

Say on ESG: The Adoption of Say-on-Pay Laws, ESG Contracting, and Firm ESG Performance

Finance Working Paper N° 886/2023

February 2024

Mary Ellen Carter

Department of Accounting

Andrea Pawliczek

Department of Accounting

© Mary Ellen Carter and Andrea Pawliczek 2024.

All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

This paper can be downloaded without charge from:
<https://www.ecgi.global/publications/working-papers>

ECGI Working Paper Series in Finance

Say on ESG: The Adoption of Say-on-Pay Laws, ESG Contracting, and Firm ESG Performance

Working Paper N° 886/2023
February 2024

Mary Ellen Carter
Andrea Pawliczek

We thank Tim Gray and Yonca Ertimur, as well as workshop participants at Dartmouth College, University of Southern California, and the Corporate Governance and Executive Compensation Research Series, for helpful comments and suggestions. Electronic copy available at: <https://ssrn>.

© Mary Ellen Carter and Andrea Pawliczek 2024. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Abstract

Concurrent with greater investor focus on ESG performance is the increasing use of ESG-related contracting metrics in executive compensation contracts. We investigate these two related issues in the context of the adoption of Say-on-Pay (SOP) voting laws, which give all investors a direct voice in compensation and an additional way to express their preferences. Exploiting the staggered adoption of SOP laws around the world, we document an increase in ESG contracting, concentrated in countries with greater ESG preferences and those adopting binding SOP voting. We further document a subsequent improvement in ESG performance after the adoption. The improvements in ESG performance are concentrated in firms that adopted ESG contracting, suggesting that ESG contracting is a pathway to facilitate better ESG performance. ESG contracting matters more when the board is more willing and able to encourage ESG performance.

Keywords: corporate social responsibility; compensation contracting; say on pay laws; corporate

JEL Classification: G15 G34 G38 M12

Mary Ellen Carter

Department of Accounting

Andrea Pawliczek

Department of Accounting

Say on ESG: The Adoption of Say-on-Pay Laws, ESG Contracting, and Firm ESG Performance

Mary Ellen Carter
Department of Accounting
Carroll School of Management
Boston College
carterma@bc.edu

Andrea Pawliczek*
Department of Accounting
Leeds School of Business
University of Colorado Boulder
andrea.pawliczek@colorado.edu

Rong (Irene) Zhong
Department of Accounting
University of Illinois at Chicago
ronzhong@uic.edu

First version: November 2021
Current version: February 2024

Abstract:

Concurrent with greater investor focus on ESG performance is the increasing use of ESG-related contracting metrics in executive compensation contracts. We investigate these two related issues in the context of the adoption of Say-on-Pay (SOP) voting laws, which give all investors a direct voice in compensation and an additional way to express their preferences. Exploiting the staggered adoption of SOP laws around the world, we document an increase in ESG contracting, concentrated in countries with greater ESG preferences and those adopting binding SOP voting. We further document a subsequent improvement in ESG performance after the adoption. The improvements in ESG performance are concentrated in firms that adopted ESG contracting, suggesting that ESG contracting is a pathway to facilitate better ESG performance. ESG contracting matters more when the board is more willing and able to encourage ESG performance.

Keywords: corporate social responsibility; compensation contracting; say on pay laws; corporate governance; regulations

JEL classification: G15 G34 G38 M12

* Corresponding author. We gratefully acknowledge the financial support of Boston College, University of Colorado, and the University of Illinois Chicago. We thank Tim Gray and Yonca Ertimur, as well as workshop participants at Dartmouth College, University of Southern California, and the Corporate Governance and Executive Compensation Research Series, for helpful comments and suggestions.

1. Introduction

Consideration of environmental, social, and governance (ESG) priorities in firms' operations has gained significant attention from market participants. Flows of funds to sustainable mutual funds have surged (Reuters 2021) and institutional investors are increasingly expressing interest in firm sustainability and considering climate risk implications when making investment decisions (e.g., Barber et al. 2021; Pástor et al. 2021, 2022; Krueger et al. 2023).

Concurrent with this increased focus on ESG performance is the increased use of ESG metrics in executive compensation contracts (hereafter ESG contracting). A recent study of larger U.S. companies finds that approximately 60% include ESG in compensation contracting (Meridian 2021), while a study in Europe identifies a nearly tenfold increase from 2008 to 2021 in the number of companies that link CEO pay to ESG metrics (Diligent 2021)¹ In a 2020 Towers Watson survey of board members in over 20 countries, 63% of respondents reported the use of ESG metrics in annual bonus plans and 41% in long-term incentives.² However, whether compensation tied to ESG measures promotes ESG performance is a topic of debate. Concerns exist that ESG contracting may be “greenwashing” to appease investors or be self-serving to managers (e.g., Bebchuk and Fried 2010; Bebchuk and Tallarita 2022b).

To inform this debate, we examine whether ESG contracting provides a pathway for shareholders to promote improved ESG performance. A challenge in answering this question is that the inclusion of ESG metrics in compensation contracts is not exogenous. To address this, we exploit the country-level adoption of Say-on-Pay (SOP) laws. SOP affords shareholders greater influence over executive compensation design and country-level adoptions are arguably

¹ <https://www.diligentinstitute.com/commentary/the-growing-influence-of-esg-in-executive-compensation/>

² <https://www.willistowerswatson.com/en-US/Insights/2020/12/2020-esg-survey-of-board-members-and-senior-executives>

exogenous to individual firms. If investors on average seek improved ESG performance, we expect them to use their greater voting power under SOP to advocate for the inclusion of ESG-related metrics in executive pay. For example, in 2020, Amundi, Europe's largest asset management company, voted against companies that did not include ESG measures in compensation contracts.³

We first validate our setting by demonstrating the impact of SOP laws on ESG contracting, exploiting the staggered adoption of SOP laws across countries using a difference-in-differences design and using 44,589 firm-year observations across 36 countries from 2002–2019. Our identification compares the changes in treatment firms in countries that adopted SOP laws with those in a set of control firms from countries that *never* did so, mitigating potential concerns of biased estimates of a standard staggered specification (Baker et al. 2022). Because we include firm and year fixed effects, our identification exclusively exploits within-firm changes in ESG contracting and ESG performance for firms in SOP-adopting countries, relative to those in non-adopting countries. To ensure our results are not driven by other regulatory changes, we also control for changes in compensation disclosure rules (Fernandes et al. 2013) and ESG disclosure mandates (Krueger et al. 2023).

We construct a measure of firms' ESG contracting practices using Thomson Reuters Asset4 data that captures whether a firm has ESG compensation policies or links a portion of executive compensation to CSR targets.⁴ We find an increase in ESG contracting after the passage of SOP laws. Increases in ESG contracting are more pronounced in countries with stronger ESG preferences and those with binding SOP laws which afford shareholders' greater influence. In the subsample for which we have firms' detailed plan-based grant award data from ISS Incentive Lab, we document an increase in the use of ESG performance metrics in grants after SOP adoption. For

³ <https://content.irmagazine.com/story/ir-magazine-spring-2021/page/10/7>

⁴ We use the terms ESG and CSR interchangeably.

this subset of firms, we see increases in metrics tied to both environmental and social performance.

Greater ESG contracting, however, does not necessarily translate into better performance. Researchers raise concerns that ESG contracting may simply represent “greenwashing” to appease investors (Haque 2017; Gillan et al. 2021) or even crowd out the intrinsic motivations of managers (Gneezy et al. 2011), leading to little or no effect on ESG performance. We first document increases in ESG scores after the adoption of SOP laws.

We then consider and find that improvements in ESG performance are concentrated among firms that adopted ESG contracting after SOP laws, suggesting that incentivizing sustainable actions improves ESG performance. Among the subsample of firms covered by ISS, we find ESG performance improvements occur in firms specifically adopting environmental metrics. Further, the improvements in ESG performance for ESG contracting adopters are more pronounced among firms with boards that are more likely to engender such changes (i.e., those with a CSR committee and an independent compensation committee). We also show that ESG contracting induces firms to implement more environmental policies, such as toxic and CO₂ emission reduction and initiatives in environmental products, alleviating concerns that increases in ESG scores result solely from ESG contracting itself (i.e., the inclusion of ESG metrics mechanically increases the ESG score because the score reflects ESG contracting). Our results are also robust to excluding U.S. firms and limiting analysis to firms in developed economies. Our conclusions are also unchanged when we conduct analysis using nearest neighbor matching or entropy balancing. Collectively, these results suggest that ESG contracting helps facilitate better ESG performance.

Finally, we consider key assumptions related to the difference-in-differences design. We validate the parallel trends assumption by conducting a dynamic analysis around SOP adoption and find that our treatment and control firms behave similarly before the event; the increases in

ESG contracting and ESG performance only begin after SOP adoption and persists for at least three years. We also conduct a stacked differences-in-differences design (Baker et al. 2022), finding consistent results with our primary analysis for ESG contracting and performance.

We make several contributions to the literature. First, we add to a growing body of evidence of investors' preferences for ESG performance. We extend the U.S. based findings of Hartzmark and Sussman (2019), providing global evidence of investors' interest in promoting ESG. Our findings underscore the importance of regulatory attention to ESG reporting and disclosures.

Second, we add to an emerging literature examining the inclusion of ESG metrics in compensation contracts. While there are a variety of avenues to improve ESG performance such as board reform (Liao et al. 2021) and mandatory disclosures (e.g., carbon reporting as in Downar et al. 2021), we are among the first researchers to document that the increased inclusion of these metrics appears to come, at least partly, at the behest of shareholders. Cohen et al. (2023) suggests that shareholder engagement is associated with greater ESG contracting. While direct engagement is realistically only available to the *largest* shareholders, our study demonstrates that SOP laws provide a low cost means through which *all* investors could collectively encourage compensation aligned with their shared preferences. A staggered research design also enables us to provide causal evidence that greater shareholder voice afforded by SOP laws provides another important pathway to incentivize managers to pursue desired ESG goals and increase ESG performance.

We also contribute evidence that investors' preference for sustainability can translate to greater firm ESG performance. Because our approach uses a country-level source of change in ESG contracting resulting from SOP adoption, concerns that anticipated improvements in ESG performance endogenously lead to ESG contracting are reduced. Our approach also allows better identification of the link between ESG contracting and ESG performance. Greater attention by

management to stakeholder concerns (Flammer et al. 2019) or greater engagement by institutional investors (Cohen et al. 2023) may result in multiple actions that improve ESG performance concurrent with, but independent from, ESG contracting.

Finally, we add to the understanding of the effect of SOP laws. We show that SOP adoption enables shareholders to influence CEO compensation consistent with their preferences. Our results provides support for the “voice” mechanism studied by Broccardo et al. (2020). Those authors model voice versus exit strategies in promoting socially desirable outcomes and find that when most investors are socially responsible, voice succeeds. We demonstrate that SOP is one means of enabling social engagement.

2. Related Research and Hypothesis

2.1. Say-on-Pay Voting and ESG Compensation Contracting

ESG issues have drawn increasing attention from investors, practitioners, and firms. Despite disagreement about the relation between ESG investment and firm profit, growing evidence shows that investors increasingly value ESG and that consideration of sustainability as an investment strategy can deliver long-term returns.⁵ Further, investors with a stakeholder orientation may be willing to tradeoff financial returns for improved ESG performance to some degree (e.g., Dhaliwal et al. 2012). Hartzmark and Sussman (2019) show that high-sustainability funds (those holding assets with superior CSR performance) attract substantial fund flows, demonstrating investor demand for ESG performance.⁶

⁵ Traditional shareholder primacy views (e.g., Friedman 1970) suggest ESG investment comes at the expense of financial returns. More recent work takes a nuanced view, suggesting the beliefs about the profitability of ESG investment may depend on investors’ long-term expectations about firms’ prospects, sustainability and trends (e.g., climate regulation, consumer preferences for “green” products) (Pástor et al. 2021, 2022).

⁶ There is a debate around whether asset managers stated ESG preferences align with their true intentions or whether some claims represent greenwashing to attract fund flows. While research suggests green funds vote and invest in line with their stated missions (e.g., Curtis et al. 2021; Dikolli et al. 2021), Kim and Yoon (2020) do not find evidence UN PRI signatories on average behave consistently.

Institutional investors can seek improved firm ESG performance through various means (e.g., Dyck et al. 2019; Kim et al. 2019; Chen et al. 2020). These include shareholder proposals (e.g., Baloria et al. 2019) or direct management engagement (e.g., Becht et al. 2009; Dimson et al. 2015, Cohen et al. 2023).⁷ Engine 1's successful proxy battle with ExxonMobil demonstrates another means of ESG engagement (Phillips 2021). Yet these means for shareholders to express their preferences can be very costly (e.g., initiating a shareholder proposal) or only available to a small set of large investors (e.g., directly engagement with management).

One channel for improved ESG performance is through ESG contracting. The use of ESG criteria within compensation contracts (ESG contracting) has increased substantially over the last decade. And, shareholder voting on executive compensation provides an accessible means for all shareholders to express their interests in ESG. While investors of any size have the option to exit their positions if they disagree with firm practices, smaller investors had limited avenues to influence compensation through "voice"; voting against directors on the compensation committee provided an indirect means to encourage changes in pay practices. SOP laws provide an important new avenue through which institutions that only own a small stake in a firm can directly influence pay. These laws provide investors a low cost means to directly express their opinion about compensation practices and could overcome a coordination problem that existed, if, at least at some firms, several investors favor ESG compensation but were unable to communicate and coordinate on that previously.

Research has documented that SOP voting leads to changes in executive compensation (Ertimur et al. 2013) and argues that the act of shareholder voting motivates discussions between directors and investors and can call into question directors' choices, raising reputational concerns

⁷ Consistent with institutional investors' interest in engaging on ESG issues, research documents that they can encourage improved disclosure around related issues (Solomon et al. 2011; Pawliczek et al. 2021).

in the director labor market (Ferri and Maber 2013). Finally, UN PRI guidance for asset managers encourages investors to incorporate an approach to voting on climate-related issues that extends to votes beyond climate related proposals, including those on remuneration, suggesting that SOP might impact the inclusion of ESG contracting.⁸ If, on average, investors prefer ESG performance, we expect them to exercise the voting power afforded by SOP laws to encourage firms to add ESG criteria to compensation contracts.⁹

There are several reasons why we may not see changes in firms' ESG contracting following SOP adoption. First, investors have varying preferences for ESG investment. For example, Chen et al. (2018) find that Chinese investors perceive CSR as profit-reducing and react negatively to mandatory CSR disclosure. If such a response prevails in our sample, investors would not advocate for the inclusion of ESG metrics in compensation and we will not observe an effect. In addition, firms must balance any additional ESG efforts against the demands of investors with different preferences, especially if ESG investment may harm financial performance (e.g., Di Giuli and Kostovetsky 2014; Chen et al. 2018). Firms could be hesitant to alienate these investors at a time when compensation contracts are receiving increased scrutiny with SOP. So, while some investors may have ESG preferences, firms may not alter compensation to cater to those preferences. Third, whether and to what extent SOP voting alters managerial incentives is ambiguous, with some studies suggesting that firms may perceive limited costs from poor voting outcomes and thus have little incentive to alter their behavior.¹⁰ Finally, the primary focus of SOP laws is on executive

⁸ <https://www.unepfi.org/wordpress/wp-content/uploads/2021/04/16-Elevating-Climate-Diligence-2.pdf>

⁹ While we focus on SOP laws because we are interested in the effects of ESG contracting, we acknowledge that the passage of other governance reforms may provide shareholders alternative means to advocate for firm changes (e.g., Liao et al. 2021; Maffett et al. 2022) that could be applied to ESG issues.

¹⁰ Several studies suggest SOP adoption induces beneficial changes in pay, such as reduced compensation, increased pay-for-performance sensitivity, and the removal of controversial pay practices (Ertimur et al. 2013; Ferri and Maber 2013; Alissa 2015; Correa and Lel 2016; Kimbro and Xu 2016). On the other hand, some studies question the influence (Fisch et al. 2018) and suggest no change in pay practices (Conyon and Sadler 2010) or even detrimental effects, such as increases in excessive compensation (Sanchez-Marin et al. 2017).

compensation, not ESG practices. Firms may believe investors will anchor on key aspects of compensation contracts (such as pay level or pay-for-performance sensitivity) and focus on those. Given this tension, we first determine whether SOP leads to an increase in ESG contracting.

2.2. ESG Contracting and ESG Performance

Whether ESG contracting leads to better ESG performance remains under debate. While extensive literature documents that tying pay to financial performance leads to improved performance (e.g., Banker et al. 1996), these findings may not generalize to the ESG setting. First, unlike preferences towards financial performance, investor and other stakeholder preferences towards ESG are heterogeneous, especially in instances when some investors perceive an ambiguous or negative correlation between ESG investment and financial performance. In addition, ESG contracts could be structured with weak incentives in attempts to appease particular groups through greenwashing (Bonham and Riggs-Cragun 2022). Finally, ESG might not change executive behavior given multiple measures in compensation contracts (e.g., the executive still focuses on financial performance, which has a larger effect on pay).

ESG-specific research provides evidence of a positive association between ESG contracting and firm characteristics and outcomes. Studies suggest that better-governed firms are more likely to include ESG criteria in executive compensation contracts (Hong et al. 2012; Ikram et al. 2019). Grabner et al. (2020) propose that ESG metrics in compensation contracts complement ESG disclosures and argue that they increase disclosure credibility. More closely related to our work are studies that document associations between ESG contracting and measures of ESG performance. Maas (2018) examines 400 firms over the period 2008–2014 for the inclusion of corporate social performance (CSP) targets in executive compensation, finding limited evidence that the use of hard, but not soft, targets is associated with CSP and improvements therein. Haque

(2017) examines 256 UK firms over the period 2002–2014 and finds that having an ESG-based compensation policy is positively associated with having carbon reduction initiatives but not lower greenhouse gas emissions. Flammer et al. (2019) examine the use of CSR criteria in executive compensation contracts of S&P 500 firms between 2004–2013. They find that the inclusion of CSR criteria is associated with more long-term orientation, higher Tobin's Q, higher KLD scores, more green patenting, and lower emissions. To address endogeneity, they use a two-stage approach with the adoption of constituency statutes in two states (Texas and Nebraska), which give officers and directors a mechanism to consider stakeholder interests in operating the firm, as an instrument to the inclusion of CSR contracting. Finally, Cohen et al. (2023), using a sample of 4,395 firms from 2011–2020, examine factors explaining whether firms adopt ESG contracting and the ensuing ESG performance. They find that engagement by institutional investors increases the likelihood of adopting ESG contracting and that adopters receive higher scores from rating agencies and have lower CO₂ emissions.

We make several contributions over these studies. First, we document an alternative channel for ESG adoption that gives voice to smaller investors unable to engage with firms the way large investors do. Second, we more directly speak to the role of ESG contracting in improving ESG performance. For example, a challenge of interpreting the evidence of Flammer et al. (2019) as causal is that improvements in ESG performance could result from increased focus on stakeholder interests, independent of ESG contracting. In addition, firms may implement ESG contracting in anticipation of improved ESG performance, leading to reverse causality. We address this concern by first examining whether SOP laws, an exogenous shock to investor influence over compensation, enable investors to encourage the inclusion of ESG performance metrics in

executive compensation contracts.¹¹ Finally, while Cohen et al. (2023) specifically examine the role of institutional investors in ESG contracting, their focus on engagement makes it difficult to isolate the effects of compensation contracts. Institutional investor engagement in sustainability can be multifaceted; if these investors press for other sustainability actions along with ESG contracting, what ultimately influences ESG performance is unclear. Our approach sidesteps these issues. If SOP laws were not established with the goal of increasing ESG contracting, changes in ESG after SOP enactment plausibly identify exogenous adoption of ESG contracting. As a result, our evidence provides a causal link between ESG contracting and ESG performance.

However, it is unclear whether pressure from ESG-focused investors, through ESG contracting, actually translates to better firm ESG performance. ESG contracting may not enhance stakeholder value but instead may be used by managers to advance their self-interest (Bebchuk and Tallarita 2022b). Executives may lobby for the inclusion of ESG metrics in anticipation of improved ESG performance that would occur regardless. Alternatively, the inclusion of ESG metrics in compensation contracts could be window-dressing and may not result in meaningful improvements to ESG performance (Haque 2017; Gillan et al. 2021). Given the competing views on the impact of ESG contracting, whether it leads to meaningful changes in firm behavior and improvement in ESG performance is unclear. This leads to our primary research question: does ESG contracting, influenced by SOP laws, enhance firms' ESG performance?

3. Variable Measurement

3.1. Sample and Data Sources

¹¹ Another stream of literature examines the influence of ESG on compensation more broadly beyond the explicit inclusion of ESG in compensation contracts with mixed results. For example, Cai et al. (2011) find that CEOs are penalized (i.e., receive lower compensation) for CSR investments, likely due to the delayed impact of such investments. Callan and Thomas (2011) find a positive pay-for-CSR-performance sensitivity in a multi-equation framework.

We obtain data from several sources: (1) firms' ESG compensation contracting and ESG performance data from the Thomson Reuters ASSET4 ESG database, (2) firm-level financial data from the Thomson Reuters Worldscope database, and (3) global institutional ownership data from the Factset ownership database. Our initial sample starts with the universe of Thomson Reuters ASSET4 ESG database, a leading provider of social and environmental commitments for public companies in more than 45 countries. Thomson Reuters acquires information from various sources, including corporate annual reports, nongovernmental organizations, and news media. ASSET4 is arguably the largest ESG database with comprehensive coverage of firms in many different countries (Ribando and Bonne 2010; Huber et al. 2017; Boffo and Patalano 2020).¹² Importantly, it is well-regarded by practitioners (SustainAbility 2019, 2020), and widely used by academic researchers (e.g., Dyck et al. 2019; Naughton et al. 2019; Dai et al. 2020; Christensen et al. 2022).

We merge firms from Thomson Reuters ASSET4 ESG with those having financial data on Worldscope to provide the basis of our initial sample. After deleting missing values of ESG-related variables, our sample includes 50,709 firm-year observations from 6,973 unique firms from 2002-2019. Since institutional investors are an important driver for corporate ESG performance, we obtain global institutional ownership data from Factset. Our sample period begins in 2002, the start of firm coverage in the ASSET4 ESG database, and ends in 2019, the last year that institutional data from Factset is available. After deleting missing values in firm-level control variables, our primary sample includes 44,589 firm-year observations for 6,441 unique firms during 2002-2019. Our sample size is comparable to other studies using ASSET4 database (e.g., Dyck et al. 2019).¹³

¹² ASSET4 is used in more than 285 studies published in quality academic journals. For a comprehensive review on the research using ASSET4 database, please see de Villiers et al. (2022).

¹³ ASSET4 starts consistent coverage since 2004 with some firms starting from 2009. Our sample size is constricted by the availability of ESG data, especially in early years. As we control for year fixed effects, this unlikely to impart systematic bias to our results. In untabulated analysis, we find our results remain robust if we start our sample from 2004 instead of 2002.

For some more detailed compensation analysis, we require data from ISS Incentive Lab. This limits our sample to the US and European firms covered in this database, resulting in 8,445 firm-year observations. Table 1 Panel A reports the sample selection details. For some analyses, our sample sizes are smaller due to additional data requirements for that specific test.

3.2. Measure of ESG Contracting

We measure of ESG contracting at the firm-year level, capturing firms' incorporation of ESG-related performance into executive compensation. Using Thomson Reuters ASSET4 classifications, we focus on two key aspects of firms' ESG compensation practices: general ESG compensation policies or tying executive pay to CSR targets.¹⁴ Our measure, *ESG_CONTRACT*, is an indicator variable that equals one if the company adopts an ESG-related compensation policy or links part of senior executives' compensation to CSR performance targets in a given year.¹⁵

3.2. Measures of ESG Performance

To capture firms' overall ESG performance, we use the composite ESG score (*ESG_Score*) reported in ASSET4. *ESG_Score* is the overall CSR score based on reported information about environmental, social, and corporate governance issues. Firms are rated based on both their ESG compliance (regulatory requirements) and engagement (voluntary initiatives) and the effectiveness of their endeavors. A firm's composite CSR score reflects a comprehensive evaluation of how the

¹⁴ As an example of general ESG compensation policies, AstraZeneca's 2018 remuneration report explains how the final evaluation of annual bonus payouts (based on scientific and financial metrics) also considers the CEO's individual performance. Two aspects of individual performance are "*Embedding a culture focused on integrity and sustainability*" and "*Making AstraZeneca a great place to work – achieve demonstrable advances in inclusion, diversity and employee engagement.*" The company also issues performance shares, which include scientific, commercial, and financial metrics, but no ESG metrics. As an example of CSR targets, in 2016 at Barratt Developments, a UK-based homebuilder, 10% of the annual bonus payout for each named executive is determined based on the company's score on the safety, health, and environmental compliance audit. A score of 94% or higher on the audit report results in maximum payout for this portion of the annual bonus.

¹⁵ As an additional (untabulated) sensitivity analysis, we decompose ESG contracting into its two components: *ESG_POLICY* (equals one if the company has adopted an ESG related compensation policy or *CSR_LINK* (equals one if the company links a portion of executive compensation to CSR metrics). Our inferences remain unchanged.

firm engages in stakeholder issues and complies with related regulations.

We also examine separately the environmental (*Environ_Score*) and social responsibility (*Social_Score*) scores.¹⁶ ASSET4 evaluates environmental commitments in three areas: emissions reduction, product innovation, and toxic substance reduction. Social commitments are evaluated via seven aspects: community, diversity and opportunity, employment quality, health and safety, human rights, product responsibility, and training and development. We scale the ESG performance measures to range from zero to one, with higher values indicating better performance.

3.3. Control Variables

3.3.1. Controls for Firm-level Characteristics

Following the literature (e.g., Dyck et al. 2019; Dai et al. 2020), we include an array of firm- and country-level variables to control for factors that may affect firms' compensation practices and ESG performance. We include institutional ownership (*IO*), as studies show that institutional investors help drive firms' ESG performance (e.g., Dyck et al. 2019; Chen et al. 2020). We also control for firm fundamentals, including firm size (*SIZE*), market-to-book ratio (*MTB*), tangibility (*KL_RATIO*), profitability (*SALE_GROWTH* and *ROA*), and age (*FIRM_AGE*). We control for capital structure with leverage (*LEV*) and internal cash flows (*INT_CASH*). Finally, we control for industry product market competition with the Herfindahl index (*HERFINDAHL*).

3.3.2. Controls for Time-varying Country-level Macroeconomic Conditions

As the adoption of SOP laws is at the country-level, we include time-varying country-level variables to control for differences in macroeconomic conditions that may affect the adoption of SOP laws. We include gross domestic product (*GDP*), GDP per capita (*PERCAPITA*), and total foreign direct investments (*FDI*) to account for their general effect on a country's economic well-

¹⁶ Consistent with the literature (e.g., Dai et al. 2020), we focus on E and S because the corporate governance component of CSR may not reflect the typical corporate governance issues in academic research (Hong et al. 2012).

being (La Porta et al. 1998).

3.3.3. Controls for Concurrent Regulatory Changes related CEO Pay and ESG Disclosure

We control for the confounding effects of two concurrent regulations that may affect firms' compensation contracting and ESG performance. We first control for the mandated disclosure of executive pay based on data from Fernandes et al. (2013). We construct an indicator variable, *AFTER_PAY_LAW*, for firm-year observations in countries after the adoption of mandatory compensation disclosure. We also control for the country-level mandates for ESG disclosure and create an indicator variable, *AFTER_ESG_DISCLOSURE*, for firm-year observations after the adoption of ESG disclosure (Krueger et al. 2023). These controls help isolate the effects of SOP regulation from the effects of other disclosure changes.

3.4. Descriptive Statistics

Table 1 Panel B reports the sample distribution across countries, the enactment year of SOP laws, and the average ESG contracting index and ESG scores. We obtain SOP law enactment dates before 2012 from Correa and Lel (2016) and expand their list by searching Factiva to identify adoptions after 2012. We note that ESG scores vary considerably across countries.

Our sample countries exhibit substantial variation in ESG contracting. The highest percent of ESG contracting is in Australia, with 46% of firm-years with ESG contracting, followed by the Netherlands and the U.K. Countries with the highest ESG performance concentrate in Europe. For example, Spain, France, and Portugal are the top three in terms of composite ESG scores. As expected, about 34% of firm-year observations come from the United States. To ensure our results are not driven by U.S. firms, in Section 6, we find that our results endure excluding them.

Table 2 Panel A reports the summary statistics for SOP-adopting and non-SOP countries. On average, firms in SOP countries have greater ESG contracting, with 26% of firm-years in SOP

countries adopting ESG-related compensation policies versus only 10% of firm-years in non-SOP countries did so. ESG performance scores are similar between firms in SOP and non-SOP countries; the mean value of overall ESG performance scores is 40.80 (40.00) for firm-years in SOP (non-SOP) countries. On average, firms in both groups are comparable in terms of firm size (*SIZE*), profitability (*ROA*) and leverage (*LEV*).

Table 2 Panel B reports descriptive statistics for treatment firms before and after SOP adoption. Before adoption, the mean value of *ESG_CONTRACT* is 17.07% for treatment firms, increasing to 29.45% afterward. We also observe a similar increase in ESG performance score, increasing from 39.55 before adoption to 41.29 after SOP adoption.

4. Research Design

Our identification exploits staggered adoption of SOP laws across countries and examines their subsequent impact on firms' ESG contracting and performance using a difference-in-differences design. Following Correa and Lel (2016), we identify our treatment group as the firms from 14 countries that adopted SOP laws during the sample period (see Table 1). Our control firms are firms from the remaining 22 countries that did not adopt SOP laws during our sample period. Using a clean set of "never-treated" firms as controls mitigates the concerns of potential biases due to treatment heterogeneity associated with a traditional staggering design (Baker et al. 2022). Another benefit of the staggered adoption of SOP laws is that it allows us to better disentangle the treatment effect of SOP laws from confounding events unless these events perfectly coincide with each country's adoption. As mentioned above, we also control for concurrent regulatory changes that may also affect firm incentives in ESG contracting. Finally, by including firm- and year-fixed effects, our identification exploits within-firm changes in ESG contracting/performance in treatment firms around the adoption of SOP laws, relative to concurrent changes in control firms.

4.1. SOP Laws and ESG Contracting

Our first analysis examines the impact of SOP laws on ESG contracting using a difference-in-differences design. If SOP laws enable investors to voice demand for ESG performance through their influence on executive compensation, we expect the laws to lead to an increase in ESG contracting. To test this, we estimate the following regression model:

$$ESG_Contract_{ijt} = \beta_0 + \beta_1 SOP_{ijt} + \beta_k \Sigma Controls_{ijt} + \Sigma Firms + \Sigma Years + \varepsilon_{ijt}, \quad (1)$$

where subscripts i, j, t denote firm, country and year, respectively. The dependent variable is ESG contracting ($ESG_CONTRACT$), an indicator variable that takes the value one if a firm adopts general ESG compensation policies or links part of CEO pay to CSR targets. SOP is an indicator variable that equals one for firm-year observations in treatment countries after the adoption of SOP laws and zero otherwise. The control variables are described in section 3.3.

In all regressions, we include firm and year fixed effects to control for time-invariant firm heterogeneity (e.g., corporate culture, management style), cross-country institutional differences (e.g., legal origin, stakeholder awareness) and time trends (e.g., increasing data coverage of ASSET4 database). Consistent with prior research, we double cluster robust standard errors at the country and year-level.¹⁷ The estimate of β_1 is the difference-in-differences estimator of the change in firms' ESG contracting around the passage of SOP laws. If firms are more likely to include ESG measures in compensation contracts after the adoption of SOP, we expect β_1 to be positive.

4.2. SOP Laws, ESG Contracting, and ESG Performance

Next, we evaluate whether the increasing use of ESG contracting indeed leads to

¹⁷ As noted by Correa and Lel (2016), two-way clustering is a more conservative and may lead to marginally lower significance levels. Our results are qualitatively unchanged if we cluster robust errors at the country-level or firm-level and year.

improvements in firms' ESG performance. The influence of ESG metrics in executive compensation remains an area of debate (e.g., see (Bebchuk and Fried 2010; Bebchuk and Tallarita 2022b, 2022a). While contracting theory suggests that tying pay to an outcome should improve performance, ESG contracting may reflect greenwashing rather than a serious effort to improve ESG performance. For example, ESG metrics may only influence a small portion of executive compensation, or targets in contracts may be easily achievable.

To empirically test this question, we examine whether (1) SOP laws lead to subsequent increases in firms' ESG performance, and (2) whether the increases in ESG contracting, driven by SOP law adoption, leads to improvements in firms' ESG performance. Specifically, we estimate the following regression models with firm and year fixed effects:

$$ESG_Score_{ijt+1} = \beta_0 + \beta_1 SOP_{ijt} + \beta_k \Sigma Controls_{ijt} + \Sigma Firms + \Sigma Years + \varepsilon_{ijt}, \quad (2a)$$

$$ESG_Score_{ijt+1} = \beta_0 + \beta_1 SOP_{ijt} + \beta_2 SOP_{ijt} * \Delta ESG_CONTRACT_{it} + \beta_k \Sigma Controls_{ijt} + \Sigma Firms + \Sigma Years + \varepsilon_{ijt}, \quad (2b)$$

where subscripts i, j, and t denote firm, country, and year, respectively. The dependent variable, *ESG_Score*, is proxied by the composite ESG score (*ESG_Score*), the environmental score (*Environ_Score*), and the social score (*Social_Score*) and measured in year t+1 because we expect improvement to take time to materialize. Our channel variable, $\Delta ESG_CONTRACT$, is a firm-level measure that equals one if a firm has newly adopted ESG contracting following the passage of SOP laws and zero otherwise. $\Delta ESG_CONTRACT$ equals 1 if a firm 1) adopts ESG contracting in the year after SOP (t+1) and continues this contracting for at least two additional years and 2) did not use ESG contracting in any of the three years prior to SOP (t-3 to t-1). Because this variable is measured at the firm level, its main effect is subsumed by firm fixed effects.

The estimate of β_1 is the difference-in-differences estimator of the change in firms' ESG

performance around the passage of SOP laws. The interaction of *SOP* with $\Delta ESG_CONTRACT$ assesses whether the post-SOP improvement in firms' ESG performance is mainly driven by firms that adopted ESG compensation contracting following SOP laws. If SOP laws induce meaningful changes to compensation contracts and these changes lead to improved ESG performance, we expect β_2 to be positive.

5. Empirical Results

5.1. Do Say-on-Pay Laws Increase ESG Contracting?

We first validate the parallel trend assumption by plotting the coefficient estimates of the treatment effect around the passage of SOP laws using a three-year window. As shown in Figure 1, for both ESG contracting and performance, the difference-in-difference estimators in the pre-SOP period are not significantly different from zero, suggesting that treatment and control firms behave similarly before the treatments (e.g., parallel trends assumption). The increase in ESG contracting and performance is only observed during post-SOP periods. Since we control for year fixed effects, increases in ESG contracting and performance cannot be attributed to increasing trends of corporate ESG activities. Figure 1 validates that SOP laws provide plausibly exogenous shocks to firms' ESG contracting, enhancing our ability to draw causal inferences on its impact on ESG performance.¹⁸

As reported in Table 3 Panel A, the adoption of SOP laws increases the likelihood of firms adopting ESG-related compensation contracting (*ESG_CONTRACT*).¹⁹ Our result holds in column

¹⁸ We also conduct (untabulated) a dynamic analysis where we replace *SOP* in Models (1) and (2a) with indicators for each of the three years before and after SOP adoption. We find that the significant differences in ESG contracting and ESG performance begin only after SOP adoption.

¹⁹ SOP laws could lead to changes in ESG contracting through two mechanisms: (1) investors directly engage with the firm, requesting ESG metrics, or vote against pay contracts that lack ESG performance targets, or (2) the board recognizes that investors seek superior ESG performance and restructures compensation accordingly. Our aim is not to distinguish between these mechanisms but rather to understand changes in ESG contracting.

(2) after controlling for confounding effects of mandated disclosure about executive pay (*AFTER_PAY_LAW*) and ESG performance (*AFTER_ESG_DISCLOSURE*). The impact is economically meaningful. Taking the coefficient in column (2), the passage of SOP laws leads to a 10.36% increase in *ESG_CONTRACT*, relative to its pre-SOP mean value.²⁰ Because we include firm and year fixed effects, our results are unlikely driven by cross-firm heterogeneity or common time trends affecting both treatment and control firms. The results in Table 3 Panel A validate our research design by showing that SOP laws, on average, provide an avenue for shareholders to encourage ESG contracting. Our results remain after controlling for firms' institutional ownership (IO), suggesting that SOP laws have an incremental effect in promoting ESG contracting over other influences that large institutional ownership might have. We fail to detect a significant association between institutional ownership (IO) and ESG contracting. This could speak to varied preferences for ESG contracting among institutional owners or the relatively limited variation in institutional ownership within firm (since firm fixed effect absorb cross-sectional differences).

A potential concern of our interpretation that SOP is an exogenous shock to ESG contracting is that the country level adoption of SOP was undertaken specifically to encourage ESG contracting in firms. This seems unlikely as research suggests the primary reason for SOP adoption were concerns related to core aspects of executive pay such as pay level (e.g., Thomas and Var der Elst 2015) and not a desire for ESG contracting specifically. As validation, we search ESG laws written in English (Australia, US, and UK) and find no reference to the words “ESG”, “sustainability”, “CSR”, “environment” and “social” aside from the name of one comment letter writer, the “Social Investment Forum”, in the US. Since the US has a large sample size and an extensive description of decisions behind the SOP law, validating that the intention of the law was

²⁰ Computed as 0.018 (the coefficient on SOP in column (2)) divided by 0.172 (the pre-SOP mean value of *ESG_CONTRACT* as reported in Table 2 Panel B).

unrelated to ESG contracting, we rerun (untabulated) our analysis on only US firms and continue to find increased in ESG contracting after SOP relative to before the law.

5.2. Variation in Investor Type and ESG Contracting

To shed light on varying preferences of investors over ESG contracting, in Table 3 Panel B we exploit cross-sectional variation in investor type. Specifically, we re-estimate model (1) and interact SOP indicators with proxies for different investor types.

5.2.1 Institutional Investors

We first evaluate the impact of SOP laws on ESG contracting conditional on aggregate institutional ownership. Whether and the extent to which institutional owners rely on ESG contracting to promote ESG performance may vary depending on their investment horizon and ties with their portfolio firms. Research suggests that institutional owners have greater influence over firm actions and are much more likely to cast ballots and do so strategically (Morgan et al. 2011). They also have greater ability to take subsequent (though more costly) actions if unsatisfied with a firm's response to voting outcomes. We measure high institutional ownership using an indicator for whether the firm has institutional ownership above the country-year median (*HIGH_IO*) and interact with SOP. As reported in Table 3 Panel B, column (1), we continue to find a positive relation between SOP laws and ESG contracting but the benefit of SOP laws on ESG contracting is only marginally larger for firms with higher institutional ownership. The coefficient on the interaction term, *SOP*HIGH_IO*, is positive but significant only in a one-tailed test. The lack of strong significance may reflect heterogeneous preferences of some large institutions.

5.2.1 Domestic Institutional Investors

We next consider whether domestic (local) institutional investors have greater influence in encouraging the adoption of ESG contracting. Local institutional investors have been shown to

have informational advantages (Ellis et al. 2020). In addition, research has documented that local institutional investors, those geographically proximate to the firm, may be more effective monitors of the firm (Chhaochharia et al. 2012). If domestic institutional investors have better information advantage and better ability to monitor the firm, relative to foreign investors, we expect the influence of SOP on ESG contracting to be stronger when there is a high ownership by domestic investors. To test this, we interact SOP indicators with an indicator that captures high domestic institutional ownership (*DOM_IO*), measured as domestic ownership above the country-year median. In Table 3 Panel B, column (2), we find that the positive effect of SOP laws is significantly stronger when the level of domestic institutional investors is higher.

5.2.3. ESG-Conscious Investors

Investors who prefer ESG activities would be more likely to advocate for ESG contracting. Since we lack specific data about ESG preferences for our global sample (e.g., ESG-focused mutual fund ownership), we proxy for this with stakeholder orientation and expect investors from stakeholder-oriented countries to have stronger pre-ESG preference. Following Dhaliwal et al. (2012), we partition our firms based on country-level index of public awareness of stakeholder value. We consider investors in countries with above sample median values of public awareness as ESG-conscious investors. As reported in Table 3 Panel B, column (3), we find that the treatment effect of SOP laws on ESG contracting is more pronounced for ESG-conscious investors.

5.2.4. Investor Voting Power

We partition our sample based on investors' voting power, as SOP laws that afford investors more power are more likely to generate contracting changes. We use binding votes (*BINDING*) that require firms to change pay policies in response to negative votes, versus votes that are advisory or comply-or-explain, to capture greater investor voting power (Correa and LeI,

2016). As shown in column (4) of Table 3 Panel B, we find that the impact of SOP laws on ESG contracting is concentrated in countries in which such laws are binding.

Overall, our results in Table 3 Panel B provide corroborative evidence that investors on average use their voting power granted by SOP laws to voice their demand for ESG contracting; such effect varies predictably with investor preferences and ability to influence firm behavior.

5.3. Composition of ESG Contracting: Evidence from Executive Plan-based Award Grants

To provide more insight into the changes in CEO compensation contracts, we retrieve detailed grant-level data of executive plan-based grant awards from 2002–2019 from ISS Incentive Lab. Our sample is limited to 8,445 firm-years based on coverage of ISS US and Europe databases. However, the granular nature of this data allows us to identify specific metrics and their effects on ESG performance. We classify grants based on performance metrics included as accounting, stock return, or ESG performance with multiple classification possible for grants with multiple metrics.²¹ Next, for each type of metric, we aggregate the number of grants using that metric at the firm-year level. Lastly, we calculate a ratio capturing the proportion of grants using each metric (e.g., the number of grants tied to ESG scaled by the total number of grants in a given firm and year). Appendix B provides details about the classifications.

Table 4 Panel A reports the results examining the changes in likelihood of issuing each type of grant awards. In column (1) we find that SOP laws lead to a significant increase in the issuance of ESG-based grants (p-value<0.01). We do not find a similar increase for accounting-based grants in column (2). In column (3), we find a marginal increase in the use of stock-based grant awards following SOP laws (p-value<0.10). These results suggest that SOP laws lead to a significant increase in the inclusion of ESG metrics in CEO compensation.

²¹ We categorize grants using any other metric as “other non-financial.” An untabulated analysis shows that SOP laws do not impact this type of grant.

In Table 4 Panel B, we disaggregate ESG-related metrics into those tied to general ESG/CSR, environmental, or social issues. As shown in columns (1)-(3), we find the passage of SOP laws lead to significant increases in the likelihood of incorporating all three subcategories of ESG metrics into CEO compensation. The increases after SOP range from 0.7% for social metrics to 4.9% for general ESG/CSR metrics. These results using more detailed compensation information corroborate our findings that ESG-based contracting increases after SOP adoption.²²

5.4. Does ESG Contracting Effectively Promote ESG Performance?

We next consider whether increases in ESG contracting associated with SOP law adoption improve firms' ESG performance. Increases in ESG contracting may not necessarily result in better ESG performance. Firms may adopt ESG contracting for “greenwashing” purposes (Bonham and Riggs-Cragun 2022) and in a symbolic manner that does not provide sufficient incentives to change managerial behavior (e.g., tying only a small portion of compensation to ESG metrics, setting easily achievable ESG targets). To empirically evaluate this, we examine whether SOP laws lead to subsequent improvement in ESG performance, and then investigate whether ESG contracting is the mechanism for this improvement.

5.4.1. ESG Contracting as a Pathway to Improve ESG Performance

Table 5 Panel A reports the results of estimating model (2a) on the impact of SOP laws on firms' subsequent ESG performance. We report the results of composite ESG scores (*ESG_SCORE*) in column (1), environment scores (*Environ_Score*) in column (2), and social scores (*Social_Score*) in column (3). Across all three columns, we find consistent evidence that the passage of SOP laws leads to a subsequent increase in firms' ESG performance.

In Table 5 Panel B, we estimate model (2b) to examine whether the improvements in firms'

²² To ensure our results are not driven by U.S. firms, we conduct additional analysis excluding U.S. firms and find consistent results (untabulated).

ESG scores after SOP laws are driven by ESG contracting by focusing on firms that newly adopted ESG contracting after SOP. The interaction term, $SOP * \Delta ESG_CONTRACT$, which captures the incremental effect of SOP laws on ESG performance conditional on adopting ESG contracting, is our coefficient of interest. Across all three columns, we find evidence that SOP laws lead to a greater improvement in ESG performance for firms newly adopting ESG contracting after the law change ($\Delta ESG_CONTRACT = 1$).²³ In terms of economic significance, adopting firms experience a 11.6%, 16.5%, 6.6% larger increase in their ESG, environmental, and social scores, relative to firms in non-adopting countries.²⁴ F-tests on the joint significance of β_1 and β_2 show that SOP laws on average enhance ESG performance among adopters of ESG contracting after the law change. In Columns (1) and (2) we also find a positive and significant coefficient on SOP . Our analysis uses a narrow definition of $\Delta ESG_CONTRACT$ that includes only those firms that newly adopted ESG contracting in the year after SOP in order to capture changes attributable to SOP. Other firms (those that waited until year $t+2$ or later to adopt ESG contracting or those that used ESG contracting in the pre-period but increased the intensity after SOP) have $\Delta ESG_CONTRACT$ equal to 0; changes in ESG performance for these firms would be captured by the main effect of SOP.

In Table 5 Panel C, we merge our sample with grant-level data from ISS Incentive Lab to further examine which type of grant-level changes in executives' incentive plans has the strongest impact on firms' ESG performance. We construct three variables to capture changes in executives' incentive grants (ΔCSR_GRANT , $\Delta SOCIAL_GRANT$, and $\Delta ENVIRON_GRANT$) after the adoption

²³ How long it takes for firms to improve ESG performance and for such improvements to be reflected in ESG scores may vary. We measure ESG scores in year $t+1$ to better capture the impact of ESG contracting on subsequent performance. Research documents that at least some changes are perceptible within a year after increased institutional ownership (Chen et al. 2020) and environmental shareholder proposals (Grewal et al. 2016). In untabulated analysis, we find our results remain unchanged if we measure ESG scores in year t .

²⁴ The pre-SOP values of ESG_Score , $Environ_Score$, and $Social_Score$ are 0.395, 0.290, and 0.409 respectively (reported in Table 2-panel B). The incremental increases in corresponding scores associated with the use of ESG contracting ($SOP + SOP * \Delta ESG_CONTRACT$) in the post-SOP period are 9.9% (0.046/0.395), 16.5% (0.048/0.290), and 6.6% (0.027/0.409).

of SOP laws and find that tying executive incentives to environmental metrics, which tend to be more quantifiable, is associated with improved ESG performance.

In untabulated analyses, we also adopt an alternative identification strategy using a two-stage approach. In the first stage, we use the adoption of SOP laws as an instrument for *ESG_CONTRACT* and regress ESG performance measures on the predicted value of *ESG_CONTRACT* in the second stage. Our inference remains unchanged.

Collectively, our results from Tables 3-5 suggest that increases in SOP laws encourage adoption of ESG contracting, providing a pathway to improve firms' future ESG performance. While research documents the influence of SOP laws on reducing poor pay practices (Ferri and Maber 2013), we are, to our knowledge, the first to document SOP's effects on ESG performance through the implementation of ESG contracting.²⁵

5.4.2. Governance Mechanism to Strengthen ESG Contracting-Performance Link

We explore mechanisms that might strengthen the link between ESG contracting and performance. Since changes in contracting are implemented by the board, characteristics of the board are likely to influence the effectiveness of ESG contracting. Boards that have greater concern for ESG issues, proxied by the presences of a separate CSR committee (*CSR_COMM*) are more likely to design contracts to encourage ESG improvement. Boards with an entirely independent compensation committee (*INDEP_COMP*) are likely less beholden to the CEO and more likely to implement meaningful ESG contracting (e.g., not set easily achievable ESG targets).

Table 6 reports results related to these predictions. Specifically, we partition our sample into two subsamples based two governance proxies: whether firms have a CSR committee or a

²⁵ Other improvements in firm governance (e.g., greater board independence, better ballot access) could provide an avenue to improve ESG performance. To help ensure our results are not driven by country-level governance reforms (especially if these coincided with SOP adoption), we rerun analyses (untabulated) including an indicator variable=1 after the year of major governance reforms as identified in Liao et al. (2021) and our results remain consistent.

fully independent compensation committee.²⁶ In columns (1) and (2), we find that the incremental impact of ESG contracting on ESG performance following SOP laws is greater for firms with a separate CSR committee (*CSR_COMM*) and those with a fully independent compensation committee (*INDEP_COMP*). These results suggest that SOP laws and corporate governance are likely complements in encouraging changes in ESG performance.

Overall, the results in Tables 5 and 6 show that ESG contracting leads to improved ESG performance after SOP laws. Our evidence also suggests that the inclusion of ESG-related metrics in compensation contracts is not greenwashing. Rather, they are consistent with SOP laws providing a means for investors to communicate demand for firms' ESG performance.²⁷

6. Additional Analyses

We conduct a series of analyses to provide additional insights and evaluate the robustness of our findings.

6.1. ESG Contracting and Firm Adoption of Environmental Policies

Bonham and Riggs-Cragun (2022) show that the effectiveness of ESG contracting may depend on the measurability of ESG outcomes—contracts can better align shareholder objectives with ESG goals when ESG outcomes can be reliably measured. To provide insight into this, we examine whether ESG contracting leads to a greater likelihood of firm adoption of environmental policies. Evaluating environmental policies also mitigates concerns that improvements in ESG scores are a result of adopting ESG contracting rather than actual improvement in underlying ESG activities. As environmental metrics, such as carbon emissions, is relatively easier to quantify and

²⁶ We use subsample analyses to facilitate the interpretation of our results. Another benefit of subsample analysis is that we allow potential interactions of our partitioning variable with all variables in the model, not limited to variable of interests (Lang et al. 2012). Our results remain inferentially unchanged if we use the three-way interaction term, *SOP*ΔESG_CONTRACT*Governance Proxy*, instead of subsample analysis.

²⁷ The link between ESG performance and firm value remains an area of significant debate. In untabulated analysis, we find that after SOP laws, increases in Tobin's Q are more pronounced among firms that newly adopted ESG contracting. This suggests that on average SOP laws encouraged value increasing ESG investment.

verify, we examine whether ESG contracting incentivizes firms to adopt environmentally friendly policies, including CO₂ emissions (*CO2_PROCESS*), emission reduction (*EMISSION_REDUCE*), product lines designed to generate positive environmental impact (*ENVIRON_PRODUCT*), and toxic substance reduction (*TOXIC_REDUCE*).²⁸

If ESG contracting induces the incorporation of more measurable environmental metrics in compensation contracts, we expect the coefficient on *SOP*ΔESG_CONTRACT* to be positive and significant. As reported in Table 7, we find positive and significant coefficients across all four environmental policy types in columns (1) through (4). F-tests show that the combined effects of β_1 and β_2 are positive and significant in most cases from columns (1) to (3), suggesting that SOP laws on average increase firm incentives to adopt environmental policies after implementing ESG contracting. These results reinforce that ESG contracting enables investors to promote the adoption of policies to generate positive environmental impacts and results are not limited to ESG scores.

6.2. Stacked Difference-in-Differences Regression Results

Baker et al. (2022) discuss potential estimation bias in a staggered difference-in-differences design where all countries are treated at some point during the sample period. This should be less of a concern for us as 22 of 36 countries in our sample (61%) did not experience any SOP law changes, providing a clean “never-treated” control group. Also, by including firm and year fixed effects, our identification comes from “within-firm” pre-and post-changes in ESG performance for treatment firms, relative to the set of control firms. Nonetheless, we employ a stacked difference-in-differences approach (Cengiz et al 2019, Baker et al. 2022) to resolve issues associated with a staggered design. For each SOP adoption event, we construct a cohort of SOP-law affected treatment firms and two alternative control samples: a clean sample of “never treated” firms and

²⁸ An emerging literature shows that shareholders care about climate risk and enforce real changes in corporate environmental policies (e.g., Bolton and Kacperczyk 2021; Stroebel and Wurgler 2021).

one including both “never treated” and “future treated” firms. Both control samples are untreated at the time of stacked events, alleviating concerns of treatment heterogeneity (Baker et al. 2022). We estimate the model over a *three-year* event window with firm×cohort and year×cohort fixed effects along with country fixed effects to allow the firm and year fixed effects to vary by cohort (Gormley and Matsa 2011).²⁹ This stacked approach is equivalent to a setting where the events happen contemporaneously, preventing biases stemming from using past-treated units as controls.

As reported in Table 8, we find that treatment firms are more likely to adopt ESG compensation contracting (*ESG_CONTRACT*) after SOP laws relative to never treated firms (column 1) or both never treated and future treated firms (column 2). Examining firms’ subsequent ESG performance in columns (3) and (4), we find consistent evidence that firms that adopt ESG contracting after SOP laws see improvements in ESG scores.

6.3. Sensitivity Analysis using 2019 Version of ASSET4 Database

Berg et al. (2022) raise concerns that Refinitiv altered its scoring methodology in 2020, resulting in changes to historic ESG scores in a manner that created greater correlation between ESG scores and *stock* returns. Since our outcome variables are not market-based, these changes should not directly influence our assessments of ESG contracting or its subsequent impact on firms’ ESG performance. To provide greater assurance on our findings, we obtain point-in-time data for the ASSET4 database downloaded in 2019 (the version before the change in methodology occurred on April 6, 2020 per Berg et al. (2022)) and repeat our main analysis. In untabulated analysis, we find our inferences remain unchanged; results using point-in-time ASSET data are consistent in significance and magnitude with our primary analyses.

6.4. Robustness Tests

²⁹ We create the stacked events by modifying the codes shared by Barrios (2021). To avoid potential confounding events, we conduct the analysis using a three-year event window. Our results are similar if we use a five-year window.

We conduct several robustness tests on the analysis from Table 5 Panel B. First, we exclude US firm-years which constitute 33.85% of our sample (Table 9 Panel A). Second, since most treatment countries are developed economies, we restrict our control sample to those with a Human Development Index (HDI) greater than 0.80 (Table 9 Panel B).³⁰ Finally, we follow Correa and Lel (2016) and employ nearest-neighbor matching with the Mahalanobis metric as the weighting criterion, first matching at the country level on legal origin and HDI and then based on same set of firm-level control variables in model 1 (Table 9 Panel C).³¹ Our results remain robust across all these analyses.

7. Conclusion

Concurrent with increased investor focus on ESG performance is the increased use of ESG metrics in executive compensation contracts. However, whether ESG contracting (the general adoption of ESG-related compensation policies or linking of compensation to CSR targets) facilitates improved ESG performance is not well-understood. We use the adoption of SOP laws, a means for all investors to express preferences for ESG through their influence on executive compensation contracts, to provide exogenous variation in ESG contracting. Using a sample of firms from 36 countries during the period 2002–2019 and the staggered adoption of SOP laws to identify increases in ESG contracting, our approach exploits within-firm changes in ESG contracting and performance for firms in SOP-adopting countries, relative to those in non-adopting countries. We find that the adoption of SOP laws leads to greater ESG contracting, including in a subsample of firms for which we can observe specific ESG performance metrics in compensation

³⁰ <https://worldpopulationreview.com/country-rankings/developed-countries>

³¹ We also employ entropy balancing, weighting each control observation so that the mean, variance, and skewness of observable characteristics (legal origin, HDI, and all firm-level covariates in our regressions) are similar between treatment and control firms (Hainmueller and Xu 2013). For both ESG contracting and ESG performance, our conclusions (untabulated) are unchanged. Additionally, we restrict our analysis to countries with below median attrition of firms based on the availability of ESG and other data and our results remain consistent.

contracts. We find firms that adopt ESG contracting after SOP adoption have improved ESG performance and greater adoption of environmentally friendly policies. Improved performance is concentrated in firms with board structures more likely to engender change: those with CSR committees or independent compensation committees. Our results are robust to a variety of additional analyses, including entropy-balancing and an alternative difference-in-differences approach that mitigates biases related to staggered event timing.

We provide new evidence on investors' preferences for ESG performance. We document that investors empowered by SOP laws, which afforded voice to investors, not just large ones, use ESG contracting to translate their preferences into performance. Further, our study contributes to the call for additional research into ESG contracting from the UN PRI³² to better understand if and when such contracting practices represent a meaningful pathway to improve ESG performance or simply reflect greenwashing.

Our study is subject to limitations. First, while we attempt to control for other observable changes at the firm and country level, there may have been other factors influencing ESG performance. For these to impact our results, these factors would need to be concurrent with each country's SOP adoption. This is unlikely but we acknowledge that we cannot fully rule this out. Second, there are a variety of means through which shareholders can advocate for ESG changes (e.g., shareholder proposals, direct engagement). Our study does not speak to the relative effectiveness of ESG contracting versus these other strategies. Finally, we are limited by the availability of ESG data (and other firm-level data) within the ASSET4 and Worldscope databases, making it unclear if our results would generalize to a different set of firms.

³² <https://www.unpri.org/executive-pay/esg-linked-pay-what-does-the-research-say/7863.article>

References

- Aggarwal, R., I. Erel, M. Ferreira, and P. Matos. 2011. Does governance travel around the world? Evidence from institutional investors. *Journal of Financial Economics* 100 (1):154-181.
- Alissa, W. 2015. Boards' response to shareholders' dissatisfaction: The case of shareholders' say on pay in the UK. *European Accounting Review* 24 (4):727-752.
- Baker, A. C., D. F. Larcker, and C. C. Wang. 2022. How much should we trust staggered difference-in-differences estimates? *Journal of Financial Economics* 144 (2):370-395.
- Baloria, V. P., K. J. Klassen, and C. I. Wiedman. 2019. Shareholder activism and voluntary disclosure initiation: The case of political spending. *Contemporary Accounting Research* 36 (2):904-933.
- Banker, R.D., Lee, S.Y., Potter, G. and Srinivasan, D., 1996. Contextual analysis of performance impacts of outcome-based incentive compensation. *Academy of Management journal*, 39(4), pp.920-948.
- Barber, B. M., A. Morse, and A. Yasuda. 2021. Impact investing. *Journal of Financial Economics* 139 (1):162-185.
- Barrios, J. M. 2021. Staggeringly problematic: A primer on staggered DiD for accounting researchers. *Available at SSRN 3794859*.
- Bebchuk, L. A., and J. M. Fried. 2010. Paying for long-term performance. *University of Pennsylvania Law Review*:1915-1959.
- Bebchuk, L. A., and R. Tallarita. 2022a. The perils and questionable promise of ESG-based compensation. *J. Corp. L.* 48:37.
- . 2022b. Will Corporations Deliver Value to All Stakeholders? *Forthcoming, Vanderbilt Law Review* 75.
- Becht, M., J. Franks, C. Mayer, and S. Rossi. 2009. Returns to shareholder activism: Evidence from a clinical study of the Hermes UK Focus Fund. *The Review of Financial Studies* 22 (8):3093-3129.
- Berg, F., K. Fabisik, and Z. Sautner. 2022. Is history repeating itself? The (un) predictable past of ESG ratings. *The (Un) Predictable Past of ESG Ratings (August 24, 2021). European Corporate Governance Institute-Finance Working Paper* 708.
- Boffo, R., and R. Patalano. 2020. ESG investing: practices, progress and challenges. *Éditions OCDE, Paris*.
- Bolton, P., and M. Kacperczyk. 2021. Do investors care about carbon risk? *Journal of Financial Economics* 142 (2):517-549.
- Bonham, J., and A. Riggs-Cragun. 2022. Motivating ESG activities through contracts, taxes and disclosure regulation. *Chicago Booth Research Paper* (22-05).
- Broccardo, E., O. D. Hart, and L. Zingales. 2020. Exit vs. voice: National Bureau of Economic Research.
- Cai, Y., H. Jo, and C. Pan. 2011. Vice or virtue? The impact of corporate social responsibility on executive compensation. *Journal of Business Ethics* 104 (2):159-173.
- Callan, S. J., and J. M. Thomas. 2011. Executive compensation, corporate social responsibility, and corporate financial performance: a multi-equation framework. *Corporate Social Responsibility and Environmental Management* 18 (6):332-351.
- Cengiz, D., A. Dube, A. Lindner, and B. Zipperer. 2019. The effect of minimum wages on low-wage jobs. *The Quarterly Journal of Economics* 134 (3):1405-1454.
- Chen, T., H. Dong, and C. Lin. 2020. Institutional shareholders and corporate social responsibility. *Journal of Financial Economics* 135 (2):483-504.
- Chen, Y.-C., M. Hung, and Y. Wang. 2018. The effect of mandatory CSR disclosure on firm profitability and social externalities: Evidence from China. *Journal of Accounting and Economics* 65 (1):169-190.
- Chhaochharia, V., A. Kumar, and A. Niessen-Ruenzi. 2012. Local investors and corporate governance. *Journal of Accounting and Economics* 54 (1):42-67.
- Christensen, D. M., G. Serafeim, and A. Sikochi. 2022. Why is corporate virtue in the eye of the beholder? The case of ESG ratings. *The accounting review* 97 (1):147-175.
- Cohen, S., I. Kadach, G. Ormazabal, and S. Reichelstein. 2023. Executive compensation tied to ESG performance: International evidence. *Journal of Accounting Research*.
- Canyon, M., and G. Sadler. 2010. Shareholder voting and directors' remuneration report legislation: Say on pay in the UK. *Corporate Governance: An International Review* 18 (4):296-312.
- Correa, R., and U. Lel. 2016. Say on pay laws, executive compensation, pay slice, and firm valuation around the world. *Journal of Financial Economics* 122 (3):500-520.
- Curtis, Q., J. E. Fisch, and A. Robertson. 2021. Do ESG Mutual Funds Deliver on Their Promises? *U of Penn, Inst for Law & Econ Research Paper* (21-17).
- Dai, R., H. Liang, and L. Ng. 2020. Socially responsible corporate customers. *Journal of Financial Economics*.

- de Villiers, C., J. Jia, and Z. Li. 2022. Corporate social responsibility: A review of empirical research using Thomson Reuters Asset4 data. *Accounting & Finance* 62 (4):4523-4568.
- Dhaliwal, D. S., S. Radhakrishnan, A. Tsang, and Y. G. Yang. 2012. Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. *The Accounting Review* 87 (3):723-759.
- Di Giuli, A., and L. Kostovetsky. 2014. Are red or blue companies more likely to go green? Politics and corporate social responsibility. *Journal of Financial Economics* 111 (1):158-180.
- Dikolli, S. S., M. M. Frank, M. Z. Guo, and L. J. Lynch. 2021. Walk the Talk: ESG Mutual Fund Voting on Shareholder Proposals. Available at SSRN 3849762.
- Diligent. 2021. The Growing Influence of ESG in Executive Compensation. <https://www.diligentinstitute.com/commentary/the-growing-influence-of-esg-in-executive-compensation/>: Diligent Institute.
- Dimson, E., O. Karakas, and X. Li. 2015. Active ownership. *The Review of Financial Studies* 28 (12):3225-3268.
- Downar, B., J. Ernstberger, S. Reichelstein, S. Schwenen, and A. Zaklan. 2021. The impact of carbon disclosure mandates on emissions and financial operating performance. *Review of Accounting Studies* 26:1137-1175.
- Dyck, A., K. V. Lins, L. Roth, and H. F. Wagner. 2019. Do institutional investors drive corporate social responsibility? International evidence. *Journal of Financial Economics* 131 (3):693-714.
- Ellis, J., L. Madureira, and S. Underwood. 2020. The causal effects of proximity on investment: Evidence from flight introductions. *Journal of Financial and Quantitative Analysis* 55 (6):1978-2004.
- Ertimur, Y., F. Ferri, and D. Oesch. 2013. Shareholder votes and proxy advisors: Evidence from say on pay. *Journal of Accounting Research* 51 (5):951-996.
- Fernandes, N., M. A. Ferreira, P. Matos, and K. J. Murphy. 2013. Are US CEOs paid more? New international evidence. *The Review of Financial Studies* 26 (2):323-367.
- Ferri, F., and D. A. Maber. 2013. Say on pay votes and CEO compensation: Evidence from the UK. *Review of Finance* 17 (2):527-563.
- Fisch, J., Palia, D. and Solomon, S.D., 2018. Is say on pay all about pay: The impact of firm performance. *Harv. Bus. L. Rev.*, 8, p.101.
- Flammer, C., B. Hong, and D. Minor. 2019. Corporate governance and the rise of integrating corporate social responsibility criteria in executive compensation: Effectiveness and implications for firm outcomes. *Strategic Management Journal* 40 (7):1097-1122.
- Friedman, M. 1970. A Friedman doctrine-- The Social Responsibility of Business Is to Increase Its Profits. *The New York Times*.
- Gillan, S. L., A. Koch, and L. T. Starks. 2021. Firms and social responsibility: A review of ESG and CSR research in corporate finance. *Journal of Corporate Finance* 66:101889.
- Gneezy, U., S. Meier, and P. Rey-Biel. 2011. When and why incentives (don't) work to modify behavior. *Journal of Economic Perspectives* 25 (4):191-210.
- Gompers, P., J. Ishii, and A. Metrick. 2003. Corporate governance and equity prices. *The Quarterly Journal of Economics* 118 (1):107-156.
- Gormley, T. A., and D. A. Matsa. 2011. Growing out of trouble? Corporate responses to liability risk. *The Review of Financial Studies* 24 (8):2781-2821.
- Grabner, I., A. Renders, and L. Yang. 2020. The complementarity between CSR disclosures and the use of CSR-based performance measures in CEO annual incentive contracts. Available at SSRN 3670738.
- Grewal, J., G. Serafeim, and A. Yoon. 2016. Shareholder activism on sustainability issues. Available at SSRN 2805512.
- Hainmueller, J., and Y. Xu. 2013. Ebalance: A Stata package for entropy balancing. *Journal of Statistical Software* 54 (7).
- Haque, F. 2017. The effects of board characteristics and sustainable compensation policy on carbon performance of UK firms. *The British Accounting Review* 49 (3):347-364.
- Hartzmark, S. M., and A. B. Sussman. 2019. Do investors value sustainability? A natural experiment examining ranking and fund flows. *The Journal of Finance* 74 (6):2789-2837.
- Hong, H., J. D. Kubik, and J. A. Scheinkman. 2012. Financial constraints on corporate goodness: National Bureau of Economic Research.
- Huber, B. M., M. Comstock, D. Polk, and L. Wardwell. 2017. ESG reports and ratings: What they are, why they matter. *The Corporate Governance Advisor* 25 (5):1-12.
- Ikram, A., Z. F. Li, and D. Minor. 2019. CSR-contingent executive compensation contracts. *Journal of Banking & Finance*:105655.

- Kim, I., H. Wan, B. Wang, and T. Yang. 2019. Institutional investors and corporate environmental, social, and governance policies: Evidence from toxics release data. *Management Science* 65 (10):4901-4926.
- Kim, S., and A. Yoon. 2020. Analyzing Active Managers' Commitment to ESG: Evidence from United Nations Principles for Responsible Investment. *Available at SSRN 3555984*.
- Kimbrough, M. B., and D. Xu. 2016. Shareholders have a say in executive compensation: Evidence from say-on-pay in the United States. *Journal of Accounting and Public Policy* 35 (1):19-42.
- Krueger, P., Z. Sautner, D. Y. Tang, and R. Zhong. 2023. The Effects of Mandatory ESG Disclosure around the World. *Available at SSRN 3832745*.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny. 1998. Law and Finance. *Journal of Political Economy* 106 (6):1113-1155.
- Lang, M., K. V. Lins, and M. Maffett. 2012. Transparency, liquidity, and valuation: International evidence on when transparency matters most. *Journal of Accounting Research* 50 (3):729-774.
- Liao, C. H., Z. San, A. Tsang, and L. Yu. 2021. Board reforms around the world: The effect on corporate social responsibility. *Corporate Governance: An International Review* 29 (5):496-523.
- Maas, K. 2018. Do corporate social performance targets in executive compensation contribute to corporate social performance? *Journal of Business Ethics* 148 (3):573-585.
- Maffett, M., A. Nakhmurina, and D. J. Skinner. 2022. Importing activists: Determinants and consequences of increased cross-border shareholder activism. *Journal of Accounting and Economics* 74 (2-3):101538.
- Meridian. 2021. Meridian Study on Use of ESG Metrics in Incentive Plans.
- Morgan, A., A. Poulsen, J. Wolf, and T. Yang. 2011. Mutual funds as monitors: Evidence from mutual fund voting. *Journal of Corporate Finance* 17 (4):914-928.
- Naughton, J. P., C. Wang, and I. Yeung. 2019. Investor sentiment for corporate social performance. *The accounting review* 94 (4):401-420.
- Pástor, L., R. F. Stambaugh, and L. A. Taylor. 2021. Sustainable investing in equilibrium. *Journal of Financial Economics* 142 (2):550-571.
- . 2022. Dissecting green returns. *Journal of Financial Economics* 146 (2):403-424.
- Pawliczek, A., A. N. Skinner, and L. Wellman. 2021. A New Take on Voice: The Influence of BlackRock's Dear CEO Letters. *Available at SSRN 3763042*.
- Phillips, M. 2021. How a Tiny Green Fund Turned the Exxon Tanker: New York edition 3.
- Reuters. 2021. Sustainable fund inflows hit record high in Q1 - Morningstar, edited by S. Jessop and P. Murugaboopathy. <https://www.reuters.com/business/sustainable-business/sustainable-fund-inflows-hit-record-high-q1-morningstar-2021-04-30/>: Reuters.
- Ribando, J. M., and G. Bonne. 2010. A new quality factor: Finding alpha with ASSET4 ESG data. *Starline Research Note, Thomson Reuters* 31.
- Sanchez-Marín, G., G. Lozano-Reina, J. S. Baixauli-Soler, and M. E. Lucas-Perez. 2017. Say on pay effectiveness, corporate governance mechanisms, and CEO compensation alignment. *BRQ Business Research Quarterly* 20 (4):226-239.
- Solomon, J. F., A. Solomon, S. D. Norton, and N. L. Joseph. 2011. Private climate change reporting: an emerging discourse of risk and opportunity? *Accounting, Auditing & Accountability Journal*.
- Stroebel, J., and J. Wurgler. 2021. What do you think about climate finance?: Elsevier, 487-498.
- SustainAbility. 2019. Rate the Raters 2019: Expert Views on ESG Ratings: SustainAbility, pp. 39.
- . 2020. Rate the Raters 2020: Investor Survey and Interview Results.: SustainAbility, pp. 54.
- Thomas, R.S. and Van der Elst, C., 2014. Say on pay around the world. *Wash. UL Rev.*, 92, p.653.

Appendix A. Variable Descriptions

Variables	Description	Source
ESG Compensation Contracting		
<i>ESG_CONTRACT</i>	=An indicator variable that equals one if the company has adopted an ESG related compensation policy or links a portion of executive compensation to CSR metrics, and zero otherwise	Thomson Reuters ESG ASSET4
<i>ΔESG_CONTRACT</i>	=An indicator variable that equals one if a firm newly adopts ESG compensation contracting within one year after the passage of SOP laws, and zero otherwise	Thomson Reuters ESG ASSET4
ESG Performance Scores		
<i>ESG_Score</i>	=The overall score of a firm's ESG performance (scaled from 0 to 1), based on the average of a firm's environmental (E), social (S) and corporate governance (G) performance. The score captures a firm's commitment to the environment, including resource use, emissions, and green innovation; non-shareholder stakeholders and social themes, including employee welfare, human rights, and the ethical treatment of customers, suppliers, and the communities in which the firm operates; and operationalizing and implementing corporate social responsibility (CSR) activities.	Thomson Reuters ESG ASSET4
<i>Environ_Score</i>	=Score of a firm's environmental performance (scaled from 0 to 1). The score covers factors related to resource usage, emission reduction, and green innovation, reflecting a company's performance and capacity to reduce the use of materials, energy, or water and to find more eco-efficient solutions by improving supply chain management, commitment and effectiveness toward reducing environmental emissions in the production and operational processes, and capacity to reduce the environmental costs and burdens for its customers, thereby creating new market opportunities through new environmental technologies and processes or eco-designed products.	Thomson Reuters ESG ASSET4
<i>Social_Score</i>	=Score of a firm's social performance (scaled from 0 to 1). The score covers factors Index aggregating information on the extent to which firms enhance employee welfare (Workforce), promote human rights (Human Rights), engage in community development (Community), and fulfill their responsibilities to consumers (Product Responsibility).	Thomson Reuters ESG ASSET4
Corporate Environmental Policies		
<i>CO2_PROCESS</i>	=An indicator variable that equals one if the company report on initiatives to reduce, reuse, recycle, substitute, or phase out CO ₂ and CO ₂ equivalent, and zero otherwise.	Thomson Reuters ESG ASSET4
<i>EMISSION_REDUCE</i>	=An indicator variable that equals one if the company have a policy to improve emissions reduction, and zero otherwise.	Thomson Reuters ESG ASSET4
<i>ENVIRON_PRODUCT</i>	=An indicator variable that equals one if the company report on at least one product line or service that is designed to have positive effect on the environment or which is environmentally labeled and marketed, and zero otherwise.	Thomson Reuters ESG ASSET4
<i>TOXIC_REDUCE</i>	=An indicator variable that equals one if the company report on initiatives to reduce, reuse, substitute or phase out toxic chemicals or substances, and zero otherwise.	Thomson Reuters ESG ASSET4
CEO Plan-based Grant Awards		
<i>ESG-related Grant</i>	=Number of plan-based grants awarded based on ESG-related issues, including CSR matters, environmental issues, social/employee/safety issues, and other sustainability issues	ISS Incentive Lab
<i>-Tied to general ESG/CSR Metrics</i>	=Number of ESG-related grants tied to CSR performance targets	ISS Incentive Lab
<i>-Tied to Environment Metrics</i>	=Number of ESG-related grants tied to environmental issues, e.g., toxic reduction, green house gas emissions, waste reduction, energy saving objectives etc.	ISS Incentive Lab
<i>-Tied to Social/Employee Metrics</i>	=Number of ESG-related grants tied to social/employee related issues, e.g., human capital, employee engagement, employee diversity, employee safety, fatality reduction etc.	ISS Incentive Lab
<i>Earnings-based Grant</i>	=Number of plan-based grants awarded based on accounting-based performance targets, such as earnings, core EPS, operating income etc.	ISS Incentive Lab
<i>Stock-based Grant</i>	=Number of plan-based grants awarded based on stock performance	ISS Incentive Lab
Test variable		
<i>SOP</i>	=An indicator variable that equals one for time period following the staggered passage of SOP laws, if any, and zero otherwise.	Correa and Lel (2016), Factiva search and media News

Control variables

Firm-level Controls

<i>IO</i>	=Percent of total institutional ownership. We assume IO values of firms not covered by Factset to be zero, consistent with the literature (e.g., Aggarwal et al. 2011, Gompers et al. 2003).	Factset Ownership
<i>SALES</i>	=Natural log of sales in thousands of US\$	Worldscope
<i>EMPLOYMENT</i>	=Natural log of one plus total number of employees in thousands	Worldscope
<i>MTB</i>	=Market value of equity divided by book value of equity	Worldscope
<i>K/L</i>	=Ratio computed as net property, plant and equipment scaled by total number of employees	Worldscope
<i>SALES_GROWTH</i>	=Annual change in net sales scaled by beginning total assets	Worldscope
<i>STD_CFO</i>	=Standard deviation of cash flows from operations calculated over a rolling five-year window ending in the current fiscal year.	Worldscope
<i>ROA</i>	=Net income before extraordinary items and preferred dividends scaled by beginning total assets	Worldscope
<i>FIRM_AGE</i>	= Natural log of one plus the number of years listed on Worldscope	Worldscope
<i>LEV</i>	=Total liabilities scaled by total assets	Worldscope
<i>CASH</i>	=Internally generated cash computed as after-tax income before extraordinary items plus depreciation and amortization plus R&D expense	Worldscope
<i>HERFINDAHL</i>	=Industry Herfindahl index based on all firms within each country, where industries are defined by 3-digit SIC code	Worldscope

Country-Level Macroeconomic Variables

<i>Log_GDP</i>	Natural log of total Gross Domestic Product (current US\$)	The World Bank World Development Indicators
<i>Log_Capita</i>	Natural log of per capita Gross Domestic Product (current US\$)	The World Bank World Development Indicators
<i>Log_FDI</i>	Natural log of foreign direct investments (current US\$)	The World Bank World Development Indicators

Country-level Confounding Events

<i>AFTER_PAY_LAW</i>	=An indicator variable that equals one for time period following the mandatory executive compensation laws, if any, and zero otherwise.	Fernandes et al. (2012)
<i>AFTER_ESG_DISCLOSURE</i>	=An indicator variable that equals one for time period following the mandatory ESG disclosure regulations, if any, and zero otherwise.	Krueger et al. (2021)

Shareholder Preferences and Enforcement Mechanism

Shareholder Preference, Commitment and Voting Power

<i>HIGH_IO</i>	=An indicator variable that equals one if a firm's total institutional ownership exceeds the country-year level median, zero otherwise	FactSet Ownership
<i>DOM_IO</i>	=An indicator variable that equals one if a firm's domestic institutional ownership exceeds the country-year level median, zero otherwise	FactSet Ownership
<i>STAKE</i>	=A country-level measure of stake-orientation, calculated as the principal factor of four public awareness of CSR issues introduced by Dhaliwal et al. (2012)	Dhaliwal et al. (2012)
<i>BINDING</i>	=An indicator variable that equals one if the SOP law is binding, and zero otherwise.	Correa and Le (2016)

Board Function to Support ESG Contracting

<i>INDEP_COMP</i>	=The percentage of independent directors on compensation committee	Thomson Reuters ESG ASSET4
<i>CSR_COMM</i>	=An indicator variable that equals one if the firm has a corporate social responsibility (CSR) committee, zero otherwise	Thomson Reuters ESG ASSET4

Appendix B. Classification of Plan-based Grant Awards

In this section, we provide details about our classification of plan-based grant awards. We obtain executive-level grant award data from ISS Incentive lab. Our data covers both U.S. firms and firms from the Europe file. After merging the firms from ISS with our main sample and deleting missing values, we go through the description for each performance metric to determine whether a grant is awarded based on accounting, stock, ESG-related, or other nonfinancial performance targets.

We start with the “MetricType” variable from ISS, which is the main categorization variable provided by ISS. If “MetricType” contains ‘CSR’, ‘Environmental’, or ‘Social’, we classify the grants as ESG-related grants into corresponding ESG-performance categories. We also record a grant as accounting-based or stock performance-based if “MetricType” reports the grant as ‘Accounting’ or ‘Stock price’.

For those grants with “MetricType” as “Other” or “Nonfinancial” Metrics, we look into the detailed description in “MetricOther” to further evaluate the type of performance metrics used in each grant. To provide finer classification, we define a pool of keywords to capture each type of grants as follows.

1. **Accounting-based grant:** tier one, KPI, operational performance, EPS, earnings growth, sales, capital
2. **Stock-based grant:** stock, stock return, shareholder return
3. **ESG-related grant:** grants that fall into any of the following categories:
 - a. *General CSR grant:* Global Reporting Initiatives (GRI), Health Safe Security Environment (HSSE), Health Safe Environment (HSE), CSR, ESG, sustainability, CSR responsibility
 - b. *Environmental grant:* environmental, water, planet, carbon, coal, earth, gas, energy, solar, electricity, greenhouse, GHG, waste, CO2, emission, nuclear
 - c. *Social grant:* social, safe, public, reputation, staff, team, ethnic, skill, consumer, societal, safety, safe, injury, employee, people, stakeholder, talent, diversity, diverse, health, death, fatal, hurt, incident, accident, HSEC,
4. **Other Nonfinancial grant:** all the remaining nonfinancial grants unidentified as any of the above categories.

Figure 1: Changes in ESG Contracting/Performance around SOP Law Adoption

This Figure presents the coefficient estimate β_k from the equation below, against years to treatment k . The estimate represents the difference in ESG contracting and performance variables between treatment and control observations, before and after the change in the adoption of SOP laws. The figure is plotted over a three-year window around the adoption of SOP laws (at time 0), excluding country-specific time trends. All variables are defined as in Appendix A.

$$\text{ESG Contract (Score)}_{ijt} = \alpha + \sum \beta_k \{ \text{SOP_Country}_{jt} * K \text{ years to adoption} \} + \text{Controls}_{ijt} + \text{Firm FE} + \text{Year FE} + \varepsilon$$

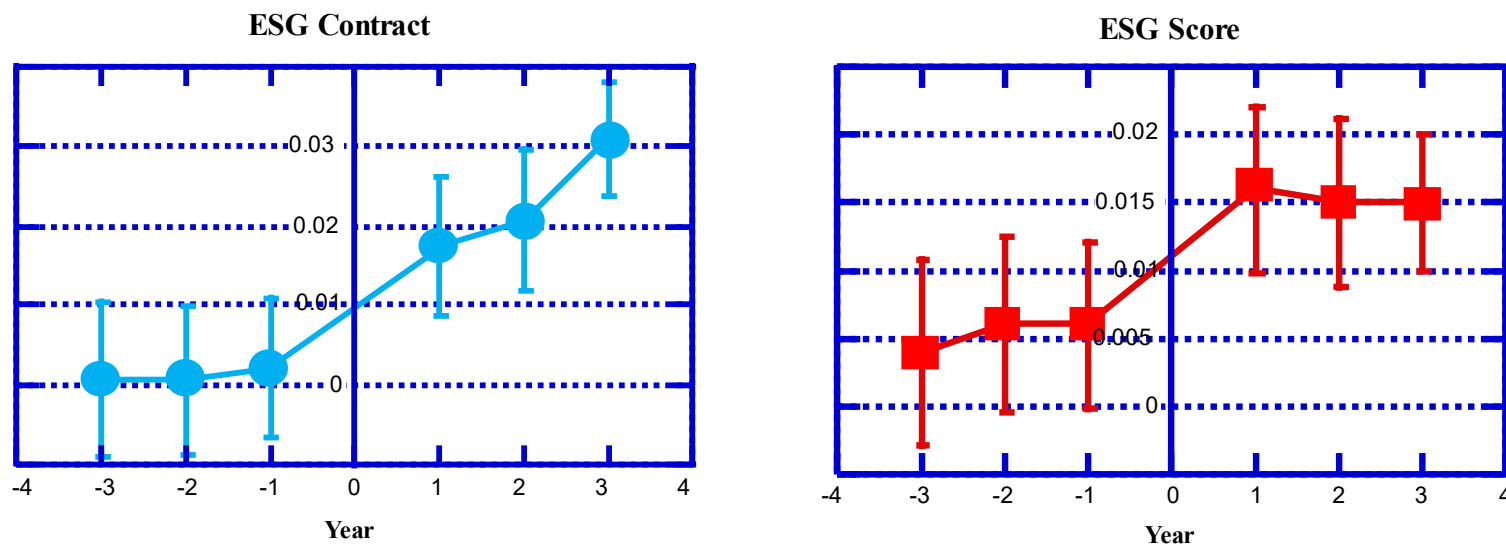


Table 1

Panel A: Sample Selection Process

	Observations	Firms
Initial Sample: Universe of ASSET4 Database During 2002-2019	183,816	10,212
after dropping observations not covered by Worldscope database	106,695	6,982
after dropping observations with missing values of ESG variables	50,709	6,973
after dropping observations with missing values of control variables	44,589	6,441
Baseline Sample for Main Analysis	44,589	6,441
after dropping observations with missing values of environmental policy variables	38,087	5,285
Sample for Analysis on Environmental Policies	38,087	5,285
after dropping observations with missing values from ISS Plan-based Grant Award	8,445	1,101
Sample for Analysis on CEO Incentive Plan	8,445	1,101

Table 1**Panel B: Sample Distribution by Country**

Country	N	#Firms	SOP Year	ESG Contracting	ESG Score
Argentina	100	38		0.02	30.72
Australia	3212	439	2005 (A)	0.46	32.94
Austria	118	13		0.14	41.58
Belgium	185	22	2012 (A)	0.19	37.33
Brazil	570	88		0.12	44.60
Canada	2820	383		0.32	33.59
Chile	165	23		0.03	32.69
China	1495	471		0.01	29.14
Denmark	278	36	2007(B)	0.17	45.43
Finland	365	46		0.13	50.16
France	1304	143	2016(B)	0.25	53.09
Germany	1208	168		0.16	47.31
Greece	223	24		0.07	33.48
Hong Kong	1334	163		0.04	35.15
India	733	114		0.06	47.07
Indonesia	303	40		0.09	42.85
Israel	149	18	2012(A)	0.13	32.94
Italy	467	78	2011(A)	0.16	47.57
Japan	4592	404		0.01	41.06
South Korea	1015	132		0.06	40.41
Malaysia	412	54		0.09	40.98
Mexico	316	44		0.07	44.07
Netherlands	516	64	2004(C)	0.43	49.03
Norway	274	57	2008(B)	0.30	43.79
Peru	76	18		0.00	35.10
Philippines	134	16		0.07	38.96
Poland	154	26		0.05	36.36
Portugal	125	14	2010(A)	0.09	50.34
Singapore	476	54		0.09	36.97
Spain	502	62	2014(B)	0.16	54.23
Sweden	676	131	2006(B)	0.11	49.15
Switzerland	658	103	2013(B)	0.13	44.15
Thailand	284	70		0.12	50.71
Turkey	226	41		0.10	44.77
U.K.	3980	423	2003(A)	0.35	43.38
U.S.	15144	2421	2011(A)	0.21	36.01

Table 1, Panel B reports the sample composition by country and descriptive statistics on ESG contracting and ESG scores by country. (A) indicates countries in which SOP votes are advisory, while (B) indicates SOP votes are binding on firms, and (C) indicates comply-or-explain SOP laws. All variables are defined in Appendix A.

Table 2
Descriptive Statistics of Selected Firm-level Variables

Panel A: SOP Countries vs. Non-SOP Countries (N=44,589)

Variable	SOP Countries (N=27,470)		Non-SOP Countries (N=17,119)	
	Mean	Std Dev	Mean	Std Dev
ESG_CONTRACT	0.260	0.374	0.100	0.254
ESG_Score (raw)	40.799	20.333	39.997	20.943
Envrion_Score (raw)	29.757	28.640	35.119	28.489
Social_Score (raw)	42.695	22.806	37.757	24.174
IO	0.543	0.340	0.201	0.174
SIZE	14.795	1.577	15.269	1.272
MTB	3.662	4.930	2.637	3.460
KL_RATIO	4.039	1.945	6.645	3.542
SALE_GROWTH	0.073	0.230	0.063	0.212
ROA	0.037	0.190	0.054	0.112
FIRM_AGE	2.778	0.909	2.889	0.750
LEV	0.256	0.219	0.238	0.191
CASH	0.097	0.200	0.117	0.201
Herfindahl	0.351	0.297	0.366	0.307
LOG_GDP	29.335	1.287	28.280	1.211
LOG_CAPITA	10.809	0.172	10.104	0.957
LOG_FDI	0.779	0.808	0.408	1.580

Panel B: Pre-SOP vs. Post-SOP Period for Treatment Firms (N=27,470)

Variable	Pre-SOP Period (N=7,675)		Post-SOP Period (N=19,706)	
	Mean	Std Dev	Mean	Std Dev
ESG_CONTRACT	0.171	0.329	0.294	0.384
ESG_Score (raw)	39.548	20.370	41.288	20.299
Envrion_Score (raw)	29.021	29.513	30.045	28.287
Social_Score (raw)	40.874	23.054	43.406	22.669
IO	0.595	0.332	0.523	0.341
SIZE	15.507	1.147	14.517	1.634
MTB	3.426	4.089	3.755	5.219
KL_RATIO	4.339	1.494	3.921	2.083
SALE_GROWTH	0.074	0.215	0.073	0.236
ROA	0.068	0.105	0.026	0.214
FIRM_AGE	2.835	0.820	2.756	0.941
LEV	0.250	0.195	0.259	0.228
CASH	0.123	0.121	0.088	0.222
Herfindahl	0.353	0.305	0.351	0.293
LOG_GDP	29.441	1.284	29.294	1.285
LOG_CAPITA	10.757	0.187	10.829	0.161
LOG_FDI	0.630	0.649	0.837	0.856

Table 2 reports the descriptive statistics for selected variables. Panel A reports the descriptive statistics for firms in SOP countries and non-SOP countries. Panel B reports the descriptive statistics for treatment firms in the pre-SOP and post-SOP periods.

Table 3
Say-on-Pay (SOP) Laws and ESG Compensation Contracting

Panel A: Difference-in-Differences Regression

Dependent Variable	ESG Contract		ESG Contract	
	(1)		(2)	
	Coeff.	t-Stat.	Coeff.	t-Stat.
<i>SOP</i>	0.016	3.11***	0.018	3.45***
<i>IO</i>	-0.004	-0.25	-0.007	-0.42
<i>SIZE</i>	0.014	4.50***	0.014	4.65***
<i>MTB</i>	0.000	-0.61	0.000	-0.54
<i>KL_RATIO</i>	0.001	0.96	0.001	0.78
<i>SALE_GROWTH</i>	-0.005	-0.83	-0.005	-0.83
<i>ROA</i>	-0.008	-0.51	-0.006	-0.41
<i>FIRM_AGE</i>	0.005	0.90	0.005	0.83
<i>LEV</i>	-0.005	-0.45	-0.004	-0.37
<i>CASH</i>	-0.003	-0.34	-0.004	-0.41
<i>Herfindahl</i>	-0.028	-1.51	-0.027	-1.48
<i>LOG_GDP</i>	1.088	17.40***	1.018	16.09***
<i>LOG_CAPITA</i>	-1.355	-18.46***	-1.288	-17.41***
<i>LOG_FDI</i>	-0.003	-1.75*	-0.002	-1.33
<i>After_Pay_Law</i>			0.034	3.92***
<i>After_ESG_Disclosure</i>			0.036	6.24***
Firm Fixed Effects	YES		YES	
Year Fixed Effects	YES		YES	
Adjusted R²	0.657		0.658	
Model p-value	<0.0001		<0.0001	
N	44589		44589	

Table 3, panel A reports the results of Say-on-Pay (SOP) laws on executives' ESG compensation contracting. SOP is an indicator variable that equals one for firm-years following the adoption of SOP laws in treatment countries, and zero otherwise. In all regressions, firm and year fixed effects are included and coefficient estimates and p-values are based on robust standard errors double clustered at the country and firm-level (Correa and Le1 2016). All variables are as defined in Appendix A.

***, ** and * denote significance at 1%, 5% and 10% levels (two tailed), respectively.

Table 3
Say-on-Pay (SOP) Laws and ESG Compensation Contracting

Panel B: Variation in Investor Type

Investor_Type=	Institutional Investor		Domestic Institutional Investor		ESG Conscious Investor		Investor Voting Power	
	(HIGH_IO)		(DOM_IO)		(STAKE)		(BINDING)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
<i>SOP</i>	0.014	2.29**	0.012	2.06**	0.029	5.18***	0.004	0.75
<i>SOP*Investor_Type</i>	0.008	1.35[#]	0.012	2.00**	0.017	5.64***	0.062	6.03***
<i>Investor_Type</i>	-0.004	-0.83	-0.005	-1.28				
<i>SIZE</i>	0.014	4.55***	0.014	4.61***	0.016	4.88***	0.015	4.76***
<i>MTB</i>	0.000	-0.56	0.000	-0.54	0.000	-0.74	0.000	-0.45
<i>KL_RATIO</i>	0.001	0.77	0.001	0.78	0.001	0.66	0.001	0.80
<i>SALE_GROWTH</i>	-0.005	-0.83	-0.005	-0.84	-0.006	-0.92	-0.006	-0.95
<i>ROA</i>	-0.007	-0.45	-0.007	-0.45	-0.007	-0.42	-0.006	-0.36
<i>FIRM_AGE</i>	0.004	0.78	0.004	0.78	0.000	-0.07	0.003	0.57
<i>LEV</i>	-0.003	-0.33	-0.003	-0.31	-0.001	-0.13	-0.001	-0.06
<i>CASH</i>	-0.004	-0.38	-0.004	-0.38	-0.004	-0.33	-0.004	-0.36
<i>Herfindahl</i>	-0.027	-1.48	-0.028	-1.49	-0.024	-1.24	-0.026	-1.42
<i>LOG_GDP</i>	1.018	16.12***	1.020	16.15***	1.143	16.96***	1.042	16.44***
<i>LOG_CAPITA</i>	-1.286	-17.38***	-1.290	-17.44***	-1.524	-17.74***	-1.305	-17.63***
<i>LOG_FDI</i>	-0.002	-1.33	-0.002	-1.34	0.000	0.14	-0.002	-1.35
<i>After_Pay_Law</i>	0.034	3.94***	0.034	3.94***	0.035	3.99***	0.033	3.83***
<i>After_ESG_Disclosure</i>	0.035	6.22***	0.035	6.23***	0.034	5.68***	0.031	5.32***
Firm Fixed Effects	YES		YES		YES		YES	
Year Fixed Effects	YES		YES		YES		YES	
Adjusted R²	0.658		0.659		0.655		0.658	
Model p-value	<0.0001		<0.0001		<0.0001		<0.0001	
N	44589		44589		42002		44589	

Table 3, panel B reports the results of Say-on-Pay (SOP) laws on executives' ESG compensation contracting, conditioning on the type of investors. SOP is an indicator variable that equals one for firm-years following the adoption of SOP laws in treatment countries, and zero otherwise. In all regressions, firm and year fixed effects are included and coefficient estimates and p-values are based on robust standard errors double clustered at the country and firm level (Correa and Le1 2016). All variables are as defined in Appendix A.

***, ** and * denote significance at 1%, 5% and 10% levels (two tailed), respectively. # denotes significance at 10% level (one tailed).

Table 4

Adoption of ESG Metrics in CEO Incentive Plan after Say-on-Pay (SOP) Laws

Panel A: Composition of Plan-based Executive Grant Awards (as a Proportion of Total Grants)

Dependent Variable:	% ESG Grants		% Accounting Grants		% Stock Grants	
	(1)		(2)		(3)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
<i>SOP</i>	0.047	3.98***	-0.002	-0.60	0.013	1.68*
Controls	YES		YES		YES	
Firm Fixed Effects	YES		YES		YES	
Year Fixed Effects	YES		YES		YES	
Adjusted R ²	0.625		0.695		0.417	
Model p-value	<0.0001		<0.0001		<0.0001	
N	8445		8445		8445	

Panel B: Breakdown of Performance Targets in ESG-related Grants (as a Proportion of Total Grants)

Dependent Variable:	% Grants Tied to general ESG/CSR Issues		% Grants Tied to Environmental Issues		% Grants Tied to Social Issues	
	(1)		(2)		(3)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
<i>SOP</i>	0.049	4.16***	0.007	1.72*	0.029	3.88***
Controls	YES		YES		YES	
Firm Fixed Effects	YES		YES		YES	
Year Fixed Effects	YES		YES		YES	
Adjusted R ²	0.628		0.439		0.613	
Model p-value	<0.0001		<0.0001		<0.0001	
N	8445		8445		8445	

Table 4 reports the results of further analysis exploiting changes in executive compensation composition around the adoption of SOP laws. Panel A reports the results on the changes in the proportion of each type of grants (scaled by number of total grants issued), measured by % ESG grants, % accounting (earnings)-based grants, and % stock-based grants. Panel B reports the results on the changes in performance targets included in ESG-related grants, including those tied to general CSR issues, environmental issues, and social/employee/safety-related issues. In all regressions, firm and year fixed effects are included and coefficient estimates and p-values are based on robust standard errors double clustered at the country and firm level (Correa and Le1 2016). All variables are as defined in Appendix A.

***, ** and * denote significance at 1%, 5% and 10% levels (two tailed), respectively.

Table 5
Say-on-Pay (SOP) Laws, ESG Contracting and ESG Performance

Panel A: Average Effect of SOP Laws on ESG Performance

Dependent Variable	ESG Score _{t+1}		Environmental Score _{t+1}		Social Score _{t+1}	
	(1)		(2)		(3)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
<i>SOP</i>	0.005	2.70***	0.012	4.32***	0.004	1.72*
<i>IO</i>	0.017	2.71***	-0.047	-5.47***	0.005	0.71
<i>SIZE</i>	0.032	26.19***	0.041	23.89***	0.027	18.11***
<i>MTB</i>	0.001	4.63***	0.001	4.84***	0.001	3.57***
<i>KL_RATIO</i>	0.002	5.84***	0.001	2.23**	0.002	6.36***
<i>SALE_GROWTH</i>	-0.004	-1.61	-0.009	-2.66***	0.007	2.37**
<i>ROA</i>	-0.002	-0.29	-0.004	-0.50	0.001	0.12
<i>FIRM_AGE</i>	0.031	13.58***	0.039	12.13***	0.026	9.32***
<i>LEV</i>	0.005	1.38	0.011	1.92*	-0.005	-1.00
<i>CASH</i>	0.002	0.43	-0.002	-0.44	-0.005	-1.07
<i>Herfindahl</i>	0.004	0.49	-0.017	-1.66	0.013	1.39
<i>LOG_GDP</i>	0.057	2.30**	0.026	0.76	-0.084	-2.73***
<i>LOG_CAPITA</i>	0.038	1.31	0.187	4.56***	0.138	3.81***
<i>LOG_FDI</i>	0.000	-0.70	-0.001	-0.77	0.002	1.78
<i>After_Pay_Law</i>	0.034	10.00***	0.042	8.89***	0.049	11.72***
<i>After_ESG_Disclosure</i>	0.018	8.01***	0.021	6.59***	0.029	10.45***
Firm Fixed Effects	YES		YES		YES	
Year Fixed Effects	YES		YES		YES	
Adjusted R²	0.853		0.851		0.827	
Model p-value	<0.0001		<0.0001		<0.0001	
N	44589		44589		44589	

Table 5, panel A reports the results of Say-on-Pay (SOP) laws on ESG performance. SOP is an indicator variable that equals one for firm-years following the adoption of SOP laws in treatment countries, and zero otherwise. In all regressions, firm and year fixed effects are included and coefficient estimates and p-values are based on robust standard errors double clustered at the country and firm levels (Correa and Le1 2016). All variables are as defined in Appendix A.

***, ** and * denote significance at 1%, 5% and 10% levels (two tailed), respectively.

Table 5
Say-on-Pay (SOP) Laws, ESG Contracting and ESG Performance

Panel B: Linking ESG Contracting to ESG Performance

Dependent Variable	ESG Score _{t+1}		Environmental Score _{t+1}		Social Score _{t+1}	
	(1)		(2)		(3)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
<i>SOP</i>	0.004	1.83*	0.010	3.34***	0.003	1.19
<i>SOP*ΔESG_CONTRACT</i>	0.042	6.89***	0.038	4.44***	0.024	3.16***
<i>IO</i>	0.004	0.62	-0.045	-4.47***	-0.010	-1.15
<i>SIZE</i>	0.029	21.00***	0.035	17.91***	0.023	13.50***
<i>MTB</i>	0.001	4.07***	0.001	4.26***	0.001	3.03***
<i>KL_RATIO</i>	0.001	3.73***	0.001	2.45**	0.001	3.36***
<i>SALE_GROWTH</i>	-0.018	-6.53***	-0.026	-6.68***	-0.011	-3.30***
<i>ROA</i>	-0.015	-2.06**	-0.019	-1.81*	-0.012	-1.38
<i>FIRM_AGE</i>	0.038	11.74***	0.053	11.56***	0.032	7.99***
<i>LEV</i>	0.014	3.11***	0.016	2.54**	0.007	1.36
<i>CASH</i>	-0.002	-0.45	0.000	-0.02	-0.001	-0.25
<i>Herfindahl</i>	-0.005	-0.60	-0.018	-1.63	0.009	0.91
<i>LOG_GDP</i>	0.087	3.08***	0.051	1.27	-0.071	-2.03**
<i>LOG_CAPITA</i>	-0.003	-0.08	0.135	2.87***	0.117	2.85***
<i>LOG_FDI</i>	0.000	-0.54	-0.001	-0.66	0.001	0.94
<i>After_Pay_Law</i>	0.028	6.41***	0.048	7.85***	0.040	7.48***
<i>After_ESG_Disclosure</i>	0.014	5.86***	0.016	4.67***	0.025	8.60***
F-test for $\beta_1 + \beta_2 = 0$	F=11.77 (p<0.01)		F=19.51 (p<0.01)		F=4.72 (p<0.05)	
Firm Fixed Effects	YES		YES		YES	
Year Fixed Effects	YES		YES		YES	
Adjusted R²	0.853		0.851		0.826	
Model p-value	<0.0001		<0.0001		<0.0001	
N	44589		44589		44589	

Table 5, panel B reports the results of Say-on-Pay (SOP) laws, executives' ESG compensation contracting and ESG performance. SOP is an indicator variable that equals one for firm-years following the adoption of SOP laws in treatment countries, and zero otherwise. ΔESG_CONTRACT is an indicator variable that equals one for firms that newly adopted ESG contracting within one year after the passage of SOP laws, and zero otherwise. In all regressions, firm and year fixed effects are included and coefficient estimates and p-values are based on robust standard errors double clustered at the country and firm level (Correa and Le1 2016). All variables are as defined in Appendix A.

***, ** and * denote significance at 1%, 5% and 10% levels (two tailed), respectively.

Table 5
Say-on-Pay (SOP) Laws, ESG Contracting and ESG Performance
Panel C: Linking Grant-level Changes to ESG Performance

Dependent Variable	ESG Score _{t+1}	
	(1)	
	Coeff.	t-Stat.
<i>SOP</i>	-0.002	-0.26
<i>SOP*ΔCSR_GRANT</i>	-0.002	-0.19
<i>SOP*ΔSOCIAL_GRANT</i>	0.011	0.95
<i>SOP*ΔENVIRON_GRANT</i>	0.026	2.87***
<i>IO</i>	0.025	1.53
<i>SIZE</i>	0.040	11.29***
<i>MTB</i>	0.001	2.61***
<i>KL_RATIO</i>	0.001	0.36
<i>SALE_GROWTH</i>	-0.004	-0.71
<i>ROA</i>	-0.024	-0.81
<i>FIRM_AGE</i>	0.062	11.12***
<i>LEV</i>	0.008	0.85
<i>CASH</i>	0.033	1.29
<i>Herfindahl</i>	0.044	2.14**
<i>LOG_GDP</i>	0.021	0.10
<i>LOG_CAPITA</i>	-0.088	-0.37
<i>LOG_FDI</i>	0.002	0.92
<i>After_Pay_Law</i>	0.287	10.57***
<i>After_ESG_Disclosure</i>	-0.015	-2.48**
F-test for $\beta_1 + \beta_2 = 0$	F=39.14(p<0.01)	
Firm Fixed Effects	YES	
Year Fixed Effects	YES	
Adjusted R²	0.880	
Model p-value	<0.0001	
N	8445	

Table 5, panel C reports the results of Say-on-Pay (SOP) laws, executives' ESG-related grants and ESG performance. SOP is an indicator variable that equals one for firm-years following the adoption of SOP laws in treatment countries, and zero otherwise. ΔCSR_GRANT is an indicator variable that equals one for firms that link executive incentive plan to general CSR metrics after the passage of SOP laws, and zero otherwise. ΔCSR_SOCIAL is an indicator variable that equals one for firms that link executive incentive plan to social metrics after the passage of SOP laws, and zero otherwise. ΔCSR_ENVIRON is an indicator variable that equals one for firms that link executive incentive plan to environmental metrics after the passage of SOP laws, and zero otherwise. In all regressions, firm and year fixed effects are included and coefficient estimates and p-values are based on robust standard errors double clustered at the country and firm level (Correa and Le1 2016). All variables are as defined in Appendix A.

***, ** and * denote significance at 1%, 5% and 10% levels (two tailed), respectively.

Table 6

Governance Mechanisms To Strengthen the Link between ESG Contracting and Performance

Dependent Variable=ESG_Score_{t+1}

Dependent Variable:	CSR Committee				Independent Compensation Committee			
	YES		NO		YES		NO	
	(1)		(2)		(3)		(4)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
<i>SOP</i>	-0.004	-1.28	0.011	3.67***	-0.003	-1.08	0.013	1.35
<i>SOP*ΔESG_CONTRACT</i>	0.063	9.14***	0.030	6.18***	0.045	10.20***	0.011	0.66
<i>IO</i>	0.013	1.16	0.026	3.51***	0.012	1.62	-0.073	-2.79**
<i>SIZE</i>	0.043	17.15***	0.020	14.13***	0.026	16.84***	0.025	6.06***
<i>MTB</i>	0.000	1.80*	0.001	3.74***	0.001	3.83***	-0.001	-0.89
<i>KL_RATIO</i>	0.000	1.09	0.002	6.04***	0.001	2.59**	0.003	2.53**
<i>SALE_GROWTH</i>	-0.021	-5.00***	-0.001	-0.43	-0.017	-5.61***	-0.010	-1.48
<i>ROA</i>	-0.015	-1.16	0.001	0.17	-0.020	-2.30**	-0.011	-0.68
<i>FIRM_AGE</i>	0.073	13.60***	0.023	7.93***	0.040	11.35***	-0.013	-1.01
<i>LEV</i>	0.013	1.75	0.005	1.04	0.013	2.68***	0.021	1.58
<i>CASH</i>	-0.002	-0.34	-0.005	-1.16	0.006	1.09	-0.008	-1.12
<i>Herfindahl</i>	0.005	0.41	-0.004	-0.42	-0.002	-0.27	-0.014	-0.60
<i>LOG_GDP</i>	0.108	2.54**	0.119	3.35***	0.218	6.80***	-0.537	-5.62***
<i>LOG_CAPITA</i>	-0.069	-1.35	-0.002	-0.04	-0.151	-3.92***	0.581	5.57***
<i>LOG_FDI</i>	0.002	1.92*	-0.003	-3.60***	0.000	0.07	-0.004	-1.92*
<i>After_Pay_Law</i>	0.065	6.53***	0.033	8.38***	0.028	6.16***	-0.031	-1.32
<i>After_ESG_Disclosure</i>	-0.001	-0.31	0.036	10.05***	0.006	2.35**	0.043	7.57***
YES-NO	F=5.71 (<i>p</i> < 0.05)				F=4.32 (<i>p</i> < 0.05)			
Firm Fixed Effects	YES		YES		YES		YES	
Year Fixed Effects	YES		YES		YES		YES	
Adjusted R²	0.851		0.812		0.856		0.891	
Model p-value	<0.0001		<0.0001		<0.0001		<0.0001	
N	19485		25104		23439		21150	

Table 6 reports the results of subsample analysis on the improvement in firms' ESG performance, conditional on the characteristics of board functions to support ESG contracting changes (Δ ESG_CONTRACT). SOP is an indicator variable that equals one for firm-years following the adoption of SOP laws in treatment countries, and zero otherwise. Δ ESG_CONTRACT is an indicator variable that equals one for firms that newly adopted ESG contracting within one year after the passage of SOP laws, and zero otherwise. In all regressions, firm and year fixed effects are included and coefficient estimates and p-values are based on robust standard errors double clustered at the country and firm level (Correa and Le1 2016). All variables are as defined in Appendix A.

***, ** and * denote significance at 1%, 5% and 10% levels (two tailed), respectively.

Table 7
ESG Contracting and Firm Adoption of Environmental-Friendly Policies

Dependent Variable:	Policy on CO2 Emission Process (CO2_PROCESS _{t+1})		Policy in Emission Reduction (EMISSION_REDUCE _{t+1})		Initiatives in Environmental Products (ENVIRON_PRODUCT _{t+1})		Initiatives in Toxic Reduction (TOXIC_REDUCE _{t+1})	
	(1)		(2)		(3)		(4)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
<i>SOP</i>	0.006	0.77	0.009	3.09***	0.001	0.09	-0.008	-1.52
<i>SOP*ΔESG_CONTRACT</i>	0.090	4.60***	0.038	4.71***	0.023	1.97*	0.044	2.91***
<i>IO</i>	0.021	0.91	-0.039	-4.16***	-0.002	-0.10	-0.009	-0.53
<i>SIZE</i>	0.077	17.00***	0.047	25.07***	-0.002	-0.56	0.012	3.50***
<i>MTB</i>	0.001	1.09	0.001	3.45***	0.001	2.28**	0.000	-1.13
<i>KL_RATIO</i>	0.003	3.10***	0.000	0.98	0.000	-0.28	-0.001	-0.72
<i>SALE_GROWTH</i>	-0.021	-2.56**	-0.008	-2.47**	0.004	0.55	-0.008	-1.20
<i>ROA</i>	0.009	0.42	0.011	1.17	0.013	0.61	0.010	0.56
<i>FIRM_AGE</i>	0.069	8.22***	0.042	12.07***	-0.025	-3.23***	-0.009	-1.37
<i>LEV</i>	0.015	0.99	0.012	1.97**	-0.040	-2.93***	0.006	0.53
<i>CASH</i>	-0.027	-1.83*	-0.010	-1.63	-0.009	-0.69	0.005	0.41
<i>Herfindahl</i>	-0.052	-1.96**	-0.028	-2.55**	0.012	0.49	-0.038	-1.89*
<i>LOG_GDP</i>	0.619	6.71***	0.062	1.61	-0.788	-9.30***	-1.151	-16.22***
<i>LOG_CAPITA</i>	-0.319	-2.95***	0.170	3.76***	1.100	11.04***	1.242	14.89***
<i>LOG_FDI</i>	-0.017	-6.61***	-0.003	-3.16***	-0.009	-3.89***	-0.001	-0.37
<i>After_Pay_Law</i>	0.048	5.98***	0.017	5.07***	0.059	5.61***	0.072	8.19***
<i>After_ESG_Disclosure</i>	-0.003	-0.26	0.057	11.85***	0.042	5.71***	-0.019	-3.16***
F-test for $\beta_1 + \beta_2 = 0$	F=3.75 (p<0.05)		F=17.94 (p<0.01)		F=3.23 (p<0.05)		F=1.75 (p=0.168)	
Firm Fixed Effects	YES		YES		YES		YES	
Year Fixed Effects	YES		YES		YES		YES	
Adjusted R²	0.723		0.858		0.744		0.689	
Model p-value	<0.0001		<0.0001		<0.0001		<0.0001	
N	38087		38087		38087		38087	

Table 7 reports the results of ESG contracting and firm adoption of environment policies. Columns (1)-(4) report the results on firm policy on CO₂ emission process to reduce waste (CO2_PROCESS), policies to reduce emission (EMISSION_REDUCE), initiatives in environmental products (ENVIRON_PRODUCT), and initiatives in developing toxic reduction technology (TOXIC_REDUCE) SOP is an indicator variable that equals one for firm-years following the adoption of SOP laws in treatment countries, and zero otherwise. ΔESG_CONTRACT is an indicator variable that equals one for firms that newly adopted ESG contracting within one year after the passage of SOP laws, and zero otherwise. In all regressions, firm and year fixed effects are included and coefficient estimates and p-values are based on robust standard errors double clustered at the country and firm level (Correa and Le16). All variables are as defined in Appendix A.

***, ** and * denote significance at 1%, 5% and 10% levels (two tailed), respectively.

Table 8
Stacked Difference-in-Differences Regression Results

Dependent Variable	ESG Contract				ESG Score _{t+1}			
	Use Never Treated Firms as Controls		Include Future Treated Firms as Controls		Use Never Treated Firms as Controls		Include Future Treated Firms as Controls	
	(1)		(2)		(3)		(4)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
<i>SOP</i>	0.063	11.26***	0.038	9.07***	0.003	1.28	0.003	1.53
<i>SOP*ΔESG_CONTRACT</i>					0.038	5.03***	0.031	5.41***
<i>IO</i>	-0.020	-1.54	-0.012	-1.74*	0.007	0.98	-0.007	-1.20
<i>SIZE</i>	-0.002	-0.48	-0.001	-0.41	0.016	9.91***	0.013	9.78***
<i>MTB</i>	0.001	1.33	0.000	0.44	0.000	1.98**	0.000	1.71*
<i>KL_RATIO</i>	0.001	1.33	0.001	1.22	0.000	2.10**	0.001	3.05***
<i>SALE_GROWTH</i>	-0.002	-0.52	-0.005	-1.43	-0.013	-6.22***	-0.011	-6.54***
<i>ROA</i>	-0.046	-2.99***	-0.012	-0.85	-0.014	-1.95*	-0.010	-1.75*
<i>FIRM_AGE</i>	0.132	8.03***	0.042	3.34***	-0.009	-1.02	-0.042	-6.65***
<i>LEV</i>	-0.047	-4.88***	-0.008	-0.90	0.005	1.05	0.006	1.68*
<i>CASH</i>	-0.007	-0.82	-0.001	-0.15	0.003	0.64	0.001	0.29
<i>Herfindahl</i>	0.054	3.15***	-0.035	-2.36**	-0.014	-1.74*	-0.012	-1.93*
<i>LOG_GDP</i>	0.847	13.38***	1.171	18.97***	0.183	6.05***	0.304	11.20***
<i>LOG_CAPITA</i>	-0.819	-10.15***	-1.353	-17.54***	-0.075	-1.96***	-0.206	-6.37***
<i>LOG_FDI</i>	0.014	13.84***	0.012	12.35***	0.001	1.40	0.000	0.35
<i>After_Pay_Law</i>	0.034	3.34***	0.024	5.11***	0.028	5.08***	0.007	2.82***
<i>After_ESG_Disclosure</i>	0.008	1.27	-0.004	-0.62	0.039	12.87***	0.019	8.57***
Firm*Cohort Fixed Effects	YES		YES		YES		YES	
Year*Cohort Fixed Effects	YES		YES		YES		YES	
Country fixed effects	YES		YES		YES		YES	
Adjusted R²	0.744		0.715		0.904		0.896	
Model p-value	<0.0001		<0.0001		<0.0001		<0.0001	
N	64643		97321		64643		97321	

Table 8 reports the results of Say-on-Pay (SOP) laws and ESG contracting using stacked difference-in-differences regression over a three-year window. Columns (1)/(3) report the results using never treated firms as controls. Columns (2)/(4) report the results by including future treated firms in the control group. In all regressions, we include dataset-specific two-way fixed effects, including firm*cohort and year*cohort fixed effects, and country fixed effects. Coefficient estimates and p-values are based on robust standard errors double clustered at the country and firm level (Correa and Le1 2016). All variables are as defined in Appendix A.

***, ** and * denote significance at 1%, 5% and 10% levels (two tailed), respectively.

Table 9

Robustness Tests on ESG Contracting and Performance Around SOP Laws

Panel A: Excluding U.S. Firms

Dependent Variable:	ESG Score _{t+1}		Environmental Score _{t+1}		Social Score _{t+1}	
	(1)		(2)		(3)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
<i>SOP</i>	0.009	2.37**	0.001	0.16	0.022	4.35***
<i>SOP*ΔESG_CONTRACT</i>	0.025	2.56**	0.032	3.17***	0.043	4.73***
F-test for $\beta_1 + \beta_2 = 0$	F=24.20 (p<0.01)		F=5.21 (p<0.05)		F=62.66 (p<0.01)	
Controls	YES		YES		YES	
Firm Fixed Effects	YES		YES		YES	
Year Fixed Effects	YES		YES		YES	
Adjusted R ²	0.857		0.846		0.831	
Model p-value	<0.0001		<0.0001		<0.0001	
N	29445		29445		29445	

Panel B: Restricting Benchmark Countries to Developed Economies

Dependent Variable:	ESG Score _{t+1}		Environmental Score _{t+1}		Social Score _{t+1}	
	(1)		(2)		(3)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
<i>SOP</i>	0.004	1.90*	0.011	3.57***	0.002	0.79
<i>SOP*ΔESG_CONTRACT</i>	0.042	6.87***	0.038	4.45***	0.024	3.14***
F-test for $\beta_1 + \beta_2 = 0$	F=9.81 (p<0.01)		F=15.53 (p<0.01)		F=9.18 (p<0.01)	
Controls	YES		YES		YES	
Firm Fixed Effects	YES		YES		YES	
Year Fixed Effects	YES		YES		YES	
Adjusted R ²	0.850		0.851		0.820	
Model p-value	<0.0001		<0.0001		<0.0001	
N	40628		40628		40628	

Panel C: Using Nearest Neighbor Matched Sample

Dependent Variable:	ESG Score _{t+1}		Environmental Score _{t+1}		Social Score _{t+1}	
	(1)		(2)		(3)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
<i>SOP</i>	0.002	1.16	0.007	1.72*	0.001	1.34
<i>SOP*ΔESG_CONTRACT</i>	0.034	7.13***	0.043	6.40***	0.029	3.72***
F-test for $\beta_1 + \beta_2 = 0$	F=11.41 (p<0.01)		F=5.89 (p<0.05)		F=4.36 (p<0.05)	
Controls	YES		YES		YES	
Firm Fixed Effects	YES		YES		YES	
Year Fixed Effects	YES		YES		YES	
Adjusted R ²	0.866		0.862		0.843	
Model p-value	<0.0001		<0.0001		<0.0001	
N	27689		27689		27689	

Table 9 reports the results of robustness tests on Say-on-Pay (SOP) laws, ESG contracting and subsequent ESG performance. In all three panels, we report the results for three measures of ESG performance. SOP is an indicator variable that equals one for firm-years following the adoption of SOP laws in treatment countries, and zero otherwise. In all regressions, firm and year fixed effects are included and coefficient estimates and p-values are based on robust standard errors double clustered at the country and firm level (Correa and Le1 2016). All variables are as defined in Appendix A.

***, ** and * denote significance at 1%, 5% and 10% levels (two tailed), respectively.

About ECGI

ECGI is an international non-profit membership organisation that provides a platform for debate and dialogue among academics, policymakers, and business leaders, with a focus on major corporate governance, ESG, and stewardship issues.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

www.ecgi.global

ECGI Working Paper Series in Finance

Editorial Board

Editor

Nadya Malenko, Professor of Finance, Boston College

Consulting Editors

Renée Adams, Professor of Finance, University of Oxford

Franklin Allen, Professor of Finance and Economics, Imperial London

Julian Franks, Professor of Finance, London Business School

Mireia Giné, Professor of Finance, IESE Business School

Marco Pagano, Professor of Economics, Facoltà di Economia Università di Napoli
Federico II

Series Manager

Asif Malik, ECGI Working Paper Series Manager

<https://www.ecgi.global/publications/working-papers>