incentives in the given examples are mainly beneficial for shareholders because they are focused on higher firm performance with a longer time horizon. Focusing on the other stakeholders, there are also possible benefits from

long-term incentive plans. While McGuire et al. (2003) do not find a significant relationship between long-term CEO incentives and exemplary social performance, Mahoney and Thorne (2005) find that long-term compensation is associated with a decrease in CSR weaknesses (e.g., safety problems and environment-related fines). They also find that long-term compensation has a small significant positive effect on total CSR, the net of strengths and weaknesses. Deckop et al. (2006) show that short-term CEO pay negatively influences CSP, while compensation with long-term incentives positively influences CSP. These two examples show that long-term incentives can also be beneficial for nonfinancial stakeholders. However, taking together the different findings, managers still seem to prioritize stakeholders that have a short-term performance focus. This is reinforced by the study of Eesley and Lenox (2006). They show that power, legitimacy, and urgency are important drivers of stakeholder salience. Since these three terms are more prevalent for stakeholders with a short-term performance focus, it is more likely that their requests will be taken into consideration by executives.

To redirect executives' focus towards nonfinancial stakeholders with a long-term focus, executives must be incentivized differently. A recent development is the integration of CSR criteria in executive compensation, called CSR contracting. CSR contracting is defined as "the linking of executive compensation to social and environmental performance (e.g., CO₂ emission reductions, employee satisfaction goals, compliance with ethical standards in developing countries)" (Flammer et al., 2019, p. 1099).

2.2.2 Literature on CSR contracting

CSR contracting is a relatively new corporate governance tool to incentivize managers. Figure 2 panel B in Flammer et al. (2019) shows that in 2004 only a little over twelve percent of the S&P 500 companies had integrated CSR criteria in their executive compensation. In 2013, the last year of their sample, 36.7% of the S&P 500 firms had adopted CSR contracting. This trend is also shown worldwide. Tsang et al. (2021) observe that the adoption of CSR contracting grows from 1.87% in 2004 to 32.29% in 2014 for a sample of firms from 30 countries.

The first quantitative empirical study to examine the role of executive compensation contracts that incentivize managers for firm social performance is by Hong et al. (2016). They look at the relationship between corporate governance and the existence of executive compensation incentives for CSR for a sample of S&P 500 firms in 2013. Their findings show that firms that provided compensation linked to CSR had a higher average social performance. Since CSR is likely to be financially beneficial for firms and shareholders, CSR contracting creates value as it increases CSR activities. Cavaco et al. (2020) also study the effect of CSR contracting on firm performance. They find that firm value decreases with the adoption of CSR contracting. But, when a firm has a stakeholder governance model, firm value does not decrease anymore. Additionally, they find that CSR contracting

increases CSR performance. Derchi et al. (2021) also find a positive effect of CSR contracting on CSR performance, but only starting from the third year after adopting CSR contracting.

Contradictory results are found by Maas (2018). She finds that the use of CSR contracting does not lead to better CSP results. But when CSR contracting is split between quantitative, hard targets (e.g., reduction of CO₂ emissions by 25% in two years) and qualitative, soft targets (e.g., reduction of CO₂ emissions in the coming years), there is a significant result. Hard targets lead to improved CSP results, while soft targets do not lead to any direct improvement of CSP. Ikram et al. (2019) come to the same conclusion. They find that objective compensation contracts, which specify the weights of specific CSR-related activities, are often used by well-governed firms. These firms are more likely to adopt CSR contracting, which leads to higher future CSR ratings and higher CSP. Subjective compensation contracts, without clearly specified weights, are less effective. Grabner et al. (2020) also find that CSR contracting on its own does not improve CSR performance. They show that CSR disclosures and CSR contracting are complements and that using them together signals strong CSR commitment to stakeholders, leading to higher CSR performance.

The effect of CSR contracting on a wider range of firm outcomes is examined by Flammer et al. (2019). Their main findings are that the adoption of CSR contracting leads to an increase in long-term orientation, higher firm value, more social and environmental activities, a reduction in emissions, and more green innovations. Tsang et al. (2021) study the effect of the adoption of CSR contracting on a more specific firm outcome, innovation output. They find that integrating CSR criteria in executive compensation plans stimulates innovation through, among others, enhancing employee innovation productivity, and enhancing managerial risk-taking. The specific feature in the study from Li and Thibodeau (2019) is earnings management. The authors look at earnings management and CSP, conditional on the existence of CSR contracting. They find that executives are more likely to manipulate earnings when the firm's CSR rating is low, and when CSR-related compensation is low. This makes sense because a CEO will get more compensation when the CSR rating is higher, conditional on the existence of CSR contracting, meaning that earnings manipulation is less needed to get more personal benefits.

The most recent paper on CSR contracting studies the impact on CEO performance-induced turnover (Qin & Yang, 2022). The authors find that CEO turnover is less sensitive to financial performance when a firm has adopted CSR contracting. They also find that long-term institutional ownership and shareholder voting support increase after the adoption of CSR contracting, implying that investors have a longer-term horizon and care more about social value, and that management has broader shareholder support. Both implications support a lower sensitivity of the CEO turnover-performance relationship.

2.3 CSR contracting and firm financial performance

Before looking into the possible effects of CSR contracting, it is important to note that it might not be an effective governance tool and that it does not influence corporate decision-making. The reasoning for this is twofold. First, CSR criteria in executive compensation contracts might be too small to effectively impact managerial incentives. Professor Wayne Guay from the University of Pennsylvania observes, in an article in *The Guardian* written by McCullough (2014), that in most cases, less than 1% of an executive's compensation is linked to sustainability. Flammer et al. (2019) observe a higher percentage, finding that the average ratio of CSR-based compensation to total compensation for their sample of S&P 500 firms for the years 2004-2013 is 4.2%. Second, some governance tools have been shown to be ineffective because companies' implementation of the tools was only symbolic. For example, Westphal and Zajac (1994) find that a substantial number of firms adopt but do not use long-term incentive plans (LTIPs) in executive compensation. The separation that is found between substance and symbolism in LTIPs can also be true for CSR contracting.

The inclusion of CSR criteria in executive compensation contracts is relatively new. A sample of S&P 500 companies shows that in 2004, only 12.1% had adopted CSR contracting (Flammer et al., 2019). Compared to financial incentives in executive compensation, CSR criteria have the potential to have a bigger impact on an executive's horizon. Although financial incentives have already been around since the 1960s, there is still no consensus on what would be the optimal contract (Frydman & Jenter, 2010). While LTIPs may make executives more long-term focused, pay-for-performance initiatives such as bonuses or stock options may still make executives prefer projects that have short-term returns. Nonfinancial incentives are different. The CSR criteria that are integrated into executive compensation are all focused on social and environmental initiatives that almost only pay off in the long run. Therefore, to receive compensation based on CSR criteria, and thus achieve superior social and environmental performance, an executive must have a longer-term focus. Looking at the literature, there is evidence that adopting CSR activities in its business operations leads to better financial performance, but only in the long term. For example, Flammer (2015a) finds that adopting close-call shareholder CSR proposals leads to improved performance. Edmans (2011, 2012) finds that improved employee satisfaction leads to higher shareholder returns and that improved job satisfaction is beneficial for firm value. Eccles et al. (2014) find that firms that had voluntarily adopted sustainability policies by 1993 significantly outperform firms that had adopted few or no sustainability policies by 1993 in the long run.

For executives to be rewarded for the CSR criteria in their compensation contracts a long-term orientation is required because CSR initiatives and investments take time before showing results. Thus, I expect that adopting CSR contracting is likely to induce managers to have a longer-term horizon. I expect that this will lead executives to focus less on projects that pay off in the short term. Then, more

valuable long-term projects and stakeholder initiatives will be taken on, increasing firm value. Furthermore, based on the literature, I expect that taking on value-enhancing long-term projects will also lead to better firm performance. This leads to the following hypotheses:

Hypothesis 1: The integration of CSR criteria in executive compensation has a positive impact on firm value.

Hypothesis 2: The integration of CSR criteria in executive compensation has a positive impact on firm financial performance.

2.4 CSR contracting and ESG performance

A concept closely related to CSR is ESG. Similar to CSR, ESG focuses on a wider societal good. For example, CSR initiatives include investments towards reducing environmental pollution, improving the benefits to the community, or higher employee satisfaction. These three CSR initiatives each pertain to one of the three pillars of ESG: environmental, social, and governance factors. Also, ESG initiatives have become increasingly important over the past years, just like CSR initiatives. Where Flammer (2015a) shows an increase in the amount of shareholder CSR Proposals of approximately 60% between 1997 and 2012 for S&P 1500 companies, Grewal et al. (2016) observe a 60% increase in shareholder proposals related to ESG issues between 2003 and 2013 for Russell 3000 companies. An important observation is that the observed CSR proposals and ESG proposals can be the same, since both concepts are closely related, and the indexes overlap. However, the general growth in proposals shows the increased attention for and importance of CSR and ESG.

To look further into the effects of CSR contracting on ESG performance, I will separately look at the literature on the three pillars of ESG.

2.4.1 CSR contracting and environmental performance

From 2014 to 2020, Harvard Business Review (HBR) ranked the best-performing CEO in the world on a yearly basis. In 2014, the ranking was only based on financial results. In 2015, an ESG measure was added and had a weight of 20%, while the remaining 80% was still financial results (HBR, 2015). Even though Jeff Bezos (CEO of Amazon) was number one in financial results, his 828th place on the ESG ranking led to an 87th place on the list of best-performing CEOs in the world in 2015. In 2019, the ESG weight was further increased to 30% (HBR, 2019). While this is a simple ranking, it does show the increased importance of ESG measures for evaluating a CEO's performance.

More important than the ranking is the performance of the firm. It was previously thought that environmental initiatives would be detrimental to the firm because they would distract executives

from their main responsibility of maximizing profits (Friedman, 1970). The initiatives would lead to additional costs, reduced competitiveness, and, as a result, lower profits. This view changed in the 1990s, when, among others, Porter and van der Linde (1995) showed that the environment-competitiveness debate was framed wrong. They theorize that environmental initiatives can lead to an improved competitive position. To further sustain this theory, Ambec and Lanoie (2008) discuss seven opportunities to create a positive link between environmental and economic performance. Opportunities for increasing revenues come from better access to certain markets, differentiating products, and selling pollution-control technologies. Opportunities for reducing costs come from risk management and relations with external stakeholders, lower costs of materials, energy, and services, lower cost of capital, and lower cost of labor. Empirical research by Klassen and McLaughlin (1996) and Flammer (2013) supports the view that environmental initiatives can improve financial performance. Both papers show that responsible environmental management leads to significant positive returns, while irresponsible behavior towards the environment leads to significant negative returns.

It follows that improving the firm's social and environmental performance could be beneficial for the firm's shareholders, as it increases economic performance, and for the dependent stakeholders. Another reason for improving the firm's social and environmental performance is related to the increased pressure to engage with dependent stakeholders. This goes further than the 60% increase in shareholder proposals related to ESG issues from 2003 to 2013 (Grewal et al., 2016). The attention for environmental issues has increased massively in recent years. This has led to more social initiatives and protests to try to move companies to improve their ESG performance. This can be detrimental to a firm's performance. Both Epstein and Schnietz (2002) and King and Soule (2007) show that protests can lead to negative stock price returns. Thus, companies have to deal with more outside pressures to improve social and environmental performance.

Convincing executives to undertake actions towards improving social and environmental performance should not be too difficult. A decrease in outside pressure and an increase in financial performance lie ahead when these initiatives towards improving ESG performance are taken. However, as established before, executives tend to be more interested in making decisions that lead to short-term benefits (Graham et al., 2005). Since executives already forgo projects that pay off more in the long run based on purely economic performance, it does not come as a surprise that they also forgo initiatives that will lead to better environmental performance, even if it also leads to improved financial performance. The board of directors should therefore implement a governance tool that can incentivize executives. A possible tool can be CSR contracting. By including CSR criteria in executive compensation contracts, managers are provided with stronger incentives to take more environmentally related CSR initiatives. I expect that this will lead to improved environmental

performance. Since these CSR initiatives are related to more sustainable practices, I also expect that CO₂ emissions will be reduced. This leads to the following hypotheses:

Hypothesis 3: The integration of CSR criteria in executive compensation has a positive impact on a firm's environment pillar score.

Hypothesis 4: The integration of CSR criteria in executive compensation reduces a firm's CO₂ emissions.

2.4.2 CSR contracting and social performance

The social pillar in ESG covers a wide range of issues. For example, employment quality, human rights, community relations, health and safety, workplace and board diversity, and social justice (Bergman et al., 2020). The literature shows that several CSR initiatives can improve the social pillar. For example, De Roeck et al. (2014) find that CSR initiatives improve employees' job satisfaction and the relationship between employees and their organization. Flammer and Luo (2017) find that more engagement in employee-related CSR increases employee engagement and decreases the possibility of adverse behavior. It is important to note that for both papers, and especially Flammer and Luo (2017), the initial CSR initiatives that are the independent variable in both studies are likely to already be a direct improvement of employee quality, and thus the social score of a firm.

The effect of CSR contracting on the social pillar in ESG has, to my knowledge, only been studied by Cavaco et al. (2020) and Tsang et al. (2021). Cavaco et al. (2020) find that the use of CSR contracting improves the relationships with customers and suppliers, increases the impact on local communities, and leads to more attention for human rights in the corporate strategy and the workplace. Tsang et al. (2021) find, for a sample of firms from 30 countries for the years 2004-2015, that the adoption of CSR criteria in executive compensation leads to improvements in employee well-being, as measured by an employment quality score, a health and safety score, a training and development score, and a diversity and opportunity score. Of course, employee well-being only covers part of the social pillar, but adopting CSR contracting has the potential to also positively affect other aspects and improve social performance. For example, CSR criteria that are potentially integrated in executive compensation are, among others, tolerance and inclusion in the workplace, product quality, community involvement, and stakeholder engagement (Maas, 2018). I, therefore, expect that the adoption of CSR contracting will lead to improved social performance. This leads to the following hypothesis:

Hypothesis 5: The integration of CSR criteria in executive compensation has a positive impact on a firm's social pillar score.

2.4.3 CSR contracting and governance performance

Boards of directors use governance tools to incentivize managers to make decisions that are in the best interest of the targeted stakeholders. Often, the targeted stakeholders are only the shareholders, meaning that a firm follows a shareholder corporate governance model (Jensen & Meckling, 1976). This governance model focuses only on shareholder wealth maximization. As described above, executives tend to make decisions that pay off in the short term, forgoing longer-term projects that would lead to more value creation (Graham et al., 2005). This is not in line with the idea of shareholder wealth maximization and implies that there is a problem. This problem, defined as the agency problem, arises because of the separation of ownership and control (for the first time properly defined by Berle and Means (1932)). The owners, shareholders, do not have control over the important decisions in the firm, because those are taken by the management. The most used solution to mitigate agency costs, the costs arising from the separation of ownership and control, is the specific structuring of executive compensation to incentivize managers to take decisions that maximize shareholder value (Jensen & Meckling, 1976).

A more elaborate governance model is the stakeholder theory of governance. This theory suggests that executives do not only act as agents for shareholders but also for all other stakeholders (customers, local communities, the environment, employees, the government, etc.) (Freeman, 1984). Value maximization is difficult because providing a complete (i.e., satisfying all stakeholders) specification of the corporate goal is almost impossible (Jensen, 2002). To understand the problem that arises here, one should consider two models of CSR described by Millon (2011). First, the orthodox model of CSR, in which policies that are designed to benefit non-shareholder stakeholders are assumed to negatively influence a firm's profits. Second, the new model of CSR, in which the long-run sustainability of the firm is dependent on the success of stakeholders. For example, investing in infrastructure in developing countries that produce input materials for a firm's product can improve productivity and can thus benefit the firm in the long run. Again, considering that executives often have a short time horizon, seeing the benefits of such an investment is not straightforward when it only leads to losses in the short run. Furthermore, Coombs and Gilley (2005) show that CEO compensation is, for the most part, negatively affected when executives engage more in stakeholder value-enhancing initiatives. This misalignment of interests between managers and stakeholders again leads to an agency problem when managers take decisions motivated by self-interest, while they are expected to act in the stakeholders' best interests. An example of how managers deal with this misalignment of interests is shown in the literature. Both Prior et al. (2008) and Salewski and Zülch (2014) find a positive relationship between earnings management and CSR ratings. This relationship follows from managers using CSR practices to 'cover up' their earnings management, meaning that they will get less pressure from stakeholders to take different decisions.

This agency problem can, potentially, also be mitigated by specifying the structure of executive compensation. In this case, integrating CSR criteria in compensation contracts. By adopting CSR contracting, managers are provided with stronger incentives to take more decisions that are aligned with the interests of all stakeholders. This can potentially mitigate the agency problem between managers and stakeholders and also improve the governance score of a firm. However, executive compensation is only a part of corporate governance. Corporate governance is defined as: “the whole set of legal, cultural, and institutional arrangements that determine what publicly traded corporations can do, who controls them, how that control is exercised, and how the risks and returns from the activities they undertake are allocated” (Blair, 1995, p. 3). Following the principles of corporate governance from the OECD (2015), the corporate governance model should also, among other things, promote transparent and fair markets, protect and facilitate the exercise of shareholder rights and treat all shareholders equally, and ensure timely and accurate disclosure of all material matters regarding the firm.

Even though executive compensation is only a part of corporate governance, I expect that CSR contracting does have a positive impact on the governance score of a firm. As described above, CSR contracting can potentially lead to a reduction of agency costs from the alignment of interests between managers and stakeholders. Also, Li and Thibodeau (2019) observe that CSR-related compensation reduces the incentives of executives to manage earnings. Less earnings management leads to a better governance score because it leads to more fair and accurate disclosure of the financial situation of the firm. This leads to the following hypothesis:

Hypothesis 6: The integration of CSR criteria in executive compensation has a positive impact on a firm’s governance pillar score.

3. Data

To test my hypotheses, I collected data from four different databases: Thomson Reuters ESG scores (ASSET4) database, Compustat North America Fundamentals Annual database, Compustat Execucomp database, and MSCI ESG STATS database (formerly known as KLD STATS). The first year of my sample is 2002 because data from the Thomson Reuters ESG scores database are only available starting in 2002. The last year of my sample is 2020. Following previous research on CSR contracting (e.g., Hong et al., 2016; Flammer et al., 2019; Qin & Yang, 2022), my sample is restricted to firms in the Standard & Poor’s 500 (S&P 500) index. Based on available data on CSR contracting in the Thomson Reuters ESG scores (ASSET4) database, my sample consists of 8894 firm-year observations for 805 unique firms. Based on these firm-year observations, I merged the data on CSR contracting and ESG

scores with data on firm financial information, executive compensation information, and information on CSR scores from the other three databases. Because of data availability, the sample size for testing the different hypotheses differs. For example, data on CO₂ emissions is only available for 4672 firm-year observations. Furthermore, data on CSR scores is only available for the years 2002 to 2013, leading to a sample size of 4584 observations.

In the remainder of this section, I will first describe the main variable of my thesis, CSR contracting. Then I will focus on the dependent variables and the control variables. The last part of this section provides descriptive statistics of my sample.

3.1 CSR contracting

3.1.1 Variable definition

To identify whether firms have integrated CSR criteria in their executive compensation plans, I used the variable ‘Sustainability Compensation Incentives’ from the Thomson Reuters ESG scores database. The variable is defined as follows: “Is the senior executive’s compensation linked to CSR/Health & Safety (H&S)/Sustainability targets?” (Thomson Reuters, 2015). The output is “Y” (yes), “N” (no), or “N/A” (not available). Examples of what these criteria include are social responsibility, inclusion and diversity, employee satisfaction, environmental objectives, and community engagement. I created the binary indicator variable CSR contracting in my dataset. The variable has a value of one for each year that the output is “Y”, implying that a firm has integrated CSR criteria in executive compensation, and zero if the output is “N”. Observations with “N/A” are omitted from the sample.

An important consideration is the meaning of ‘senior executives’. The variable is not solely based on one of the executives in a firm. This raises the question of whether an output of “Y” means that just one of the executives has CSR criteria in its compensation contract, if all executives require CSR contracting, or somewhere in between. When this is not the same for the firms in the sample, the variable is not consistent and might be unreliable. Flammer et al. (2019) manually collected executive compensation data for S&P 500 firms for the years 2004-2013 from annual proxy statements filed with the SEC and found that for 94% of the firms that use CSR contracting, CSR criteria were integrated into the contracts of all executives. The variable is, therefore, reliable.

3.1.2 Examples of CSR contracting

To get a better understanding of CSR contracting, I highlight two examples of firms that included CSR criteria in the executive compensation plans. The first company is ConocoPhillips. According to their 2021 proxy statement (SEC Form DEF 14A), 20% of the variable cash incentive program of 2020 executive compensation is based on health, safety, and environmental (HSE) factors, with a focus on the continuous improvement in process and workforce safety (ConocoPhillips, 2021).

Specifically, included in the HSE program is the 'Total Recordable Rate' (TRR) which is a measure of injuries in a year, and 'Process Safety Events' (PSE) which refers to the control of hazards in the processes in a facility that could impact people, property, or the environment. For the TRR, top-quartile performance compared to the company's peers² is targeted and for PSE, ConocoPhillips strives towards absolute continuous improvement. For 2020, excluding the impact of COVID-19, a record low TRR was achieved, which was also a best-in-class performance compared to relevant peers. PSE improved through, among others, reducing significant high-risk events and hydrocarbon spills. For HSE targets, the firm's Human Resources and Compensation Committee (HRCC) does not believe a certain threshold is appropriate because of the limited control the firm has over several activities. Instead, the HRCC conducts a strict review process. Together with management, a judgement is made on the results and the degree of difficulty. Based on this, a decision is made on the compensation. For 2020, the HRCC decided that an above-target payout for HSE was justified because of the challenges due to COVID-19 and the continued high performance of the HSE factors.

A second example is Mondelez International Inc. In 2020, they changed part of their annual incentive plan (AIP) to include new key performance indicators (KPIs) that focus on growth, execution, and culture, and are therefore related to CSR criteria (Mondelez, 2021). In 2019, 80% of the AIP was a financial performance component and 20% an individual performance component (Mondelez, 2020). Factors determining the individual performance were, for example, key strategic initiatives, operational efficiency, and talent management. In 2020, the individual performance component was replaced by strategic KPI objectives, keeping a weight of 20% (Mondelez, 2021). The other 80% was still based on a financial performance rating. While the KPI objectives focusing on growth are not related to CSR criteria, the objectives on execution and culture are. The execution objectives focus partly on recyclability and sustainability and the culture objectives focus on depth of talent, women in leadership, and employee engagement. The main target for the KPIs is to stay on track to achieve long-term strategic goals. At the end of each year, the compensation committee assesses the progress on each KPI and determines a payout percentage based on the extent of the progress. Based on the goals set at the beginning of the year, the performance can range from 0 to 200% of the target. For 2020, the results were strong. While the results on recyclability, sustainability, and depth of talent were in line with expectations, results on women in leadership and employee engagement were above expectations. All executives achieved a score of more than 100% of the target.

² The firm's HRCC believes that the relevant peers are large independent exploration and production companies with diverse portfolios and some of the largest publicly held oil and gas companies. Examples are Chevron Corporation, EOG Resources Inc., and Occidental Petroleum Corporation (ConocoPhillips, 2021).

3.2 Dependent variables

3.2.1 Financial performance

I used Tobin's q as a proxy for firm value. It is defined as follows (Chung and Pruitt, 1994):

$$\begin{aligned} \text{Tobin's } q = & (\text{market value of common equity} + \text{preferred stock liquidating value} \\ & + \text{long_term debt} - (\text{short_term assets} \\ & - \text{short_term liabilities})) / (\text{total assets}) \end{aligned}$$

Tobin's q is defined by Lindenberg and Ross (1981) as the ratio of the market value of a firm to the replacement cost of its assets. It implies that with a value larger than one, a firm has strong growth opportunities as the replacement costs are lower than the market value. All components needed to calculate Tobin's q were collected from the Compustat North America Fundamentals Annual database.

I used a firm's return on assets (ROA) to measure firm performance. This generally accepted measure of firm performance does not have a single, all-around accepted, formula. Jewell and Mankin (2011) show that eleven different versions can be found in current business textbooks. The most used one is the ratio of net income to total assets. This is, therefore, the calculation that I use. I collected all components needed to calculate Tobin's q and ROA from the Compustat North America Fundamentals Annual database.

3.2.2 Environmental performance

I used two measures to study the impact of CSR contracting on environmental performance. The first one is the 'Environment Pillar Score' from the Thomson Reuters ESG scores database. It is a weighted average relative rating of the environmental information of a firm. It examines factors including resource use, emissions, and innovation (Thomson Reuters, 2017). To construct the pillar scores, approximately 900 data points (e.g., employment quality, health and safety, environmental engagement, community involvement) serve as inputs for around 250 KPIs (Cheng et al., 2014). Of these KPIs, 70 are related to the environmental pillar score (Thomson Reuters, 2013). Then the performance for every KPI is measured and expressed as a percentage ranging from 0 to 100. The KPIs get a different weight based on the industry a firm is in. The KPI scores and the weights together lead to the environment pillar score of a firm.

Following Flammer (2021), the second measure I used for measuring environmental performance is the ratio of CO₂ emissions to the book value of total assets. The environmental rating is a mix of a broad range of environment-related behavior in a firm. A change in the rating does indicate that a firm has improved or worsened its environmental performance, but there is no straightforward interpretation. Because of the 70 different KPIs included in the environmental score, it is not clear what

caused the change. Looking at the change in CO₂ emissions is more objective and straightforward, and is informative for a firm's environmental performance. I collected the CO₂ emission variable from the Thomson Reuters ESG scores database.^{3,4}

3.2.3 Social performance

I used the 'Social Pillar Score' variable from the Thomson Reuters ESG scores database to measure social performance. The social pillar is a weighted average relative rating of a company based on the reported social information. It is divided into four categories: workforce, human rights, community, and product responsibility (Thomson Reuters, 2017). The social rating, based on 88 KPIs, is calculated in the same way as the environmental rating (Thomson Reuters, 2013).

3.2.4 Governance performance

To measure governance performance, I used the 'Governance Pillar Score' variable from the Thomson Reuters ESG scores database. The governance pillar is a weighted average relative rating of a company based on the reported governance. The three categories that form the pillar are management, shareholders, and CSR strategy (Thomson Reuters, 2017). The governance rating, based on 68 KPIs, is calculated in the same way as the environmental and social rating (Thomson Reuters, 2013).

3.3 Control variables

Several variables can affect the adoption of CSR contracting or the dependent variables in the regressions. I, therefore, control for several firm-level characteristics and executive compensation elements.

I collected the firm-level data from the Compustat North America Fundamentals Annual database. First, the two most widely recognized determinants of CEO pay, firm size and firm performance, are included (Berrone & Gomez-Mejia, 2009). The size of the firm is defined as the natural logarithm of the book value of total assets (Finkelstein & Boyd, 1998). Firm performance is proxied by ROA, defined as described above, and return on equity (ROE), which is defined as the ratio of net income to the value of shareholders' equity.^{5,6} Cash is the ratio of cash and short-term investments to the book value of total assets. Leverage is the ratio of debt (long-term debt plus current

³ To be precise, I use the variable CO₂ Equivalent Emissions Total, which is the total CO₂ and CO₂ equivalents emissions in tons (Thomson Reuters, 2015).

⁴ In my empirical analysis, I use a winsorized variable of the ratio of CO₂ emissions to total assets at the 5th and 95th percentiles to mitigate the impact of outliers.

⁵ In the regressions that study the effect of the adoption of CSR contracting on ROA, I exclude the ROA control variable, because it is used as the dependent variable.

⁶ In my empirical analysis, I use a winsorized variable of ROE at the 1st and 99th percentiles to mitigate the impact of outliers.

liabilities) to the book value of total assets. I also included year dummies to account for unobserved time-invariant differences between 2002 and 2020.

I collected the executive compensation data from the Compustat Execucomp database. I controlled for the natural logarithm of total executive compensation, as reported in SEC filings. The composition of total compensation is included and consists of the following variables: the share of cash-based, stock-based, option-based, non-equity incentive plan, and all other (e.g., pension benefits, life insurance premiums, discounted share purchases) compensation (Standard & Poor's, 2008).⁷ For all executive compensation control variables, I calculated the average value across all the executives of the firm of which compensation data is included in the database.

3.4 Descriptive statistics

3.4.1 CSR contracting over time

In table 1 the percentage of firms that integrate CSR criteria in their executive compensation plans is shown. With the increasing pressure on executives to engage more with outside stakeholders and to integrate more CSR initiatives in business operations, an upward trend is expected. From 2002 to 2013, this trend is observed in the data. While only approximately five percent of firms used CSR contracting in 2002, almost half of the firms did in 2013. After 2013, however, a decrease in the use of CSR contracting is observed. Several other studies also examine the effects of CSR contracting, but none of them use the same data source as I do for a sample of S&P 500 companies. Flammer et al. (2019) and Qin and Yang (2022) manually collect executive compensation data from proxy statements filed with the SEC using a list of performance metrics linked to social and environmental performance (see Flammer et al., 2019, p. 1105). Flammer et al. (2019) also observe an upward trend of firms with CSR contracting, but the adoption rate is more conservative. Qin and Yang (2022) observe the same upward trend until 2013. Maas (2018) and Ikram et al. (2019) also manually collect executive compensation data from proxy statements filed with the SEC, but they use a more elaborate list of performance metrics (see Maas, 2018, p. 578). Based on this list, the percentage of firms using CSR contracting is higher and more closely resembles the percentages that I observe in my sample up to 2013.

The decline in the percentage of firms using CSR contracting after 2013 is striking. From the four papers looking at S&P 500 companies, only Qin and Yang (2022) use a sample that goes beyond 2013. For the years 2014 to 2018, they observe a stagnation in the use of CSR contracting. Cavaco et al. (2020) look at multiple countries and observe an upward trend after 2013. Tsang et al. (2021) also use the Thomson Reuters ESG Scores database to collect data on CSR contracting. For a sample of firms

⁷ I exclude the 'all other compensation' variable in the regression models because this share of compensation makes the total share add up to 1.

from 30 countries, they observe a small increase in CSR contracting use from 2013 to 2014 but a heavy decrease from 2014 to 2015. Explaining the decline in the use of CSR contracting from 2013 to 2016 is complex. It might have to do with firms not seeing positive results in the years after implementing CSR contracting. Several studies, however, have shown that the use of CSR criteria in executive compensation plans can lead to positive results (e.g., Flammer et al., 2019; Ikram et al., 2019; Tsang et al., 2021). Since these papers are very recent, it provides no information on the trend that is seen from 2013 to 2016. But, with these recent findings, it is very interesting to see how the percentage of firms using CSR contracting will develop in the coming years.

Table 1: CSR contracting over time

This table contains the percentages of S&P 500 firms that integrated CSR criteria in their executive compensation plans (CSR contracting) for each year in the period 2002-2020.

Year	% of firms using CSR contracting
2002	4.93
2003	5.34
2004	5.54
2005	6.30
2006	7.64
2007	11.71
2008	21.13
2009	29.16
2010	35.04
2011	46.19
2012	48.47
2013	48.36
2014	40.50
2015	30.52
2016	24.39
2017	23.33
2018	28.95
2019	31.05
2020	29.80
All	26.02

In table 2, the percentage of firms using CSR contracting is shown for the ten different SIC divisions. Four industries stand out in terms of CSR contracting use. More than half of the companies in the Mining industry use CSR contracting and for the Transportation, communications, electric, gas, and sanitary services, and the Manufacturing industries the use of CSR contracting is 40.25% and 25.34%, respectively. In the Agriculture, forestry, and fishing industry, CSR contracting is also more prevalent with 27.78% of the companies, but because there are only 19 firm-year observations of this industry in my sample, from two different companies, the percentage is non-informative. It makes sense that these four industries have a higher percentage of CSR contracting use because they are more emission-intensive. With more emissions, the pressure to make environmental improvements is

higher. As described above, integrating CSR criteria in executive compensation plans could be a governance tool to achieve this. Observing the higher prevalence of CSR contracting in these industries is, therefore, logical. My observations are similar to previous research (Flammer et al., 2019; Qin and Yang, 2022).

Table 2: CSR contracting across industries

This table contains the number and percentages of S&P 500 firms that used CSR contracting for all firm-year observations in the period 2002-2020 across 10 industries based on the two-digit SIC codes.

Industry (two-digit SIC code)	N	% of firms using CSR contracting
Agriculture, forestry, and fishing (01-09)	19	27.78
Mining (10-14)	559	51.19
Construction (15-17)	109	19.79
Manufacturing (20-39)	4062	25.34
Transportation, communications, electric, gas, and sanitary services (40-49)	1325	40.25
Wholesale trade (50-51)	216	14.66
Retail trade (52-59)	743	13.71
Finance, insurance, and real estate (60-67)	1897	20.52
Services (70-89)	1216	20.27
Public administration (91-99)	0	0
All	10146	26.02

3.4.2 Other variables

Table 3 shows the summary statistics of the variables in my dataset.⁸ As noted above, the number of observations among variables differs because of data availability. Looking at the variables that measure firm performance, the means of Tobin's q and ROA are 1.563 and 0.053, respectively. According to Lindenberg and Ross (1981), the observed mean value of Tobin's q higher than one implies that the average firm in my sample has strong growth opportunities. The mean value of ROA implies that every dollar invested in assets generates 5.3 cents of net income. Both mean values are similar to the median value, indicating that the mean values are not heavily influenced by outliers.

The ESG pillar scores show a wide distribution from very low to very high scores. Averages around 50 are therefore expected. The environment pillar score is somewhat lower with a mean of 42.862. The fourth ESG variable, the ratio of CO₂ emissions to total assets has an average of 143.236. Looking at the median value, 28.212, it is clear that the mean value is influenced by observations with high values. Even after winsorizing the CO₂ emissions variable at the 5th and 95th percentiles, the standard deviation is large. The net CSR performance variable has a mean of 1.590, indicating that across the six categories (community, diversity, employee relations, environment, human rights, and product), on average, firms have 1.6 more strengths than concerns every year. Firms have an average of 4.1 strengths across the six categories every year. Looking at the composition of executive

⁸ See table A1 in the appendix for variable definitions.

compensation, I observe that the largest element is stock-based compensation with an average of approximately 36%, followed by cash-based compensation of approximately 21%.

Table 3: Summary statistics

This table contains summary statistics (number of observations (N), mean, median, standard deviation (St. Dev.), minimum (min), maximum (Max)) of the variables used in the main analyses of my thesis. The variables are defined in table A1 in the appendix.

	N	Mean	Median	St. Dev.	Min	Max
CSR_contracting	8894	0.260	0.000	0.439	0.000	1.000
Tobinq	9198	1.563	1.159	1.472	-0.190	23.121
ROA	9984	0.053	0.050	0.097	-2.908	0.620
Env_score	8257	42.862	44.630	28.918	0.000	98.550
CO ₂ _emissions_ta	4672	143.236	28.212	258.488	0.455	982.801
Soc_score	8255	52.426	53.140	22.532	0.260	97.860
Gov_score	8274	56.202	58.205	21.584	0.450	99.430
CSRperf_net	4584	1.590	1.000	3.723	-9.000	18.000
CSRperf_ts	4584	4.139	3.000	3.523	0.000	21.000
Size	8795	9.738	9.628	1.381	5.880	15.035
ROE	8794	0.158	0.141	0.421	-1.869	2.562
Cash	8795	0.128	0.078	0.137	0.000	0.856
Leverage	8795	0.421	0.424	0.218	0.000	3.056
Tot_comp	7153	8.312	8.317	0.648	2.344	11.093
Pc_cash	7153	0.210	0.183	0.121	-0.034	2.304
Pc_stock	7153	0.359	0.352	0.205	-1.944	5.166
Pc_option	7153	0.145	0.121	0.153	-0.458	1.681
Pc_noneq	7153	0.182	0.173	0.133	-1.373	3.422
Pc_oth	7153	0.106	0.075	0.101	-0.088	0.867

Table 4 shows the correlations between the variables used in my research. Overall, the correlation coefficients are moderate but not extreme. This indicates that there is little reason to believe that there is multicollinearity in my dataset. Several extreme values, such as the correlation between the environment pillar score and the social pillar score and the correlation between Tobin's q and ROA are not a reason for concern because the variables will not be used in the same model or the variables will serve a different purpose (i.e., a dependent and an independent variable). Furthermore, the extreme correlation between the net CSR performance score and the CSR performance score proxied by the sum of total strengths makes sense, as the total strengths are part of the input of the net score.

A first look at the possible effects of CSR contracting shows that firms that integrate CSR criteria in executive compensation plans are generally larger, have higher ESG scores, CSR performance and executive compensation, and a lower Tobin's Q and ROA. An interesting observation is that firms that use CSR contracting also generally have higher CO₂ emissions. A possible explanation is that firms in more emission-intensive industries tend to use CSR contracting more often (see table 2).

Table 4: Correlation matrix

This table contains the correlations between the variables used in the main analyses of my thesis. The variables are defined in table A1 in the appendix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) CSR_contracting	1.000									
(2) Tobinq	-0.088 ^α	1.000								
(3) ROA	-0.024 ^γ	0.459 ^α	1.000							
(4) Env_score	0.289 ^α	-0.023 ^β	0.004	1.000						
(5) CO ₂ _emis_ta	0.191 ^α	-0.175 ^α	-0.109 ^α	-0.068 ^α	1.000					
(6) Soc_score	0.237 ^α	0.049 ^α	0.052 ^α	0.751 ^α	-0.184 ^α	1.000				
(7) Gov_score	0.372 ^α	-0.064 ^α	-0.026 ^β	0.405 ^α	0.152 ^α	0.390 ^α	1.000			
(8) CSRperf_net	0.151 ^α	0.055 ^α	0.085 ^α	0.436 ^α	-0.302 ^α	0.408 ^α	0.178 ^α	1.000		
(9) CSRperf_ts	0.269 ^α	-0.030 ^β	0.066 ^α	0.636 ^α	-0.136 ^α	0.587 ^α	0.331 ^α	0.782 ^α	1.000	
(10) Size	0.194 ^α	-0.393 ^α	-0.198 ^α	0.421 ^α	-0.008	0.382 ^α	0.218 ^α	0.160 ^α	0.422 ^α	1.000
(11) ROE	-0.013	0.167 ^α	0.362 ^α	0.055 ^α	-0.051 ^α	0.057 ^α	0.027 ^β	0.091 ^α	0.088 ^α	-0.028 ^α
(12) Cash	-0.069 ^α	0.357 ^α	0.191 ^α	-0.046 ^α	-0.298 ^α	-0.004	-0.066 ^α	0.179 ^α	0.046 ^α	-0.234 ^α
(13) Leverage	0.029 ^α	0.235 ^α	0.054 ^α	0.062 ^α	0.058 ^α	0.087 ^α	0.088 ^α	-0.076 ^α	-0.023	-0.246 ^α
(14) Tot_comp	0.115 ^α	0.005	0.005	0.350 ^α	-0.179 ^α	0.364 ^α	0.095 ^α	0.204 ^α	0.381 ^α	0.491 ^α
(15) Pc_cash	-0.093 ^α	-0.112 ^α	-0.075 ^α	-0.197 ^α	0.015	-0.224 ^α	-0.096 ^α	-0.154 ^α	-0.204 ^α	-0.074 ^α
(16) Pc_stock	0.100 ^α	0.030 ^γ	-0.073 ^α	0.214 ^α	-0.030 ^β	0.215 ^α	0.171 ^α	0.138 ^α	0.145 ^α	0.142 ^α
(17) Pc_option	-0.131 ^α	0.151 ^α	0.091 ^α	-0.174 ^α	-0.155 ^α	-0.109 ^α	-0.167 ^α	-0.008	-0.052 ^α	-0.168 ^α
(18) Pc_noneq	-0.020 ^γ	0.009	0.127 ^α	-0.039 ^α	0.011	-0.002	-0.009	-0.005	-0.042 ^β	-0.053 ^α
(19) Pc_oth	0.122 ^α	-0.163 ^α	-0.072 ^α	0.089 ^α	0.230 ^α	-0.002	0.029 ^β	-0.048 ^α	0.111 ^α	0.128 ^α
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	
(1) CSR_contracting										
(2) Tobinq										
(3) ROA										
(4) Env_score										
(5) CO ₂ _emis_ta										
(6) Soc_score										
(7) Gov_score										
(8) CSRperf_net										
(9) CSRperf_ts										
(10) Size										
(11) ROE	1.000									
(12) Cash	0.023 ^β	1.000								
(13) Leverage	0.040 ^α	-0.083 ^α	1.000							
(14) Tot_comp	0.046 ^α	-0.013	0.016	1.000						
(15) Pc_cash	-0.050 ^α	-0.033 ^α	-0.089 ^α	-0.501 ^α	1.000					
(16) Pc_stock	-0.008	0.078 ^α	0.047 ^α	0.266 ^α	-0.248 ^α	1.000				
(17) Pc_option	-0.008	0.090 ^α	-0.012	-0.021 ^γ	-0.020 ^γ	-0.528 ^α	1.000			
(18) Pc_noneq	0.059 ^α	-0.036 ^α	0.015	0.050 ^α	-0.234 ^α	-0.190 ^α	-0.102 ^α	1.000		
(19) Pc_oth	0.006	-0.221 ^α	0.014	0.017	-0.059 ^α	-0.296 ^α	-0.112 ^α	-0.088 ^α	1.000	

Note: CO₂_emis_ta = CO₂_emissions_ta. γ, β and α denote significance at the 10%, 5% and 1% levels.⁹

4. Methodology

4.1 Fixed effects regressions

4.1.1 Fixed effects regression model

To study the effect of the adoption of CSR contracting on firm and ESG performance at the firm level, I followed the empirical methodology by Flammer et al. (2019). I used the following regression model

$$y_{it} = \alpha_i + \alpha_t + \beta \times CSRcontracting_{it-1} + \gamma'X_{it-1} + \varepsilon_{it} \quad (1)$$

⁹ For the reason of formatting, I have chosen to use γ, β and α to denote significance. In the remainder of my thesis, I will use the more common *, ** and *** to denote significance.

where y is the dependent variable of interest, i indexes firms, t indexes years, α_i are firm fixed effects, α_t are year fixed effects, $CSRcontracting$ is a binary variable that indicates whether or not a firm has integrated CSR criteria in its executives' compensation plans, X is the vector of control variables, and ε is the error term. Both the variable on CSR contracting and the control variables are lagged by one year. This makes sense because the adoption of CSR contracting in a given year is very unlikely to have an immediate impact in the same year. For example, Flammer (2015a) shows that the adoption of shareholder CSR proposals does not have a significant effect on firm performance in the year of the adoption. The significant effect only starts from the year after the adoption of a shareholder CSR proposal. The effect of CSR contracting is studied through β , the coefficient that shows the change in y following the integration of CSR criteria in executive compensation plans. In a given industry, certain circumstances can cause dependence across firms. Khan et al. (2016) observe that environmental issues tend to be more material for nonrenewable resources and transportation sectors. Governance and product-related issues are more material for the financial sector. Adopting CSR contracting could therefore have a different impact on firms from different industries. To control for this issue, I cluster the standard errors at the two-digit Standard Industrial Classification (SIC) code industry level (Occupational Safety and Health Administration (OSHA), n.d.).

Compared to a basic regression model, several specifications in equation 1 address potential problems that can lead to a biased estimate. The first problem is the possibility that there are time-invariant firm characteristics that may affect CSR contracting or the dependent variable of interest. The second problem is that there could be economy-wide factors that could affect both CSR contracting and the dependent variable of interest (Flammer et al., 2019). To account for both problems, I include firm and year fixed effects. The third problem is the possibility that the findings are driven by omitted variables. For example, a firm with larger cash holdings might be more likely to adopt CSR contracting because it can more easily afford to commit resources to social and environmental initiatives. At the same time, because there is more cash available to invest, it could be that the firm invests more in CO₂-reducing initiatives. Following the same reasoning, a more profitable firm can also have an influence on the independent and dependent variables. To prevent the β from being biased and inconsistent, control variables are included.

4.1.2 Endogeneity problem

The inclusion of fixed effects and control variables in equation 1 addresses several potential problems. However, they do not rule out that CSR contracting is correlated with the error term. If this is the case, CSR contracting is endogenous (Wooldridge, 2002). Endogeneity is a major problem, as it leads β to be biased and inconsistent. To get a more consistent estimate of β , an instrumental variable is needed for CSR contracting. An instrumental variable needs to satisfy two conditions (Wooldridge,

2002). First, the instrument needs to be correlated with the endogenous variable. This relevance condition can easily be tested. Second, the instrumental variable cannot be related to the dependent variable of interest. This exclusion restriction cannot be tested and is only defensible using economic reasoning. Thus, coming up with a strong instrumental variable is difficult. I describe the chosen instrumental variable and the empirical approach to using this variable in the next section.

4.2 Two-stage least squares (2SLS) regressions

4.2.1 The instrumental variable: constituency statutes

The instrumental variable that I use is the enactment of constituency statutes. I followed related CSR literature that also use this instrumental variable (e.g., Flammer, 2018; Flammer et al., 2019; Qin & Yang, 2022). Constituency statutes give corporate directors the permission to consider the interests of a variety of stakeholders when making corporate decisions (Springer, 1999). The variety of stakeholders consists of, among others, customers, creditors, corporate employees, suppliers, the environment, and local communities (Orts, 1992). Without the enactment of a constituency statute, executives were forced to act in the interests of only the shareholders. The first corporate constituency statute was enacted in 1983 in Pennsylvania (McDonnell, 2004). Ever since, the statutes have been quite different and vague. For different states, different groups of stakeholders are included. Furthermore, it is often not clear how directors should weigh the interests of the various groups.

To date, 35 states in the US have enacted constituency statutes (Karpoff & Wittry, 2018).¹⁰ Even though the statutes are state-specific, it always comes down to the importance of considering the interests of non-shareholder stakeholders. The enactment of constituency statutes, therefore, gives directors the possibility, not the obligation, to make decisions that are not only focused on the shareholders. Since executives are not obligated to make decisions that are in the interest of nonfinancial stakeholders, I can argue that the instrumental variable is not related to the dependent variables of interest. Flammer et al. (2019) suggest that “because the enactment of the statutes does not reflect any firm’s strategic decisions, such “treatments” offer plausibly exogenous variation in a firm’s propensity to use CSR criteria in executive compensation” (p. 1111).

Two US states, Texas in 2006 and Nebraska in 2007, adopted a constituency statute during the sample period. I can therefore use these two legislations in a 2SLS regression model to estimate the impact of CSR contracting on the various dependent variables of interest.

¹⁰ See table A1 in the internet appendix of Cremers et al. (2018) for an overview of the US states that have enacted constituency statutes. Figure A1 in the internet appendix shows a graphical overview of the US states that have enacted constituency statutes.

4.2.2 2SLS model

In the first stage of the 2SLS approach, I regressed CSR contracting on the enactment of constituency statutes. Following Flammer et al. (2019), I estimated the following regression:

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

where *CSRcontracting* is a binary variable that indicates whether or not a firm has integrated CSR criteria in its executive compensation plans, a_i and a_t are firm and year fixed effects, X is the vector of control variables, and e is the error term. The *constituency statute* variable is a binary variable that is equal to one if a firm is headquartered in a state that has enacted a constituency statute by year t , and zero otherwise. The standard errors are clustered at the state of companies' headquarters level. I collected the data on the states of companies' headquarters from the Compustat North America Fundamentals Annual database. The resulting predicted values from the first-stage regression give the exogenous component of CSR contracting. Then, I can use these predicted values instead of the normal CSR contracting variable to re-estimate equation 1.

For the second stage of the 2SLS approach I estimated the following regression (following Flammer et al., 2019):

$$y_{it} = \alpha_i + \alpha_t + \beta_{2sls} \times CSRcontracting\ (instrumented)_{it-1} + \gamma'X_{it-1} + \varepsilon_{it} \quad (3)$$

where *CSRcontracting (instrumented)* are the predicted values of the first-stage regression. All other variables are the same as in equation 1. Standard errors are clustered at the two-digit SIC code industry level. The effect of CSR contracting on the dependent variables of interest is examined through the coefficient β_{2sls} . Compared to β from equation 1, β_{2sls} gives a more consistent estimate of the effect of CSR contracting on the dependent variables of interest.

4.3 Robustness tests

I performed several robustness tests to validate my results. First, I re-estimated the regression models using state-by-year fixed effects. Firm and year fixed effects address the possibility that time-invariant firm characteristics and economy-wide factors could affect both CSR contracting and the dependent variable of interest. Similarly, state-by-year fixed effects are included to account for the possibility that regional trends affect both CSR contracting and the dependent variable of interest. State is defined as the state of a company's headquarters.

Second, I used two different CO₂ emission measures. In my main analysis, I used the ratio of CO₂ emissions to the book value of total assets, following Flammer (2021). The standardization on total

assets is necessary as it is expected that larger firms have more CO₂ emissions. However, this is still not a fully reliable measure as firms from different industries are either more or less likely to have large emissions. For example, looking at the industries as defined by the two-digit SIC codes, firms in the Mining or Transportation industries are more likely to have larger CO₂ emissions than firms in the Retail trade or Finance industries. This means that a small firm in the Mining industry could still have a very high value for the CO₂ emissions variable that is standardized by total assets. Consequently, the values of the CO₂ emissions variable used can become very large or very low, even with standardization. To test the robustness of the results that I found on the impact of the use of CSR contracting on CO₂ emissions, I used two other CO₂ emissions measures. These are the natural logarithm of CO₂ emissions and the ratio of CO₂ emissions to total revenue.¹¹

Third, I used a different governance score measure. In my main analysis, I used the 'Governance Pillar Score' variable from the Thomson Reuters ESG Scores Database. Because the governance pillar score consists of many inputs it is not straightforward to interpret. To get a clearer view of the effect of CSR contracting on governance performance, I use a CSR performance measure from the MSCI ESG STATS database. This database consists of Kinder, Lydenberg, and Domini (KLD) scores on the total strengths and weaknesses of a firm in seven categories: community, corporate governance, diversity, employee relations, environment, human rights, and product. Each category has a specific number of strengths and weaknesses. Based on data from a variety of company, government, non-government organizations, and media sources, when a strength or weakness is found in the firm it is given a value of 1, and 0 otherwise (Maas, 2018). Following Servaes and Tamayo (2013) I exclude the corporate governance score from my sample as it deals with shareholder issues (Shleifer & Vishny, 1997), while CSR deals with non-shareholder objectives and social issues. Following Di Giuli and Kostovetsky (2014) and Qin and Yang (2022), I summed across the categories to calculate the CSR performance score. I subtracted the total amount of concerns from the total amount of strengths to get the CSR performance score for a certain year.¹² Flammer (2015b) and Kacperczyk (2009) raise concerns about using such a 'net' KLD index. They argue that KLD strengths and concerns lack convergent validity, meaning that the strengths and concerns on a certain variable are not as much related as they should be. Then, using the strengths and weaknesses together leads to an invalid measure of CSR performance. I, therefore, also use the sum of strengths as another proxy for a firm's governance performance.

¹¹ In my empirical analysis, I use a winsorized variable of the ratio of CO₂ emissions to total revenue at the 10th and 90th percentiles to mitigate the impact of outliers.

¹² The total number of strengths and weaknesses for the six categories included in my sample is only available until the year 2013. Thus, for studying the effect of adopting CSR contracting on agency problems, the sample will cover fewer years.

Fourth, I re-estimated the fixed effects regression model using the constituency statutes as a dummy variable. The enactment of constituency statutes allows directors to consider the interests of a variety of stakeholders when making corporate decisions. Instead of only having to focus on the shareholders, executives can now also make decisions in the interest of, for example, employees or the environment. The enactment of constituency statutes can, following increased attention on non-shareholder stakeholders, lead to more firms adopting CSR contracting or to improved ESG performance. The enactment of constituency statutes can thus be an omitted variable that needs to be included in the regression model.

Fifth, I excluded firms that are incorporated in Delaware from the sample. Delaware is an attractive state to be incorporated because of its unique rules, courts precedents, and the political economy (Daines, 2001). This is shown by the fact that both at the beginning and the end of my sample, around 60% of all firms in the US are incorporated in Delaware (Bebchuk & Cohen, 2003; Bullock, 2021). Delaware has not introduced a constituency statute. Therefore, if firms in Delaware become less focused on CSR initiatives over time, my results could be biased. Instead of seeing a result that reflects all firms, it would just be a Delaware effect. To address this concern, I re-estimated the regression models excluding firms incorporated in Delaware. I collected data on the states of incorporation from the Compustat Fundamentals Annual database.

4.4 Additional analyses

4.4.1 Long-term effects

In my main analysis, I examined the effect of integrating CSR criteria in executive compensation plans on several firm financial and ESG performance measures one year later. The literature on the effect of CSR initiatives on firm performance has shown that the benefits are more pronounced in the longer run. For example, Edmans (2011) shows that more employee satisfaction leads to higher stock returns. He finds that the cumulative abnormal returns keep growing through month 54. Also, Cavaco et al. (2020) find that CSR contracting has a negative impact on financial performance. However, when firms have a stakeholder governance model, which has a longer-term orientation, CSR contracting is no longer associated with lower financial performance. Lastly, Henisz et al. (2014) show that more stakeholder engagement pays off in the long run. The authors find that more stakeholder support leads to a higher financial valuation of a firm.

To look at the long-term effects of integrating CSR criteria in executive compensation plans, I re-estimated my regression models, both the fixed effects and the 2SLS model, with the outcome variables at t , $t+1$, $t+2$, and $t+4$. Because CSR contracting is measured at $t-1$, I studied the effect of CSR contracting 1, 2, 3, and 5 years after adopting CSR contracting. I examined the long-term effects on all dependent variables.

4.4.2 Cross-sectional heterogeneity: High vs. low-polluting industries

In my main analysis, I did not make a distinction between high and low-polluting firms. Based on the hypothesis that CSR contracting improves ESG performance, it is interesting to deep-dive into the heterogeneity of the effects between firms in high and low-polluting industries. Forming hypotheses about the different outcomes is not that straightforward. One can argue that the impact of the integration of CSR initiatives in executive compensation for firms in emission-intensive industries is stronger, as those firms have more potential to improve ESG performance. On the other hand, it might be harder for executives in emission-intensives industries to implement ESG-improving initiatives as emissions are more closely linked to the main business operations of the firms. This implies that a higher percentage of profits could be at risk when these firms implement ESG-related initiatives.

The US Environmental Protection Agency (2022a) shows that the transportation, electric power and industry sectors are the largest sources of US greenhouse gas emissions in 2020.¹³ Looking at the years 1990 to 2020, the same industries are shown to be the most polluting. Apart from CO₂, these statistics also include other greenhouse gasses like methane, nitrous oxide, and fluorinated gases. But, because CO₂ makes up approximately 80% of the total greenhouse gas emissions, I can use these findings and compare them to my CO₂ emissions data. Table A2 in the appendix shows the average values of the three CO₂ emission variables I use in my thesis. Across the three variables, the high and low-polluting industries are similar. The three most polluting industries are Agriculture, Mining, and Transportation and the three least polluting industries are Construction, Wholesale trade, and Finance. Looking at the most polluting industries, my data coincides with the statistics from the US Environmental Protection Agency.

To look at the cross-sectional heterogeneity between high and low-polluting industries, I ran my regressions including either only the three most polluting or the three least polluting industries. I examined the cross-sectional heterogeneity for the ESG-related dependent variables.

¹³ The transportation sector's greenhouse gas emissions come mostly from burning fossil fuel for cars, trucks, ships, trains, and planes (US Environmental Protection Agency, 2022b). The electricity power sector has such a large share of greenhouse gas emissions because approximately 60% of electricity is generated through burning fossil fuels. The industry sector emissions also come mostly from burning fossil fuels to generate energy. Chemical reactions are also a large source of greenhouse gas emissions in the industry sector.

5. Empirical results

5.1 Fixed effects regressions

5.1.1 Financial performance

Looking at the correlation between the first lag of CSR contracting and both Tobin's q and ROA gives a first indication of the relationship between the variables. Both correlations are small and negative, and significant at the 1% level (see table A3 in the appendix). This indicates that the use of CSR contracting negatively influences financial performance. However, not a lot of value should be placed on this finding because there are likely many variables that drive the relationships. To address this, I conduct a regression with the control variables, as described in section 3.3, added to the model. The results of the ordinary least squares (OLS) regressions in table 5 show that the concern of omitted variables was right. Adding the control variables decreases the effect of CSR contracting on both Tobin's q and ROA. I still observe a small negative association between CSR contracting and Tobin's q, but no effect on ROA. Also, both coefficients are not statistically significant and can therefore not be interpreted. Another interesting finding is that larger firms, on average, have worse firm financial performance. Both Tobin's q and ROA are negatively associated with firm size. This indicates that larger firms have weaker growth opportunities and are less effective in converting invested money into net income (Lindenberg & Ross, 1981). I also observe that firms that have more cash and firms that are leveraged more perform better financially.

Table 5: OLS regressions: The impact of CSR contracting on firm financial performance

This table contains two OLS regressions. The impact of the use of CSR contracting (the independent variable) on the firm financial performance variables Tobin's q and ROA (the dependent variables) is measured. The control variables are Size, ROA, ROE, Cash, Leverage, Tot_comp, Pc_cash, Pc_stock, Pc_option, and Pc_noneq. The variables are defined in table A1 in the appendix.

Dependent variable:	Tobinq	ROA
CSR_contracting	-0.036 (0.064)	0.000 (0.003)
Size	-0.276*** (0.044)	-0.013*** (0.002)
ROA	6.309*** (1.262)	-
ROE	-0.014 (0.060)	0.033*** (0.005)
Cash	2.307*** (0.473)	0.147*** (0.018)
Leverage	1.274*** (0.210)	0.029** (0.012)
Tot_comp	0.218** (0.096)	0.0148*** (0.005)
Pc_cash	-0.288 (0.355)	-0.009 (0.016)
Pc_stock	0.729*** (0.146)	-0.026*** (0.009)

Pc_option	0.951** (0.393)	0.004 (0.016)
Pc_noneq	-0.402 (0.338)	0.046*** (0.014)
Firm FE	No	No
Year FE	No	No
R ²	0.374	0.161
Observations	7005	7005

Note: All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

The addition of control variables addresses the problem of possible omitted variables. There are, however, still two more problems that should be addressed. First, in certain years, there could be economy-wide factors that could affect both CSR contracting and the outcome variables, for example, the financial crisis of 2008. Second, there could be time-invariant firm characteristics that affect CSR contracting or the outcome variables. I include year fixed effects to tackle the first problem and firm fixed effects to tackle the second problem. Columns 1 and 3 in table 6 show the impact of CSR contracting on financial performance including year fixed effects. A notable difference to table 5 is that the impact of CSR contracting on Tobin's q has an even lower magnitude. The impact on both Tobin's q and ROA is still insignificant. In columns 2 and 4 I also add firm fixed effects to get the full model as shown in equation 1. The CSR contracting coefficients, again, indicate that there is a small negative association between the use of CSR contracting and both firm value (proxied by Tobin's Q) and ROA. Both coefficients are, however, not statistically significant. Furthermore, the coefficient of ROA is very small, showing that in the year after using CSR contracting, there is very little impact on firm performance. I, therefore, do not find evidence in favor of the first and second hypotheses. Looking at related literature, Flammer et al. (2019) find, for a sample from 2002 to 2013, a small significant positive effect on firm value of approximately 3.1% and find no effect on ROA. Cavaco et al. (2020) even find a negative effect on firm performance, measured by ROA and ROE.

The insignificant coefficients of CSR contracting in table 6 could be explained by the finding that CSR initiatives do not often pay off in the short run. Instead, it takes some time before the results are seen. For example, Flammer (2015a) shows that adopting shareholder CSR proposals does not lead to an increase in ROA in the year of the meeting, but it does in the years thereafter. Eccles et al. (2014) find a similar long-term performance improvement. They show that firms that had voluntarily adopted sustainability policies significantly outperform firms that had adopted few or no sustainability policies, in the long run.

Table 6: OLS and fixed effects regressions: The impact of CSR contracting on firm financial performance

This table contains the same regressions as in table 5 but adds year fixed effects in columns 1 and 3 and both year and firm fixed effects in columns 2 and 4. The dependent, independent, and control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	Tobinq		ROA	
	(1)	(2)	(3)	(4)
CSR_contracting	-0.013 (0.062)	-0.023 (0.024)	-0.001 (0.003)	-0.002 (0.003)
Size	-0.318*** (0.048)	-0.389*** (0.012)	-0.013*** (0.002)	-0.043*** (0.006)
ROA	6.171*** (1.102)	1.883** (0.798)	-	-
ROE	-0.032 (0.057)	0.080 (0.052)	0.033*** (0.005)	0.013*** (0.004)
Cash	2.330*** (0.451)	0.456 (0.395)	0.143*** (0.018)	0.045* (0.027)
Leverage	0.975*** (0.205)	1.463*** (0.467)	0.026** (0.012)	0.041** (0.019)
Tot_comp	0.180** (0.086)	0.254*** (0.066)	0.014*** (0.004)	0.023*** (0.006)
Pc_cash	-0.219 (0.223)	0.122 (0.159)	-0.010 (0.014)	0.027 (0.019)
Pc_stock	0.148 (0.170)	-0.059 (0.081)	-0.035*** (0.009)	-0.029*** (0.006)
Pc_option	1.184*** (0.334)	0.200 (0.221)	0.009 (0.014)	-0.024* (0.014)
Pc_noneq	-0.475** (0.215)	0.001 (0.119)	0.041*** (0.013)	0.043*** (0.010)
Firm FE	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes
R ²	0.448	0.815	0.180	0.482
Observations	7005	7005	7005	7005

Note: All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

5.1.2 ESG performance

Looking at the correlations between the first lag of CSR contracting and the ESG performance variables, I observe moderate, but not extreme, values that are all significant at the 1% level (see table A3 in the appendix). The three pillar scores have the expected sign. The correlation is positive, indicating that the use of CSR contracting increases the ESG scores. The correlation between the first lag of CSR contracting and CO₂ emissions is not in line with the expectation. The positive correlation implies that the use of CSR contracting leads to more CO₂ emissions. A possible explanation is that CSR contracting is predominantly used by firms in emission-intensive industries (see table 2).

Table 7 shows the results of OLS regressions with the control variables included. Similar to the correlation values, the three pillar scores have the expected sign and are all significant at the 1% level.

The use of CSR contracting leads, on average, to an increase in the environmental score of almost eight points. Looking at the average value of the environmental score, this is an increase of 18.62%.¹⁴ The social score increases, on average, by 3.695 points and the governance score by approximately 10.358 points following the adoption of CSR contracting. The sign of the relationship between CSR contracting and CO₂ emissions is, again, not in line with the expectation. The use of CSR contracting leads, on average, to an increase in CO₂ emissions of approximately 88.743, which is a very large increase looking at the average value of 143.236. It means that CO₂ emissions, based on the mean value, increase by approximately 66.96% after the adoption of CSR contracting. Another interesting finding is that larger and better-performing firms tend to have better ESG scores.

Table 7: OLS regressions: The impact of CSR contracting on ESG performance

This table contains four OLS regressions. The impact of the use of CSR contracting (the independent variable) on the ESG performance variables environment score, CO₂ emissions, social score, and governance score (the dependent variables) is measured. The control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	Env_score	CO ₂ _emissions_ta	Soc_score	Gov_score
CSR_contracting	7.983*** (1.666)	88.743*** (32.225)	3.695*** (1.218)	10.358*** (1.005)
Size	7.286*** (1.056)	13.108 (18.091)	5.169*** (0.708)	3.840*** (0.450)
ROA	23.872*** (8.710)	-52.301 (93.119)	26.940*** (6.476)	7.016 (6.040)
ROE	2.115 (1.325)	-9.204 (9.929)	1.297 (0.945)	0.724 (0.645)
Cash	8.286 (9.349)	-459.650*** (167.048)	10.339 (6.408)	-0.750 (4.687)
Leverage	17.683*** (5.590)	57.662 (78.503)	15.423*** (3.962)	12.579*** (3.115)
Tot_comp	4.138** (1.905)	-101.870 (63.465)	3.695** (1.622)	-3.673*** (1.351)
Pc_cash	-20.885*** (7.406)	-213.987* (113.897)	-13.394*** (4.217)	-18.771*** (5.704)
Pc_stock	6.518 (4.547)	-62.651 (62.779)	11.576*** (3.131)	8.894*** (2.279)
Pc_option	-10.437 (7.516)	-201.733 (140.974)	2.611 (3.563)	-6.952** (3.293)
Pc_noneq	-8.590 (5.927)	-15.654 (71.781)	0.826 (4.028)	-2.018 (3.577)
Firm FE	No	No	No	No
Year FE	No	No	No	No
R ²	0.2553	0.1648	0.2342	0.1514
Observations	6541	4301	6539	6549

Note: All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

¹⁴ For the average values, please refer to table 3 in section 3.4.2 which presents the summary statistics of the variables used in my thesis.

In table 8 I add year fixed effects to the regression. This addition to the regression model only has a very small influence on the CSR contracting coefficients. The signs and significance remain the same, only the magnitude of the coefficients increased slightly. The R^2 values also increased. However, the increase is fairly small, indicating that the problem of the possible existence of economy-wide factors that could affect both CSR contracting and the dependent variable of interest is not very relevant. In table 9 I also add firm fixed effects to the regression model to get the full fixed effects regression model as shown in equation 1. The addition of firm fixed effects changes the CSR contracting coefficients drastically. The coefficient of the environmental score is much lower at only 0.468, indicating that the adoption of CSR contracting leads to an increase in the score of about 1.09%, compared to the mean value. Contrary to the previous regression models, the coefficient on CO₂ emissions now has the expected sign. The use of CSR contracting decreases emissions by about 1.463 points, which is a very small decrease since the average is 143.236. The signs of the coefficients support hypotheses 3 and 4, but the coefficients are not statistically significant. I, therefore, do not find evidence in favor of the third and fourth hypotheses.

My results correspond to previous literature. Cavaco et al. (2020) also find a positive impact on the environment score, while Flammer et al. (2019) also find a decrease in CO₂ emissions after the adoption of CSR contracting. Looking at environmental performance more generally, Derchi et al. (2021) find an improvement in environmental performance through an increase in environmental strengths and a decrease in environmental concerns after the adoption of CSR contracting. This implies a better environmental performance, coinciding with my findings.

Column 3 in table 9 shows the impact of the use of CSR contracting on the social pillar score. I find a small significant positive increase, with a coefficient of 1.011. This indicates that the use of CSR contracting increases the social score by 1.011, which is a 1.93% increase based on the average score of 52.426. This finding provides evidence in favor of the fifth hypothesis. My findings fit the view that was formed through previous research. Specifically on CSR contracting, Tsang et al. (2021) found that integrating CSR criteria in executive compensation contracts leads to improvements in employee well-being and Cavaco et al. (2020) observed an improvement in the relationship with customers and suppliers, more community involvement, and more attention to human rights. More generally, De Roeck et al. (2014) find that the implementation of CSR initiatives leads to improved employee job satisfaction and a better relationship between employees and their organization.

The last column in table 9 shows that the use of CSR contracting is associated with an increase in the governance score of 4.811 points. This is quite a large increase, looking at the average score of 56.202. The coefficient is statistically significant at the 1% level. I, therefore, find evidence in favor of hypothesis 6. My findings coincide with prior literature. Where I find a general improvement in the governance score, Li and Thibodeau (2019) found that CSR contracting reduces the incentives of

executives to manage earnings, implying better governance. Furthermore, Qin and Yang (2022) find that firms using CSR contracting get enhanced shareholder support, which indicates a better-governed firm.

Table 8: OLS Regressions: The impact of CSR contracting on ESG performance

This table contains the same regressions as in table 7 but adds year fixed effects to the regression model. The dependent and independent variables are described in table 7 and the control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	Env_score	CO ₂ _emissions_ta	Soc_score	Gov_score
CSR_contracting	8.139*** (1.559)	91.067*** (33.894)	4.722*** (1.203)	11.479*** (1.017)
Size	7.013*** (1.043)	13.862 (18.014)	4.772*** (0.689)	3.554*** (0.047)
ROA	22.532** (8.840)	-28.772 (86.501)	25.477*** (6.285)	6.431 (5.917)
ROE	2.197 (1.330)	-11.208 (10.550)	1.227 (0.919)	0.653 (0.567)
Cash	8.127 (9.432)	-456.864*** (161.182)	10.720* (6.112)	0.014 (4.863)
Leverage	14.871** (5.754)	82.260 (84.849)	11.796*** (3.720)	10.236*** (3.083)
Tot_comp	3.794** (1.862)	-97.577 (59.892)	3.238** (1.486)	-3.958*** (1.356)
Pc_cash	-21.103** (8.355)	-219.601* (109.454)	-13.285*** (4.522)	-18.350*** (6.370)
Pc_stock	1.225 (5.210)	-20.612 (53.655)	5.474 (3.792)	5.126** (2.040)
Pc_option	-8.324 (8.466)	-239.799 (150.935)	4.695 (3.847)	-5.907* (3.235)
Pc_noneq	-9.267 (6.807)	-7.050 (69.817)	-0.035 (3.840)	-2.772 (4.173)
Firm FE	No	No	No	No
Year FE	Yes	Yes	Yes	Yes
R ²	0.280	0.1847	0.2851	0.1746
Observations	6541	4301	6539	6549

Note: All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

Table 9: Fixed effects regressions: The impact of CSR contracting on ESG performance

This table contains the same regressions as in table 8 but adds firm fixed effects to the regression model. The dependent and independent are described in table 7 and the control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	Env_score	CO ₂ _emissions_ta	Soc_score	Gov_score
CSR_contracting	0.468 (0.627)	-1.463 (2.353)	1.011** (0.493)	4.811*** (0.768)
Size	7.171*** (1.833)	-24.506*** (8.738)	5.049*** (1.425)	2.395* (1.511)
ROA	6.974 (4.584)	-34.738 (26.060)	2.428 (3.644)	2.052 (3.034)

ROE	-0.096 (0.544)	4.667 (3.032)	0.191 (0.334)	-0.086 (0.579)
Cash	2.578 (5.097)	-16.885 (25.712)	9.613*** (3.341)	6.754 (5.153)
Leverage	1.257 (4.526)	9.786 (61.102)	0.918 (3.413)	2.483 (3.284)
Tot_comp	0.365 (1.078)	1.608 (4.133)	-0.272 (0.631)	-1.227 (0.872)
Pc_cash	0.502 (3.015)	0.603 (18.320)	2.248 (1.637)	-6.646** (3.152)
Pc_stock	3.960*** (3.960)	3.849 (8.901)	2.385*** (0.850)	3.228** (1.509)
Pc_option	5.075* (2.817)	-50.093** (25.643)	-0.654 (1.745)	-3.124 (2.659)
Pc_noneq	-0.851 (1.825)	0.088 (11.332)	1.909 (1.256)	0.379 (2.662)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
R ²	0.820	0.944	0.8172	0.619
Observations	6541	4301	6539	6549

Note: All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

As explained in section 3.2, the ESG scores are constructed based on a large set of data points. These data points serve as inputs for KPIs that together determine the environmental, social, and governance pillar scores. Such a rich input for a score makes it an accepted measure, and is, therefore, widely used in ESG research (e.g., Halbritter & Dorfleitner, 2015; Velte, 2017; Flammer, 2021). However, the Refinitiv ESG scores are disputed, for two reasons.

First, there is a significant divergence between the ESG ratings that different agencies offer. This does not necessarily mean that the Refinitiv scores are faulty. It does, however, mean that the results and findings can differ when using different databases. Berg et al. (2022) find that the divergence of ESG ratings between six prominent rating agencies is partly caused by differences in what should be measured. This makes sense, as there is a variety of opinions on which categories should be included in which ratings. But, the main reason for the divergence in scores is the difference in how the scores are measured. This can be a problem because ESG ratings should be based on objective observations.

Second, a recent paper by Berg et al. (2021) observes large ESG scores changes in the Refinitiv database. The authors compare two versions of the same data for identical firm years, downloaded at two different points in time. The September 2020 scores are 18% lower than the initial scores from September 2018. It can be argued that this is caused by the announced score rewriting on April 6, 2020. However, Berg et al. (2021) also find that there is ongoing, unannounced, data rewriting. For example, they find that in the period between February 9 and March 23, 2021, there were again score

rewritings for ESG data in a sample for the years 2011 to 2017. Even though these changes were small in magnitude, they affected 86% of historical ESG scores. The ongoing changes in ESG scores make my findings less reliable because the outcomes that I find can differ depending on the day I collected the data.

5.2 2SLS regressions

The fixed effects regressions give an indication of the influence of CSR contracting on firm financial and ESG performance. However, as described in sections 4.1.1 and 4.1.2, there is potential endogeneity of CSR contracting with respect to the dependent variables of interest on firm financial and ESG performance. To address this problem, I include control variables and firm and year fixed effects in my regression models. While this is a step towards addressing endogeneity, it does not rule it out completely. To further tackle the endogeneity problem, I use a 2SLS approach. The instrumental variable I use is the enactment of constituency statutes. In the following, I will first show the first-stage regression, and then the second-stage regressions that provide more information about the influence of CSR contracting on firm financial and ESG performance.

5.2.1 First-stage regression

Table 10 shows the first-stage regression of the 2SLS approach. The coefficient of the constituency statute variable indicates that the enactment of constituency statutes leads to an increase in the use of CSR contracting. Firms that are headquartered in states that have enacted constituency statutes are, on average, 54.9% more likely to integrate CSR criteria in their executive compensation plans. As described in section 4.2.1, an instrumental variable needs to satisfy two conditions (Wooldridge, 2002). The relevance condition, which requires the instrument to be correlated with the endogenous variable, seems to be satisfied because the enactment of constituency statutes is a strong predictor of the use of CSR contracting. The exclusion restriction, which indicates that the instrumental variable cannot be related to the dependent variable of interest, cannot be tested. It is, therefore, difficult to be sure that this second condition is satisfied. Looking at the dependent variables I use to test my hypotheses, I can assume, with some caution, that the exclusion restriction is satisfied for the instrumental variable. However, because I cannot be sure about this, I still need to be careful interpreting my results.

Table 10: 2SLS: First-stage regression: The impact of the enactment of constituency statutes on CSR contracting

This table contains the first-stage regression of the 2SLS regression model. This first-stage regression measures the impact of the instrumental variable, the enactment of constituency statutes (the independent variable), on the endogenous variable, CSR contracting (the dependent variable). The control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	CSR_contracting
Constituency_statute	0.549*** (0.026)
Size	0.047** (0.017)
ROA	-0.117 (0.071)
ROE	0.003 (0.008)
Cash	-0.101 (0.071)
Leverage	0.065 (0.087)
Tot_comp	-0.016 (0.016)
Pc_cash	-0.085 (0.075)
Pc_stock	0.042 (0.032)
Pc_option	-0.086 (0.057)
Pc_noneq	-0.056 (0.037)
Firm FE	Yes
Year FE	Yes
R2	0.516
Observations	7126

Note: Standard errors are clustered at the state of companies' headquarters level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

5.2.2 Second-stage regressions

Table 11 shows the second-stage regressions. As can be seen, the magnitudes of the coefficients of CSR contracting are extreme compared to the fixed effects regressions. Apart from this, several inferences can be made from the outcomes. Looking at the financial performance, I observe that the use of CSR contracting leads to an improvement in firm value (as proxied by Tobin's q). This is different compared to the fixed effects regressions, where I did not find a significant result. The relationship between CSR contracting and ROA is still not statistically significant. These findings support hypothesis 1, but not hypothesis 2. Looking at the ESG performance, only the relationship between CSR contracting and the social score has a similar sign and significance compared to the fixed effects regressions. Adopting CSR contracting leads to an improvement in the social score. But, it does not lead to an improvement in the governance score. The negative coefficient implies that CSR

contracting lowers the governance score. However, because the coefficient is not statistically significant, it cannot be interpreted. The fixed effects regressions on the environmental performance did not show significant coefficients. Using the 2SLS approach, I do find significant results. While the coefficient on CO₂ emissions is in line with the expectation, the use of CSR contracting significantly reduces the CO₂ emissions, the coefficient on the environmental score is not. The statistically significant negative coefficient implies that the use of CSR contracting leads to a lower environmental score. Overall, the evidence favors hypotheses 4 and 5. Hypotheses 3 and 6 are not supported by the findings.

Table 11: 2SLS: Second-stage regressions: The impact of CSR contracting on firm financial and ESG performance

This table contains the second-stage regressions of the 2SLS regression model. The impact of the instrumented CSR contracting variable on the firm financial and ESG performance variables (Tobin's q, ROA, environment score, CO₂ emissions, social score, governance score (the dependent variables)) is measured. The independent variable is the instrumented CSR contracting variable. The instrumented CSR contracting values are the predicted values of the first-stage regression. The control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent Variable:	Tobinq	ROA	Env_score	CO ₂ _emis_ta	Soc_score	Gov_score
CSR_contracting (Instrumented)	1.080*** (0.139)	-0.798 (0.516)	-28.109*** (2.393)	-503.793** (229.030)	18.176*** (2.103)	-2.786 (2.534)
Size	-0.432*** (0.125)	-0.003 (0.026)	8.505*** (1.871)	-1.192 (11.033)	4.252*** (1.453)	2.704* (1.582)
ROA	2.013** (0.788)	-	3.666 (4.511)	-93.760** (36.869)	4.423 (3.566)	1.160 (3.018)
ROE	0.083* (0.049)	0.010*** (0.003)	-0.014 (0.542)	5.977* (3.292)	0.155 (0.329)	-0.085 (0.581)
Cash	0.567 (0.391)	-0.041 (0.063)	-0.337 (5.075)	-67.726* (39.876)	11.327*** (3.324)	6.090 (4.939)
Leverage	1.364*** (0.488)	0.097** (0.044)	3.121 (4.509)	42.282 (72.439)	-0.189 (3.386)	3.027 (3.208)
Tot_comp	0.272*** (0.066)	0.007 (0.011)	-0.115 (1.079)	-6.612 (5.447)	0.017 (0.637)	-1.341 (0.882)
Pc_cash	0.220 (0.167)	-0.046 (0.046)	-2.000 (3.094)	-42.033 (29.855)	3.767** (1.667)	-7.285** (3.201)
Pc_stock	-0.114 (0.080)	0.007 (0.024)	5.152*** (1.330)	24.903 (16.901)	1.645* (0.846)	3.545** (1.488)
Pc_option	0.289 (0.225)	-0.090* (0.047)	2.643 (2.804)	-93.325** (43.619)	0.816 (1.767)	-3.706 (2.614)
Pc_noneq	0.064 (0.117)	-0.005 (0.034)	-2.454 (1.807)	-28.196* (14.526)	2.835** (1.250)	-0.141 (2.680)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.8133	0.4887	0.820	0.9441	0.8171	0.6139
Observations	7010	7010	6543	4303	6541	6551

Note: CO₂_emis_ta = CO₂_emissions_ta. All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

5.3 Robustness tests

In the fixed effects and 2SLS regression models, I use firm and year fixed effects to control for possible time-invariant firm characteristics and economy-wide factors that could affect CSR contracting and the dependent variables of interest. Because of the differences between US states, there is also the possibility that regional trends affect both CSR contracting and the dependent variable of interest. I include state-by-year fixed effects to test if my results are robust to these regional trends. The results in table A4 in the appendix show that including state-by-year fixed effects has little impact on the results.¹⁵

In my main analysis, I measure the impact of CSR contracting on CO₂ emissions where the CO₂ emissions variable is standardized by total assets. As described in section 4.3, this measure is not completely reliable. I, therefore, use two other CO₂ emissions variables to test the robustness of the results in my main analysis. The results in column 1 of table A5 in the appendix resemble my findings closely. The fixed effects regression in panel A shows a small negative, but statistically insignificant, impact on CO₂ emissions and the 2SLS regression in panel B shows a larger negative and statistically significant impact of the use of CSR contracting on CO₂ emissions. The results in column 2 are slightly different, but also resemble my previous findings. Again, the coefficient for the 2SLS regression is much higher than for the fixed effects regression. However, the coefficient is now weakly significant in panel A and not significant in panel B. Overall, using different measures for CO₂ emissions does not change my findings.

In my fixed effects regressions, I find a significant positive effect on the governance score of a firm. However, the 2SLS regression does not find this. To re-examine the effect of the integration of CSR criteria in executive compensation plans, I use a different proxy for governance performance. As described in section 4.3, I use two CSR performance variables to study the effect of CSR contracting on a firm's governance performance. Panel A in table A6 in the appendix shows the fixed effects regressions results. The use of CSR contracting has a positive significant effect on CSR performance. Panel B shows the 2SLS regression results. The coefficients are very different now, showing a significant negative effect of CSR contracting on CSR performance. The diverging results that I found using the governance pillar score variable in sections 5.1 and 5.2 are similar to the diverging results here, with the addition that the negative coefficients from the 2SLS regressions are now also statistically significant. Hence, I still only find weak evidence that favors hypothesis 6.

The enactment of constituency statutes allows directors to take decisions that are beneficial for a wider variety of stakeholders than just the shareholders. It can, following increased attention to non-shareholder stakeholders, lead to more firms adopting CSR contracting or to improved ESG

¹⁵ Since I use the state of a company's headquarters as my instrumental variable, I cannot run the 2SLS regressions while including state-by-year fixed effects.

performance. The enactment of constituency statutes can thus be an omitted variable. Table A7 in the appendix shows the results of the fixed effects regressions with constituency statutes added as a control variable. The results are very similar to the fixed effects regressions in section 5.1.¹⁶

The majority of firms in the US are incorporated in Delaware. The state has unique rules, courts precedents, and political economy that make the state attractive for firms to be incorporated (Daines, 2001). The effect of the rules in Delaware can possibly have a large impact on my results, certainly because the state has not enacted a constituency statute. Panel A in table A8 in the appendix shows the fixed effects regression results excluding firms incorporated in Delaware. The results are very similar to the results with Delaware firms included. Panel B shows the 2SLS regression results. Again, the results excluding firms incorporated in Delaware are similar to the results when Delaware firms are not excluded. My results are, therefore, not driven by firms incorporated in Delaware.

5.4 Additional analyses

5.4.1 Long-term effects

In my main analysis, I examined the impact of CSR contracting on firm financial and ESG performance one year later. The literature on the impact of CSR initiatives shows that the benefits are more pronounced in the longer run. For example, Edmans (2011) finds growing cumulative abnormal returns until month 54 after implementing initiatives that lead to more employee satisfaction and Henisz et al. (2014) find that more stakeholder engagement pays off in the long run. More specifically on CSR contracting, Cavaco et al. (2020) find that CSR contracting negatively impacts financial performance, but not when a firm has a stakeholder governance model, which has a longer-term orientation. Also, Flammer et al. (2019) find that the positive effect of CSR contracting on firm value and operating performance is higher three years after the adoption than one year after the adoption. To study the dynamics of the effect of CSR contracting on firm financial and ESG performance, I examine the effects 1, 2, 3, and 5 years after the adoption of CSR contracting.¹⁷

Table 12 shows the long-term effects of CSR contracting on firm financial performance. The fixed effects regressions in panel A show some interesting results. While the use of CSR contracting had a small negative effect on firm value and firm performance in the short run, long-term effects show that CSR contracting is beneficial. Both the effect on firm value and firm performance gets more positive the more years after the adoption of CSR contracting. The results of the 2SLS regressions in panel B, however, do not show such an improvement over time.

¹⁶ Since I use the constituency statute variable as my instrumental variable, I cannot run the 2SLS regressions with the constituency statute variable included as a control variable.

¹⁷ In my main analysis, I examined the impact of CSR contracting on firm financial and ESG performance one year later. These results can be found in tables 5-11 in sections 5.1 and 5.2. In this section, I will show the results for the long-term effects, meaning 2, 3, and 5 years after adopting CSR contracting.

Table 12: Long-term effects: The impact of CSR contracting on firm financial performance

This table contains the results of both fixed effects and 2SLS regressions. The long-term effects of CSR contracting on firm financial performance are measured. The independent variables are described in table 5 (for panel A) and table 11 (for panel B). Since the first lag of CSR contracting is included in every regression model, the long-term effects for two, three, and five years after the adoption of CSR contracting on the firm financial performance variables Tobin's q and ROA (the dependent variables) are measured. The control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	Tobinq (t+1)	Tobinq (t+2)	Tobinq (t+4)	ROA (t+1)	ROA (t+2)	ROA (t+4)
<i>Panel A: Fixed effects regressions</i>						
CSR_contracting	-0.022 (0.026)	0.034 (0.029)	0.079 (0.061)	-0.004* (0.002)	0.001 (0.003)	0.009** (0.004)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.814	0.819	0.829	0.494	0.491	0.461
Observations	6390	5795	4660	6390	5795	4660
<i>Panel B: 2SLS regressions</i>						
CSR_contracting (Instrumented)	0.917*** (0.171)	1.169*** (0.089)	0.803*** (0.094)	0.047 (0.198)	0.117 (0.155)	-0.303 (0.369)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.813	0.818	0.814	0.493	0.491	0.457
Observations	6395	5800	4665	6395	5800	4665

Note: All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

Table 13 shows the long-term effects of CSR contracting on environmental performance. Both the fixed effects regression results in panel A and the 2SLS regression results in panel B do not show an improvement in the environmental performance over time. The results in panel A are not statistically significant and the results in panel B are changing signs multiple times over the years. It is, however, interesting to see that the negative effect of CSR contracting on the environmental score diminishes over time, as shown in panel B. Also, the positive effects of the use of CSR contracting on CO₂ emissions seem to decrease over time.

Table 13: Long-term effects: The impact of CSR contracting on environmental performance

This table contains the same regressions as in table 12 but has the ESG performance measures environment score and CO₂ emissions as the dependent variables instead. The independent variables are described in table 5 (for panel A) and in table 11 (for panel B), and the control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	Env_score (t+1)	Env_score (t+2)	Env_score (t+4)	CO ₂ _emis_ta (t+1)	CO ₂ _emis_ta (t+2)	CO ₂ _emis_ta (t+4)
<i>Panel A: Fixed effects regressions</i>						
CSR_contracting	0.192 (0.696)	-0.242 (0.484)	-0.636 (0.551)	0.876 (2.654)	-3.182 (5.322)	-0.541 (2.865)

Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.829	0.837	0.854	0.946	0.949	0.958
Observations	5812	5150	3954	4019	3708	2942
<i>Panel B: 2SLS regressions</i>						
CSR_contracting (Instrumented)	-16.360*** (2.758)	1.334 (2.932)	-8.612*** (2.854)	-74.760** (33.622)	48.168 (34.764)	-53.895* (29.458)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.829	0.837	0.854	0.946	0.949	0.958
Observations	5815	5154	3958	4022	3712	2946

Note: CO₂_emis_ta = CO₂_emissions_ta. All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

Table 14 shows the long-term effects of CSR contracting on social and governance performance. The general trend I observe across all regressions is that the positive effect of CSR contracting on social and governance performance diminishes over time. This is clear for panel A, which shows the fixed effects regressions, and for the coefficients on social performance in panel B, which shows the 2SLS regression results. Only for the governance performance I observe an improvement in the longer term. While the governance performance decreased one year after adopting CSR contracting (see table 11), I find a statistically significant increase two and three years after the adoption. But, similar to the other trends in table 18, the positive effect decreases. In the fourth year after the integration of CSR criteria in executive compensation plans, the coefficient decreases to 30.854 (not shown in the table, p=0.000). Then, in the fifth year, the coefficient is even negative (p=0.102).

Table 14: Long-term effects: The impact of CSR contracting on social and governance performance

This table contains the same regressions as in table 12 but has the ESG performance measures social and governance score as the dependent variables instead. The independent variables are described in table 5 (for panel A) and in table 11 (for panel B), and the control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	Soc_score (t+1)	Soc_score (t+2)	Soc_score (t+4)	Gov_score (t+1)	Gov_score (t+2)	Gov_score (t+4)
<i>Panel A: Fixed effects regressions</i>						
CSR_contracting	0.724 (0.606)	0.620 (0.545)	0.005 (0.649)	1.254 (1.026)	-1.239 (0.951)	-0.957 (0.864)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.8214	0.826	0.835	0.625	0.637	0.664
Observations	5810	5148	3952	5818	5154	3956

<i>Panel B: 2SLS regressions</i>						
CSR_contracting	10.053***	-9.372***	-8.236***	20.717***	62.720***	-3.693
(Instrumented)	(2.254)	(2.449)	(2.562)	(2.289)	(3.941)	(2.225)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.821	0.826	0.835	0.624	0.637	0.664
Observations	5813	5152	3956	5821	5158	3960

Note: All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

Overall, my results coincide with the literature that CSR initiatives pay off more in the long run, when studying the effects on firm financial performance. For the long-term effects on ESG performance, I do not find such a trend. For environmental performance, there is not really an improved or diminished relationship over time. For social and governance performance I even observe that the benefits of CSR contracting decrease over time.

5.4.2 Cross-sectional heterogeneity: High vs. low-polluting industries

In my main analysis, I examined the impact of CSR contracting on ESG performance without making a distinction between high and low-polluting firms. To deep-dive into cross-sectional heterogeneity between high and low-polluting firms, I re-estimated my regression models for the firms in the three highest polluting industries and the three lowest polluting industries. The highest polluting industries are Agriculture, Mining, and Transportation and the lowest polluting industries are Construction, Wholesale trade, and Finance.

Table 15 shows the regression results for the three industries that are most polluting. Panel A shows the results of the fixed effects regressions. Compared to table 9, which contains the same regressions but for the whole sample, the CSR contracting coefficients are all higher in magnitude and the significance of the coefficients is similar. This implies that the impact of CSR contracting on ESG performance in high-polluting industries is larger than for the average firm. The coefficients in Panel B, which shows the results of the 2SLS regressions, are also higher in magnitude than the coefficients of the regressions for the whole sample (shown in table 11). The signs of the environmental score and the governance score are not in line with the hypotheses, but this is consistent with the analysis for the whole sample. Overall, these results show some evidence that the integration of CSR criteria in executive compensation plans has a stronger positive impact on ESG performance for firms in high-polluting industries.

Table 15: Cross-sectional heterogeneity: The impact of CSR contracting on ESG performance for firms in high-polluting industries

This table contains the same regressions as in table 9 for the fixed effects regressions and the same as in table 11 for the 2SLS regressions but only includes firms in the Agriculture, forestry, and fishing, Mining, and Transportation, communications, electric, gas, and sanitary services industries. The dependent variables are described in table 7, the independent variables are described in table 5 (for panel A) and table 11 (for panel B), and the control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	Env_score	CO ₂ _emissions_ta	Soc_score	Gov_score
<i>Panel A: Fixed effects regressions</i>				
CSR_contracting	0.731 (0.796)	-1.598 (3.761)	1.653*** (0.411)	5.216** (1.712)
Control variables	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
R ²	0.856	0.931	0.851	0.654
Observations	1225	893	1225	1225
<i>Panel B: 2SLS regressions</i>				
CSR_contracting (Instrumented)	-29.332*** (2.719)	-1516.178** (530.805)	19.654*** (2.532)	-5.224 (6.691)
Control variables	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
R ²	0.856	0.931	0.851	0.648
Observations	1225	893	1225	1225

Note: All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

Table 16 shows the regression results for the three least polluting industries. The fixed effects regression results in panel A show several interesting findings. Compared to table 9, which contains the same regressions but for the whole sample, the CSR contracting coefficients for the environmental score and social score are higher, but the coefficients for CO₂ emissions and the governance score are lower. The significance of the coefficients is similar to table 9. The results indicate that the adoption of CSR contracting in the least polluting industries has a larger positive effect on the environmental and social score, but a smaller positive effect on CO₂ emissions and the governance score. The results in panel B, which shows the coefficients for the 2SLS regressions, are very different to table 11, which shows the same regressions for the whole sample. While the environmental and governance scores were negatively impacted by the use of CSR contracting for the whole sample, these scores are very positively impacted in firms in the three least polluting industries. The coefficients are also statistically significant. CO₂ emissions decrease less in firms in the least polluting industries. This makes sense as the CO₂ emissions are lower. Lastly, the social score improves a lot more in firms in the three least polluting industries compared to the whole sample. Overall, my findings show some evidence that the use of CSR contracting has a stronger positive impact on ESG performance for firms in low-polluting industries.

Table 16: Cross-sectional heterogeneity: The impact of CSR contracting on ESG performance for firms in low-polluting industries

This table contains the same regressions as in table 9 for the fixed effects regressions and the same as in table 11 for the 2SLS regressions but only includes firms in the Construction, Wholesale trade, and Finance, insurance, and real estate industries. The dependent variables are described in table 7, the independent variables are described in table 5 (for panel A) and table 11 (for panel B), and the control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	Env_score	CO ₂ _emissions_ta	Soc_score	Gov_score
<i>Panel A: Fixed effects regressions</i>				
CSR_contracting	2.159 (1.965)	-0.963 (0.824)	2.215** (0.876)	4.309* (2.101)
Control variables	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
R ²	0.751	0.923	0.803	0.618
Observations	1480	806	1480	1480
<i>Panel B: 2SLS regressions</i>				
CSR_contracting (Instrumented)	172.179*** (37.546)	-23.605* (12.550)	140.330*** (14.104)	78.883*** (22.368)
Control variables	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
R ²	0.751	0.923	0.802	0.614
Observations	1480	806	1480	1480

Note: All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

This deep-dive into cross-sectional heterogeneity between firms in high and low-polluting industries does not provide evidence that the impact of CSR contracting on ESG performance is higher in high or low-polluting industries. Interestingly, for firms in both high and low-polluting industries, the magnitude of the coefficients is higher than for the whole sample of firms, showing some evidence that the impact on ESG performance is more positive. Then, comparing the results for firms in high-polluting industries with firms in low-polluting industries, the implications are also mixed. Looking at the results of the fixed effects regressions, the improvement in the environmental and social scores seems to be larger for firms in low-polluting industries, while the improvement in the governance score is larger for firms in high-polluting industries. The results of the 2SLS regressions point in the same direction, the impact of CSR contracting on ESG performance is stronger for firms in low-polluting industries. Overall, this deep dive into cross-sectional heterogeneity only shows little differences in the impact of CSR contracting on ESG performance between firms in high-polluting and firms in low-polluting industries.

6. Conclusion

With the increasing attention that society pays to sustainability, also businesses are pressured into taking more CSR-related initiatives. However, with the prospect that these initiatives might lead to lower profits, executives are weary to implement them. While stakeholders are advocating long-term ESG-related projects, executives are often more focused on short-term profitability, for the shareholder and for their own benefit. This misalignment of interests between managers and stakeholder constitutes an agency problem. A recent phenomenon in corporate governance to incentivize managers to direct their attention to non-shareholder stakeholders is the integration of CSR criteria in executive compensation contracts. In this thesis, I collected data on CSR contracting covering all S&P 500 firms during the period 2002-2020 and studied the effect of the use of CSR contracting on firm financial and ESG performance.

My main analysis studied the effects of CSR contracting on firm-level outcomes one year after integrating CSR criteria in executive compensation contracts. I find some evidence that CSR contracting positively influences the value of the firm, but no evidence that it improves firm performance. The evidence on environmental performance is somewhat contradictory. I find a negative effect on the environmental score of the firm, but also a significant reduction in CO₂ emissions. Lower CO₂ emissions show an improvement in the environmental footprint of a firm, but the environmental score overall is a lot richer in inputs. I, therefore, cannot conclude that the environmental performance improves. The evidence on social and governance performance is clearer. My results show that the use of CSR contracting has a positive effect on both the social and governance scores. The literature shows that the positive impact of CSR initiatives on firm financial performance is more pronounced in the long run. In additional analyses, I find that both firm value and firm performance are more positively affected by CSR contracting in later years after the adoption. I do not find such long-term effects on ESG performance. If anything, the positive effect on ESG performance diminishes in later years. Overall, I find evidence that the use of CSR contracting improves social and governance performance, but not environmental performance. I also find evidence that CSR contracting improves firm financial performance, but only in the long run.

My thesis is subject to a number of limitations of which some could be addressed in future research. First, my sample only includes S&P 500 companies, the largest firms in the US. This makes it hard to generalize my findings to a larger set of companies. Different characteristics in smaller firms or firms outside the US could have an impact on the results. Future research could establish whether my findings can be generalized to smaller companies and companies outside the US. Second, my main variable, CSR contracting, is not defined in detail. Using the Thomson Reuters ESG scores database to collect data on CSR contracting, I only have a variable that indicates whether or not a firm integrates

CSR criteria in its executive compensation contracts. There is no information on the weight placed on the CSR performance goals. Also, the share of CSR-related compensation of total compensation is unknown. It can be argued that a larger share of CSR-related compensation might incentivize executives more to implement CSR initiatives. To my knowledge, no database provides such data. Future research could collect this data from proxy statements filed with the SEC and examine how the substantiveness of CSR contracting affects firm financial and ESG performance. Third, the enactment of constituency statutes as an instrumental variable does not have the strongest validity. Only two states, Nebraska and Texas, enact constituency statutes during my sample period, meaning that there are only a few observations that are affected by this. Furthermore, the use of a company's state of incorporation, instead of the state of a company's headquarters, as the base for the constituency statute variable would be stronger because firms need to follow the laws of the state where they are incorporated. However, because very few firms are incorporated in Nebraska or Texas, this was not possible. Future research could address this by finding an instrumental variable with stronger validity. Fourth, the ESG scores from the Thomson Reuters ESG scores database are disputed. Recent research by Berg et al. (2022) has shown that there is a significant divergence between ESG ratings from different rating agencies. Furthermore, Berg et al. (2021) find large announced and ongoing, unannounced, data rewritings. This means that data on a certain set of firms for a certain period can be different when the data is downloaded at different points in time. This means that the results can differ based on the date the data is downloaded. To address this concern, future research should include ESG ratings from multiple sources to find out whether the same results are found.

While the research on CSR contracting is still relatively scarce, several findings have shown its potential as a governance tool. For example, Flammer et al. (2019) find that CSR contracting leads to an increase in long-term orientation and an increase in social and environmental initiatives. Furthermore, Cavaco et al. (2020) observe that CSR contracting improves extra-financial performance and Tsang et al. (2021) find that it stimulates innovation. My thesis further finds positive effects of CSR contracting. I observe that CSR contracting leads to improved social and governance performance in the short run and enhanced firm financial performance in the long run. While recent research mostly shows a positive image of the effects of CSR contracting, many aspects remain unexplored. Further understanding the dynamics of CSR contracting promises to be an exciting challenge for future research.

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Appendix

Table A1: Variable definitions

This table contains the definitions of all the variables used in my thesis.

Variable	Definition	Data Source
<i>CSR contracting</i>		
CSR_contracting	A dummy variable with a value of 1 when the answer to the question "Is the senior executive's compensation linked to CSR/H&S/Sustainability targets?" is yes, and 0 otherwise.	Thomson Reuters ESG Scores
<i>ESG variables</i>		
Env_score	Environment pillar score: A weighted average relative rating of environmental information of a firm. Score from 0 to 100.	Thomson Reuters ESG Scores
Soc_score	Social pillar score: A weighted average relative rating of social information of a firm. Score from 0 to 100.	Thomson Reuters ESG Scores
Gov_score	Governance pillar score: A weighted average relative rating of governance information of a firm. Score from 0 to 100.	Thomson Reuters ESG Scores
CO ₂ _emissions_ta	The ratio of CO ₂ emissions to the book value of total assets.	Thomson Reuters ESG Scores & Compustat
CO ₂ _emissions_ln	The natural logarithm of CO ₂ emissions.	Thomson Reuters ESG Scores
CO ₂ _emissions_tr	The ratio of CO ₂ emissions to total revenue.	Thomson Reuters ESG Scores & Compustat
<i>CSR performance</i>		
CSRperf_net	Net CSR performance: The total amount of strengths minus the total amount of concerns in a given year across six categories: community, diversity, employee relations, environment, human rights, and product.	MSCI ESG STATS
CSRperf_ts	The total amount of strengths in a given year across six categories: community, diversity, employee relations, environment, human rights, and product.	MSCI ESG STATS

<i>Firm fundamentals</i>		
Tobinq	Tobin's q as defined by Chung and Pruitt (1994). See section 3.2.1.	Compustat
ROA	Return on assets: the ratio of net income to the book value of total assets.	Compustat
Size	The natural logarithm of the book value of total assets.	Compustat
ROE	Return on equity: the ratio of net income to the value of shareholders' equity.	Compustat
Cash	The ratio of cash and short-term investments to the book value of total assets.	Compustat
Leverage	The ratio of debt (long-term debt plus debt in current liabilities) to the book value of total assets.	Compustat
State_incorp	The state where a company is incorporated.	Compustat
Constituency_statute	A dummy variable with a value of 1 when a firm is headquartered in a state that has enacted a constituency statute by year t, and 0 otherwise. ¹⁸	Compustat
State_hq	The state of a company's headquarters.	Compustat
SIC	The 2-digit SIC code of a company.	Compustat
<i>Executive compensation</i>		
Tot_comp	The natural logarithm of total executive compensation.	Execucomp
Pc_cash	The ratio of cash-based compensation to total compensation.	Execucomp
Pc_stock	The ratio of stock-based compensation to total compensation.	Execucomp
Pc_option	The ratio of option-based compensation to total compensation.	Execucomp
Pc_noneq	The ratio of non-equity incentive plan compensation plus change in pension value and non-qualified deferred compensation earnings to total compensation.	Execucomp
Pc_oth	The ratio of all other compensation to total compensation.	Execucomp

Note: Compustat = Compustat North America Fundamentals Annual, Execucomp = Compustat Execucomp.

Table A2: CO₂ emissions across industries

This table contains the average values of the three CO₂ emissions variables I use in my thesis across 10 industries based on the two-digit SIC codes. The three CO₂ emission variables are defined in table A1 in the appendix.

Industry (two-digit SIC code)	Average of CO ₂ _emissions_ta	Average of CO ₂ _emissions_In	Average of CO ₂ _emissions_tr
Agriculture, forestry, and fishing (01-09)	134.787	14.573	215.611
Mining (10-14)	232.398	15.303	575.165
Construction (15-17)	8.072	10.949	3.775
Manufacturing (20-39)	114.610	13.295	140.135

¹⁸ See section 4.2.1 for an elaborate explanation of constituency statutes.

Transportation, communications, electric, gas, and sanitary services (40-49)	737.524	16.166	2290.750
Wholesale trade (50-51)	28.308	12.448	12.858
Retail trade (52-59)	85.298	13.858	48.450
Finance, insurance, and real estate (60-67)	5.500	11.510	29.517
Services (70-89)	26.644	11.883	33.641
Public administration (91-99)	0	0	0
All	184.287	13.432	448.502

Note: The Public administration industry has no average values as there are no firms in this industry in my sample.

Table A3: Correlation table: First lag of CSR contracting and the dependent variables of interest

This table contains the correlations between the firm financial performance variables Tobin's q and ROA and the ESG performance variables environment score, CO₂ emissions, social score, and governance score on one side and the first lag of CSR contracting on the other side. The variables are defined in table A1 in the appendix.

	First lag of CSR contracting
Tobinq	-0.063***
ROA	-0.039***
Env_score	0.2915***
CO ₂ _emissions_ta	0.1535***
Soc_score	0.2371***
Gov_score	0.2958***

Note: *, ** and *** denote significance at the 10%, 5% and 1% levels.

Table A4: Robustness Test: The impact of CSR contracting on firm financial and ESG performance including state-by-year fixed effects

This table contains a robustness test. The regressions are the same as in table 6 (for Tobin's q and ROA) and table 9 (for environment score, CO₂ emissions, social score, and governance score) but include state-by-year fixed effects instead of year fixed effects. The dependent variables are described in tables 5 and 7. The independent and control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	Tobinq	ROA	Env_score	CO ₂ _emis_ta	Soc_score	Gov_score
CSR_contracting	-0.045** (0.021)	-0.003 (0.003)	0.345 (0.672)	-2.580 (3.961)	0.742 (0.565)	4.750*** (0.736)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
State-by-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.841	0.535	0.837	0.954	0.8401	0.654
Observations	7005	7005	6541	4301	6539	6549

Note: CO₂_emis_ta = CO₂_emissions_ta. All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

Table A5: Robustness Test: The impact of CSR contracting on CO₂ emissions

This table contains a robustness test. The regressions are the same as in table 9 for the fixed effects regressions and the same as in table 11 for the 2SLS regressions for the regressions that measure the impact of CSR contracting on CO₂ emissions, but instead use different measures for CO₂ emissions. The dependent variables are CO₂_emissions_ln, which is defined as the natural logarithm of CO₂ emissions and CO₂_emissions_tr, which is defined as the ratio of CO₂ emissions to total revenue. The independent variables are described in table 5 (for panel A) and table 11 (for panel B), and the control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	CO ₂ _emissions_ln (1)	CO ₂ _emissions_tr (2)
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<i>Panel A: Fixed effects regressions</i>		
CSR_contracting	-0.024 (0.021)	-6.890* (3.480)
Control variables	Yes	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
R ²	0.979	0.954
Observations	4290	4253
<i>Panel B: 2SLS regressions</i>		
CSR_contracting (Instrumented)	-4.971*** (0.567)	-80.029 (136.387)
Control variables	Yes	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
R ²	0.979	0.954
Observations	4294	4254

Note: All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

Table A6: Robustness Test: The impact of CSR contracting on CSR performance

This table contains a robustness test. The regressions are the same as in table 9 for the fixed effects regressions and the same as in table 11 for the 2SLS regressions for the regressions that measure the impact of CSR contracting on the governance score but instead use two other measures for governance performance. The dependent variables are the net CSR performance score and the CSR performance score proxied by the sum of strengths. The independent variables are described in table 5 (for panel A) and in table 11 (for panel B), and the control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	CSRperf_net	CSRperf_ts
<i>Panel A: Fixed effects regressions</i>		
CSR_contracting	0.409** (0.178)	0.282 (0.182)
Control variables	Yes	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
R ²	0.771	0.818
Observations	2909	2909
<i>Panel B: 2SLS regressions</i>		
CSR_contracting (Instrumented)	-6.164*** (0.512)	-1.957*** (0.373)
Control variables	Yes	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
R ²	0.770	0.817
Observations	2910	2910

Note: All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

Table A7: Robustness Test: The impact of CSR contracting on firm financial and ESG performance with constituency statutes added as a control variable

This table contains a robustness test. The regressions are the same as in table 6 (for Tobin's q and ROA) and table 9 (for environment score, CO₂ emissions, social score, and governance score) but add the enactment of constituency statutes as a control variable. The dependent variables are described in tables 5 and 7. The independent and remaining control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	Tobinq	ROA	Env_score	CO ₂ _emissions_ta	Soc_score	Gov_score
CSR_contracting	-0.023 (0.024)	-0.002 (0.003)	0.480 (0.627)	-1.463 (2.353)	1.004** (0.491)	4.814*** (0.770)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.815	0.482	0.820	0.944	0.817	0.619
Observations	7005	7005	6541	4301	6539	6549

Note: All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.

Table A8: Robustness Test: The impact of CSR contracting on firm financial and ESG performance excluding firms incorporated in Delaware

This table contains a robustness test. The regressions are the same as in table 6 (for Tobin's and ROA) and table 9 (for environment score, CO₂ emissions, social score, and governance score) for the fixed effects regressions and the same as in table 11 for the 2SLS regressions but exclude the firms that are incorporated in Delaware. The dependent variables are described in tables 5 and 7. The independent variables are described in table 5 (for panel A) and in table 11 (for panel B), and the control variables are described in table 5. The variables are defined in table A1 in the appendix.

Dependent variable:	Tobinq	ROA	Env_score	CO ₂ _emis_ta	Soc_score	Gov_score
<i>Panel A: Fixed effects regressions</i>						
CSR_contracting	-0.006 (0.037)	-0.001 (0.004)	0.457 (1.045)	-5.800 (5.603)	1.816* (0.925)	4.590*** (1.202)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.808	0.462	0.816	0.942	0.803	0.604
Observations	2681	2681	2507	1698	2507	2509
<i>Panel B: 2SLS regressions</i>						
CSR_contracting (Instrumented)	0.897*** (0.140)	-0.540* (0.284)	-27.139*** (3.378)	-870.002* (433.417)	18.599*** (2.506)	-1.200 (3.397)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.809	0.473	0.816	0.942	0.802	0.598
Observations	2682	2682	2508	1699	2508	2510

Note: CO₂_emis_ta = CO₂_emissions_ta. All right-hand side variables are lagged by 1 year. Standard errors are clustered at the two-digit SIC industry level and reported in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% levels.