

Environmental and Social Goals in CEO Pay and Shareholder Activism

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ABSTRACT

This paper examines the association between firms' adoption of environmental and social (ES) performance goals in CEO pay (ES pay) and ES-related shareholder activism. I argue that ES pay serves as an information cue when activist shareholders screen companies' ES intent and quality. Specifically, firms face a lower likelihood of being targeted by ES shareholder proposals following the adoption of ES pay. This negative association exists when firms adopt objective ES goals in CEO pay, but does not exist when firms adopt subjective ES goals. Such a screening effect is stronger when firms' industry peers experience high levels of ES controversies. Empirical analysis of S&P 1,500 firms from 2007 to 2021 supports the hypotheses. In addition, shareholders are more likely to withdraw proposals if firms have ES pay. These findings suggest that ES pay strengthens the alignment of shareholder interests and managerial incentives concerning ES issues. Overall, this study contributes to the literature on environmental, social, and governance (ESG), executive compensation, and shareholder activism.

Keywords: ESG, Corporate Governance, Shareholder Activism, Incentive Design, CEO compensation

1. INTRODUCTION

A fundamental challenge in corporate governance is aligning the interests of managers with those of shareholders (Jensen and Meckling 1976, Holmstrom and Milgrom 1991). Executive compensation contracts play a central role in addressing this challenge by linking CEO rewards to company performance. Traditionally, these contracts have focused primarily on financial performance goals. However, a significant shift has occurred in recent years with the growing incorporation of environmental and social (ES) performance goals into CEO compensation (hereafter referred to as “ES pay”)¹ (Bloomberg 2022, Forbes 2022). The scale of this transformation is remarkable: Among large public firms globally, the adoption rate of ES pay soared from 1% in 2011 to 38% in 2021 (Cohen *et al.*, 2023).

Despite the growing popularity of ES pay, it is unclear whether it is aligned with shareholder interests. On the one hand, shareholders may perceive ES pay as a governance tool enhancing shareholder value, given recent studies showing that ES pay is associated with long-term orientation, firm value, social and environmental performance, and innovation (Flammer *et al.* 2019, Tsang *et al.* 2021, Cohen *et al.* 2023). On the other hand, shareholders may see ES pay as diverting from their interests. Some investors and scholars worry that self-interested CEOs might exploit vague ES metrics to increase their compensation (Bebchuk and Tallarita 2023, Financial Times 2023). This concern is particularly valid given the challenges in measuring ES performance (Edmans 2021, Berg *et al.* 2022). For example, around half of the firms rely on subjective metrics that lack quantifiable targets (Willis Towers Watson 2023).

Given the ambiguous implication of ES pay on shareholder interests, this study examines how shareholders perceive it, with a focus on environmental and social shareholder activism.

¹ Previous studies have used different labels to refer to similar phenomenon, such as “CSR contracting” (Flammer *et al.* 2019), or “CSR-contingent contract” (Ikram *et al.* 2019). This study uses “ES pay” (Cohen *et al.* 2023) instead of CSR contracting as ES encompasses a broader scope, aligns with practitioners’ task environment, and carries less normative connotations than CSR. Typically, CSR is defined as corporate actions, not required by law, that attempt to further some social good and extend beyond the interests of the firm (McWilliams and Siegel 2001, p. 117), whereas In contrast, ES refers to the consideration of environmental and social factors in decision-making, emphasizing long-term value creation without necessarily implying actions beyond the firm’s interests.

Specifically, I investigate *whether and under what conditions ES pay is related to environmental- and social-related shareholder proposals (ES shareholder activism)*. Shareholder activism refers to the actions shareholders use to engage companies and influence corporate practices, policies, and priorities (Gillan and Starks 2007, Goranova and Ryan 2014, Chuah et al. 2024). It serves as an indicator of interest (mis)alignment between shareholders and managers. I focus on ES shareholder proposals because they represent a formal and observable governance mechanism through which shareholders can voice concerns and demand changes related to environmental and social strategies, which reflect the alignment of interests between shareholders and managers (Goranova and Ryan 2014, Gamache et al. 2020). ES shareholder proposals have become increasingly common and impactful, leading to important organizational changes, such as environmental disclosure and leadership changes, and superior financial performance (Flammer 2015, Flammer et al. 2021, Lee et al. 2022). If ES pay is aligned with shareholder interest in ES policies, firms should be less likely to be targeted by ES shareholder proposals. However, if ES pay diverges from shareholder interests or is perceived as having a higher receptivity to shareholder demands (Briscoe et al. 2014, DesJardine et al. 2023), firms should expect a higher likelihood of being targeted by ES proposals.

Drawing insights from screening theory (Stiglitz 1975, 2000, Riley 2001, Qian et al. 2020), I propose that ES pay serves as an important information cue that helps shareholders screen firms with strong ES commitment (intent) and high ES capability (quality). I argue that ES pay is negatively associated with firms' likelihood of being targeted by ES shareholder activism. The relationship hinges on screen credibility and necessity (Zhang et al. 2024). Screen credibility increases when firms incorporate objective (ex-ante quantitative) ES performance goals into CEO compensation due to their observability and differentiated costs. Meanwhile, industry peer ES controversies, i.e., negative publicity due to peer firms' involvement in ES incidents, enhance the

screen necessity of ES pay, particularly for objective ES pay, by increasing shareholders' awareness and valuation of managerial attention to ES issues.

The empirical analysis is based on a sample of US public firms from 2007 to 2021. Supporting the hypotheses, I find a negative association between ES pay and the likelihood of receiving ES shareholder proposals in the following year. Unpacking the design of ES pay with detailed goal-level compensation data, I find that the negative association only exists when firms adopt objective (ex-ante quantitative) ES goals in CEO pay but does not exist when firms adopt subjective ES goals. The negative association between ES pay and ES shareholder proposals is amplified by the level of industry peers' ES controversies. Interestingly, under conditions of high peer ES controversies, both subjective and objective ES goals are associated with a reduced likelihood of ES shareholder proposals. This suggests that heightened screen necessity can lower the threshold for screen credibility. Lead-lag analysis, staggered difference-in-differences analysis on the first adoption of ES pay, and propensity score matching mitigate the concerns about omitted variable bias and reverse causality.

Additional analyses show that shareholders are more likely to withdraw their proposals if firms have adopted ES pay. The negative association between ES pay and ES proposals is mostly focused on human capital-related topics and financially immaterial metrics. Furthermore, objective ES pay is associated with a reduction in future ES controversies, aligning with shareholder perceptions. Overall, the results suggest that ES pay helps managers and shareholders reach a consensus on firms' ES strategies, thereby enhancing incentive alignment and reducing shareholders' opposition, especially when ES pay is objective and when industry peers experience high ES controversies.

This study makes several important contributions. First, it contributes to corporate governance, especially literature on CEO incentive contracts. Traditionally, corporate governance

literature has focused on designing incentive contracts that align managers' interests with shareholders' financial objectives, particularly examining CEO compensation levels and equity incentives. However, the recent trend of firms adopting ES pay has created questions about its implications. Current research presents mixed views on ES pay's impact on shareholder value. While some studies demonstrate that ES pay enhances shareholder value through improved ES performance, financial outcomes, and innovation (Flammer et al. 2019, Tsang et al. 2021, Cohen et al. 2023), others raise concerns about its observability and measurability, suggesting it could exacerbate agency problems (Edmans 2021, Bebchuk and Tallarita 2023). This study reveals that ES pay serves as an important information cue of ES intent and quality for shareholders, which helps reduce opposition from shareholder activists concerned about firms' ES practices. Furthermore, this screening effect is contingent on both contract design and shareholder scrutiny, such that the effect is stronger when ES goals are objectively measurable and when industry peers face significant ES controversies. Overall, the findings suggest that a key implication of ES pay is its role in helping shareholder activists who are concerned about ES issues reach a consensus with firms on their ES strategies.

Second, this study enhances our understanding of shareholder activism by demonstrating how ES pay functions as a screening mechanism that can reduce ES-related activism. Prior research indicates that firms typically attract ES activism when they exhibit poor ES performance or appear receptive to activist demands (Briscoe et al. 2014, McDonnell et al. 2015, Barko et al. 2022, Chuah et al. 2024). These findings generate competing predictions: ES pay may indicate good ES governance that reduces shareholder activism, or it may signal receptivity to activist pressure, thereby inviting activism. This study clarifies this relationship by showing that ES pay helps align management priorities and the interests of ES-conscious shareholders, resulting in decreased opposition and fewer shareholder proposals on ES issues.

Third, this study extends screening theory by identifying ES pay as an information cue that shapes shareholders' perceptions. While research has established that governance elements like board structure, successor CEO characteristics, and executive pay disparity function as information cues to external stakeholders (Connelly et al. 2016, 2025, Solal and Snellman 2019, Essman et al. 2021), this work reveals how ES pay enables ES-conscious activist shareholders to identify firms with strong ES intent and quality. Therefore, this study extends the emerging stakeholder-screening perspective from creditors to shareholders (Qian et al. 2020). Furthermore, it enriches the boundary conditions of screening theory (Zhang et al. 2024) by demonstrating how different conditions may interact. Specifically, it shows that heightened screen necessity driven by increased industry-peer ES controversies can not only enhance the role of credible information cues but also potentially lower the threshold for screen credibility. Under such conditions, shareholders become more receptive to signals that might otherwise have weaker credibility, such as subjective ES goals.

2. BACKGROUND AND HYPOTHESES

2.1. Background of ES pay and ES shareholder proposals

During the first two decades of the 20th century, a prominent shift in corporate governance was the increasing adoption of environmental, social, and governance (ES) metrics in CEO compensation. Typically, CEO compensation consists of a fixed salary, an annual bonus and non-equity incentive plan, and long-term equity incentives including stock options, restricted stock, and other equity instruments. Because of the traditional focus on shareholder values, companies typically tie CEO pay closely to accounting-based performance measures such as income, accounting return, and sales measures (De Angelis and Grinstein 2015). In recent years, an increasing number of companies have linked executive compensation to environmental and social performance goals (“ES pay”), a trend noted by various news reports, surveys, and research (Bloomberg 2022, The Conference Board 2022, Cohen et al. 2023). The trend is global. 45% of FTSE 100 firms have

adopted ESG target in executive compensation in 2020 (O'Connor and Gosling 2021), and 90% of the largest European companies have adopted at least one ESG metric in executive incentive plans in 2022 (Willis Towers Watson 2023). In fact, Forbes called it a “skyrocketing” trend to link ESG outcomes to CEO pay (Forbes 2022) and Pay Governance, a compensation consulting company, viewed it as “one of the most significant changes in executive compensation in over a decade” (Ellerman et al. 2021).

However, there is no consensus on whether ES pay aligns with shareholder interests. On the one hand, some studies showed the benefits of adopting ES pay. For example, adopting ES pay is associated with better environmental and social performance, including a reduction in emissions, more green innovations, and better ES ratings (Hong et al. 2016, Flammer et al. 2019, Derchi et al. 2021, Cohen et al. 2023). In addition, ES pay is related to managers’ long-term orientation, innovation, and firm value (Flammer et al. 2019, Tsang et al. 2021). On the other hand, some investors and scholars are skeptical about ES pay. A news report by Reuters noted that climate-related metrics in CEO pay “do little to cut emissions” (Kerber 2022). Having observed the low percentage of quantified ESG pay and the small weight of these metrics, Bebchuk and Tallarita (2020) argued that ESG pay is unlikely to provide strong incentives to CEOs to consider stakeholder interests beyond shareholder value. Following up, Bebchuk and Tallarita (2023) noted two challenges of ESG compensation metrics: (1) multitasking problem may distort incentives and hurt the aggregate stakeholder welfare, and (2) the difficulty for outsiders to review and assess these incentives because of the lack of objectivity and disclosure of actual outcomes. Hence, they warned that self-interested CEOs can exploit ESG pay to inflate their payoffs. Concurring with this observation, Westphal (2023) viewed ESG pay in CEO compensation as typically more symbolic than substantive. Edmans (2021) thought companies should not tie CEO pay to ESG performance

because of the tradeoff between different targets, difficulty in measuring ESG performance, and the potential disconnection from long-term financial performance.

Given that it is unclear whether ES pay better aligns the interests of shareholders with those of managers, I examine the relationship between ES pay and shareholder activism. Companies have been facing increasing shareholder pressure to seek changes in ES strategies. A critical form of such pressure is shareholder proposals. As a form of shareholder activism, shareholder proposals are supporting arguments in the firm's proxy materials filed by shareholders, allowing shareholders to urge the company to take a specific course of action (Denes et al. 2017). They are submitted under SEC rule 14a-8, which allows the initiating shareholders to include a 500-word supporting argument that is included in the company's proxy materials at the expense of the target firm. The topic is subject to SEC review, and the proposals are mostly written in the form of a non-binding recommendation. The proposals, whether passed or not, are able to draw managers' attention to the proposed issues (Thomas and Cotter 2007, Ertimur et al. 2010, 2011, Iliev et al. 2015). Therefore, shareholder proposals are an emerging tool for reducing agency costs and a useful device of external control to affect corporate governance (Thomas and Cotter 2007, Renneboog and Szilagyi 2011).

Environmental and social shareholder proposals have become a popular tool for shareholders to voice their ES interests and affect corporate ES strategies. Over the past decade, ES shareholder proposals have experienced a surge in numbers, accounting for more than half of the total number of proposals since 2017, covering topics such as climate change, diversity and inclusion, human rights, and sustainability reporting (Wall Street Journal 2023, ISS 2024). For example, in 2022, a majority of investors supported resolutions calling for a third-party civil rights audit and an investigation into the use of concealment clauses in employee contracts related to harassment and discrimination (Wall Street Journal 2022). In 2024, Exxon Mobil received shareholder proposals urging the company to curb its greenhouse gas emissions (Wall Street Journal 2024).

ES shareholder proposals have important organizational implications. Studies have found that it leads to important organizational changes such as better ES performance and stronger firm performance. For example, Flammer *et al.*, (2021) find that firms are more likely to voluntarily disclose their climate change risks after they are targeted by environmental-related shareholder proposals, and such disclosure is associated with positive valuation from investors. McDonnell, King, and Soule (2015) find that targeted firms are more likely to add an ESG board committee and publish ESG reports. In addition, the number of and support for ES proposals are related to leadership changes, including a reduction in incumbent CEOs' total compensation, an increased likelihood of CEO dismissal, and higher new CEO compensation (Lee et al. 2022). Regarding firm performance, evidence shows that ES shareholder activism is related to labor productivity, sales growth, and superior financial performance (Flammer 2015, Dimson et al. 2015, Barko et al. 2022).

2.2. Screening theory in the context of ES shareholder activism

Screening theory provides a useful lens for understanding how shareholder activists interpret ES pay. While signaling theory has been used to explain how firms can reduce information asymmetry by communicating signals of quality, screening theory offers a complementary perspective that focuses on how uninformed parties (screeners) actively filter and sort information to overcome information asymmetry (Stiglitz 1975, 2000, Riley 2001). The key distinction lies in analytical focus: signaling theory examines how informed parties convey their underlying quality and intent, whereas screening theory examines how uninformed parties evaluate information cues and initiate actions accordingly (Sanders and Boivie 2004, Qian et al. 2020). As some information is private, information asymmetry arises between those who hold information and those who could make better decisions if they had it (Connelly et al. 2011). Under the information asymmetry, screeners look not only for information about quality (the ability to achieve results) but also about intent (integrity and benevolence) (Qian et al. 2020). Quality denotes "the underlying, unobservable

ability of the signaler to fulfill the needs or demands of an outsider observing the signal" (Connelly *et al.*, 2011, p. 43). Intent, on the other hand, refers to the motivation to behave appropriately in exchange relationships (Connelly *et al.* 2016, Qian *et al.* 2020).

Various corporate governance mechanisms serve as information cues that affect shareholder perceptions (Connelly *et al.* 2011, 2025). For example, board and top management team gender composition, prestige, and legitimacy can affect firm value (Certo 2003, Cohen and Dean 2005, Solal and Snellman 2019). CEO successor characteristics following misconduct can affect investor perceptions (Gomulya and Boeker 2014, Connelly *et al.* 2016). CEO attributes such as their media appearance, shareholdings, and external directorship can also provide information on the firms' underlying quality (Zhang and Wiersema 2009, Kang and Kim 2017). More specifically, CEO compensation can influence shareholder perception. Westphal and Zajac (1998) find that shareholders react positively to both the symbolic and substantive adoption of long-term incentive plans in CEO compensation, especially if such plans come with an explanation of better incentive alignment between shareholders and managers. Ertimur *et al.* (2011) find that shareholder activists target firms with high CEO pay.

In the context of this study, shareholders (the uninformed party) face information asymmetry about management's commitment (intent) and capability (quality) regarding ES issues. Unlike financial performance, which can be readily assessed through standardized accounting metrics such as earnings per share, a company's capability to address ES issues and its commitment to ES concerns are difficult for outsiders to observe directly. The complex internal decisions about strategic priorities and resource allocations regarding ES issues are not easily visible to shareholders. More importantly, there is no standardized measurement and reporting system for ES performance (Edmans 2021). For instance, interpretations of environmental sustainability or diversity and inclusion vary across companies and investors. Even different rating systems select different

indicators, evaluate them differently, and aggregate them in varying ways, leading to divergence in ES ratings (Berg et al. 2022). Facing uncertainty about firms' ES intent and quality, shareholders screen management by looking for indicators—observable, costly actions that reveal the firm's underlying intent and quality (Sanders and Boivie 2004). For example, going beyond legal requirements in treating employees is costly, yet it shows a cooperative orientation and builds a trustworthy reputation (Qian et al. 2020).

The lack of sufficient information regarding managerial commitment and strategic prioritization of ES issues compels shareholders to screen various firm characteristics and use ES proposals as a governance mechanism that communicates their ES preference and affects firms' ES strategies. Shareholder activists use a battery of firm characteristics, such as firm performance, structure, and visibility, to screen firms (Chuah et al. 2024). Overall, firms are targeted by ES shareholder proposals for two major reasons. The first reason, from agency theory, is the incentive misalignment between shareholders and managers. Firms targeted by ES proposals tend to have a weak ES performance (Barko et al. 2022). The second reason, from social movement theory, is that firms are targeted because shareholders see corporate opportunity structure where certain contextual conditions shape the likelihood of activism being successful (King and Pearce 2010, McDonnell et al. 2015). For example, Briscoe *et al.* (2014) find that firms with liberal CEOs are likely to be targeted by employee activism due to the perceived high receptivity to the activism. Barko *et al.* (2022) find that firms targeted by ES proposals tend to have a large size and a high visibility, potentially due to the potential to mobilize other investors.

2.3. ES pay as an information cue for activist shareholders

I argue that ES pay can serve as a critical information cue for shareholders to assess both a firm's intent and quality regarding ES issues. Regarding intent, ES pay reveals a firm's commitment to advancing environmental and social issues. When firms adopt ES pay, they publicly commit to

tying executive wealth to ES performance, which suggests a willingness to be held accountable for ES outcomes. Regarding quality, ES pay reveals a firm's capability to develop appropriate measurement systems, implement governance structures, and integrate ES goals into strategic decision-making processes (Maas 2018, Ikram et al. 2019). Firms that successfully implement ES pay demonstrate that they have the organizational infrastructure and expertise necessary to measure, monitor, and improve ES performance.

Importantly, ES pay is an observable and costly information cue. First, compensation metrics are observable through mandatory disclosure requirements. Specifically, the US Securities and Exchange Commission (SEC) requires companies to disclose the objectives and elements of their executive compensation programs in annually filed proxy statements (DEF 14A filings). This allows shareholders to clearly identify firms that have formally tied executive wealth to ES performance, which suggests that these firms are likely to allocate managerial attention and organizational resources toward addressing ES issues (Cohen et al. 2023).

Second, ES pay is costly. ES pay creates direct financial consequences for top executives. This makes ES pay more credible than alternatives lacking financial implications, such as mentioning stakeholder orientations in company websites or sustainability reports. The costs of implementing ES pay extend beyond direct financial expenses to include significant investments in measurement systems and accountability structures (Maas 2018, Ikram et al. 2019). The board-level commitment required to implement these metrics, including the development of measurement systems and monitoring mechanisms, further increases the costs of implementing ES pay. Such costs are differentially incurred (Spence 1973): firms that have sufficient capabilities face lower costs in implementing such metrics. In contrast, firms without such capabilities face substantially higher costs because they need to invest more in developing these capabilities. This differential cost

structure suggests that firms with commitment and capabilities to ES issues are more likely to adopt ES pay, thereby enhancing the credibility of ES pay as an information cue.

Because ES pay provides shareholders with greater assurance of management's commitment and capability of dealing with ES issues, it should mitigate shareholders' perceived need to intervene through ES proposals. In other words, when shareholders see ES pay in place, they interpret it as a strong indicator that management is already attending to E&S concerns. This indicator of intent and quality can preempt shareholder activism by reducing the uncertainty or suspicion that typically motivates ES-related proposals. Therefore,

Hypothesis 1 (H1). *Firms' adoption of environmental and social goals in CEO compensation is associated with a decreased likelihood of firms being targeted by environmental and social shareholder proposals in the following year.*

2.4. Screen credibility: Objective ES pay and shareholder activism

While ES pay generally serves as an indicator of a firm's ES intent and quality, its effectiveness in reducing information asymmetry varies across different firms. Building on screening theory, Zhang *et al.*, (2024) introduced three key boundary conditions that determine the efficacy of screening: "screen credibility," "screen necessity," and "screen salience to the screener." Screen credibility refers to the extent to which the information provided by a screen is from a dependable source and provides trustworthy information. Screen necessity reflects whether a decision demands a screen. Screen salience to the screener refers to the extent to which information that a screen carries is meaningful to a particular screener. This study examines the moderation effects of the first two boundary conditions.

Building on the first boundary condition, i.e., screen credibility, I distinguish between objective and subjective ES pay designs. Boards can choose two main approaches to design these incentives. The first is tying executive compensation to objective, quantifiable ES goals with predefined targets (e.g., "reduce carbon emissions by 5% in the following year"). The second is

linking pay to subjective ES goals that lack explicit quantitative targets, and instead rely on the board's ex-post discretionary evaluation (Baker et al. 1994, Bebchuk and Tallarita 2023) — for example, "promote inclusive culture" without specifying quantitative targets like pay equity or minority representation.

Among the two types of ES pay, objective ES goals offer a higher screening credibility for revealing firms' ES intent and quality. First, objective goals provide clear ex-ante performance standards that leave little room for boards' discretionary interpretation of what constitutes acceptable performance (Gibbons 1998). They ensure verifiable measurement methodologies that allow external stakeholders to assess progress independently. They also limit the potential for ex-post adjustment since targets are established and disclosed upfront. Hence, when firms publicly commit to specific, quantifiable targets, they demonstrate both the willingness to be held accountable to these standards (intent) and the capability to measure and track ES performance (quality).

Objective ES goals are differentially costly because they require firms to develop sophisticated measurement systems, third-party auditing capabilities, and standardized reporting practices, which better reveal a firm's capability to address ES issues. Organizations that have already developed strong ES capabilities face lower costs in implementing such metrics, while firms without these capabilities must make substantial investments in developing the necessary infrastructure. This difference in implementation costs helps shareholders identify firms with high ES capability.

In contrast, subjective ES goals carry lower credibility. Without predefined quantifiable targets, these goals introduce ambiguity in performance evaluation, allow for discretionary interpretation, and make external verification difficult (Baker et al. 1994, Ikram et al. 2019, Financial Times 2023). The flexibility in assessment means that even firms without strong ES capabilities can potentially adopt subjective goals with minimal investment, reducing their credibility. Shareholders

may view firms relying primarily on subjective measures as engaging in symbolic rather than substantive ES efforts since boards retain significant discretion over how performance is assessed.

Therefore, while ES pay generally reduces information asymmetry about a firm's ES intent and quality, objective ES goals provide a credible information cue by establishing clear accountability mechanisms and demonstrating organizational readiness. This enhanced credibility should further decrease the likelihood that shareholders will need to use proposals as a mechanism for influencing corporate ES strategies.

Hypothesis 2 (H2). *Firms' adoption of objective environmental and social goals in CEO compensation is associated with a decreased likelihood of firms being targeted by environmental and social shareholder proposals in the following year.*

2.5. Screen necessity: The strengthening effect of industry peer ES controversies

The effectiveness of ES pay as a screen for quality and intent is likely contingent on screen necessity—the second boundary condition identified by Zhang et al. (2024). Building on this concept, I argue that industry peers' ES controversies increase screen necessity by heightening shareholders' need for information about firms' ES qualities. Industry peers' ES controversies refer to negative publicity due to their exposure to ES incidents. They are attributed to a firm by its observers and exist on a spectrum (i.e., low to high levels of negative publicity). They can arise due to industry peers' exposure to various incidents, such as emissions, local pollution, discrimination in employment, and worker safety and health.² Industry peers' ES controversies reveal potential vulnerabilities that may exist throughout the industry (Shi et al. 2021, Naumovska and Lavie 2021). While some firms may appear to be managing ES risks effectively, peer controversies demonstrate

² The concept of ES controversies is closely related to but is broader and has less normative implication than media coverage of corporate social irresponsibility (CSIR), corporate misconduct, and scandal. Unlike CSIR, ESG controversies do not preclude the possibility of rectification and can be either intentional or unintentional. Here, CSIR is “the set of corporate actions that negatively affect an identifiable social stakeholder's legitimate claims” (Strike et al. 2006, p. 852) when companies (a) knowingly do something that could harm stakeholders and (b) do not rectify the harm caused by them (Campbell 2007, Hawn 2021). Unlike misconduct or scandals, controversies are a continuous construct of negative publicity instead of discrete events. Here, corporate misconduct is “behavior in or by an organization that a social-control agent judges to transgress a line separating right from wrong; where such a line can separate legal, ethical, and socially responsible behavior from their antitheses” (Greve et al. 2010, p. 56, 71), which sometimes implies intentionality, differing from “accidents” (Mezias 1994). A scandal is “an event of varying duration that starts with the publicization of a real, apparent, or alleged transgression to a negatively oriented audience” (Adut 2008, p. 11).

that hidden weaknesses in ES practices can lead to significant incidents, making it harder for shareholders to identify which firms are more prepared to prevent similar problems.

In the condition of high peer ES controversies, the screening value of ES pay becomes more pronounced because of heightened screen necessity. Shareholders become more attentive to ES-related information cues as they seek to differentiate between firms that are proactively managing ES risks and those that may face similar controversies (Paruchuri and Misangyi 2015, Naumovska and Lavie 2021). This increased scrutiny reflects shareholders' need to better understand the quality of firms' ES risk management practices in an environment where the costs of poor ES performance have become more salient through peer firms' negative experiences.

The screening value of ES pay is amplified in high-controversy industries for two primary reasons. First, under heightened uncertainty, the observability of ES pay through detailed compensation disclosures becomes more valuable when shareholders are actively seeking ways to distinguish firms' ES risk management approaches. The contractual link between executive wealth and ES performance provides shareholders with clear, verifiable evidence of the board's efforts to incentivize strong ES risk management.

Second, the costliness of ES pay becomes a more effective differentiator in high-controversy industries. Implementing ES pay requires significant investments in measurement systems and accountability structures, such as sophisticated data collection processes, third-party verification mechanisms, and internal control systems. When industry peers face controversies, firms with robust ES capabilities face relatively lower costs in implementing and maintaining ES pay because they have already developed these necessary infrastructures (Flammer et al. 2019). In contrast, firms without such capabilities face substantially higher costs to develop these systems under heightened industry scrutiny, as they must make extensive investments in new processes and expertise. This increased

cost differential makes ES pay an especially credible information cue for distinguishing firms with strong ES risk management capabilities from those that might be more vulnerable to controversies.

Therefore, in industries where peers face significant ES controversies, shareholders should place greater value on ES pay as a screen due to increased screen necessity. This enhanced screening value should strengthen the negative relationship between ES pay adoption and subsequent ES shareholder proposals.

Hypothesis 3 (H3). *The negative association between firms' adoption of ES pay and the likelihood of firms being targeted by ES shareholder proposals in the following year is strengthened by the level of industry peers' ES controversies.*

2.6. Interaction between screen credibility and necessity

Building on the arguments for H2 and H3, the screening value of objective ES goals becomes particularly pronounced when industry peers face ES controversies. Just as objective goals generally provide higher screen credibility compared to subjective goals, the necessity of screening becomes more critical in high-controversy industries, creating a powerful interaction between screen credibility and screen necessity.

When peer ES controversies heighten the screen necessity, the ex-ante quantitative targets of objective ES goals become especially valuable to shareholders seeking to differentiate firms' capabilities and commitment. The presence of verifiable metrics helps shareholders distinguish between firms with robust measurement systems and accountability mechanisms versus those that might be more vulnerable to ES controversies - a critical concern when peer controversies have revealed potential weaknesses throughout the industry.

Additionally, the cost differential between firms with and without strong ES qualities becomes more pronounced for objective ES goals in high-controversy industries. Firms without robust capabilities face particularly high costs to implement objective goals under heightened scrutiny because they must develop sophisticated measurement systems. Similarly, firms without

genuine commitment face higher costs because the specific, measurable targets create greater accountability and risk of exposure. This increased cost differential makes objective ES goals an especially credible information cue in high-controversy industries.

Hypothesis 4 (H4). *The negative association between firms' adoption of objective ES pay and the likelihood of firms being targeted by ES shareholder proposals in the following year is strengthened by the level of industry peers' ES controversies.*

3. DATA AND METHOD

3.1. Data and Measurement

I tested the hypotheses using a sample of public firms in the US. Data on shareholder proposals is from ISS Voting Analytics, CEO compensation design data from ISS Incentive Lab, ES controversies from RepRisk, accounting variables from Compustat, board information from BoardEx, CEO information from Execucomp, and media coverage from Ravenpack. The intersection of the abovementioned databases resulted in a final sample of 10,106 observations, covering 957 firms from 2007 to 2020. Information on the ESG pay is from 2008 to 2021, as all the dependent variables are at year $t+1$.

3.2. Independent variables: ES pay adoption and design

I obtained information on performance goals in CEO compensation from ISS Incentive Lab. The database collects goal-level details of executive incentive plans, predominantly from proxy filings, covering S&P 500 firms and the largest 750 companies in the U.S. from 1998 onwards. It has been used in previous research to measure the detailed design of executive compensation (e.g., Bennett *et al.*, 2017; Guay, Kepler, and Tsui, 2019; Murphy and Sandino, 2020). I identified performance goals related to environmental and social issues following the keywords from previous studies (e.g., Cohen *et al.*, 2023; Flammer *et al.*, 2019; Ikram *et al.*, 2019), supplemented by words discovered through iterative reading of the descriptions. I then classified these topics according to the environmental and social topics in the SASB (Sustainability Accounting Standards Board)

standards, namely, environment, social capital, human capital, and an additional category on general ES topics. The topics related to the Environment include GHG emissions, air quality, energy management, water and wastewater management, waste and hazardous materials management, and ecological impacts. The topics related to the Social Capital dimension include human rights and community relations, customer privacy, data security, access and affordability, product quality and safety, customer welfare, and selling practices & product labeling. The topics related to the Human Capital dimension include labor practices, employee health & safety, employee engagement, and diversity & inclusion. The topics related to General ES include a broad mention of ESG, CSR, or business ethics.

The independent variable *ES pay adoption* is a dummy variable equal to one if a firm has environmental or social performance goals in its CEO incentive plan in that year, and zero otherwise. I then assessed the subjectivity of ES performance goals based on whether an ES target is quantitative (i.e., numeric) or qualitative, allowing boards to use their discretion for ex-post assessment and award (Bebchuk and Tallarita 2023).³ For example, one company in the sample set a quantitative goal to reduce CO₂ emissions by 195,000 tons, while others base incentive plans on qualitative criteria such as safety and environmental improvement or fostering an inclusive culture. As companies can adopt multiple ESG goals, I divided the independent variable *ESG pay adoption* into three types: *Purely objective ESG goals* is a dummy variable equal to one if a firm has ESG pay with only quantitative targets in that year, and zero otherwise; *Purely subjective ESG goals* is a dummy variable equal to one if a firm has ESG pay with qualitative target (i.e., no quantitative target) in that year, and zero otherwise; and *Mix of subjective and objective ESG goals* is an indicator equal to one if a firm has ESG pay with both quantitative and qualitative and targets, and zero otherwise.

³ According to the regulation, a company does not have to disclose quantitative targets if the performance goals are qualitative. Qualitative target is reflected in the data whether the target level of an ESG performance goal is a numerical value or missing. Missing value could be due to a lack of quantitative goals or disclosure. In both cases, the difficulty for outsiders to observe and monitor the progress makes these performance goals subject to a high value of discretion of the board. Regulation details: (b)(2), C.F.R. § 229.402 <https://www.ecfr.gov/current/title-17/chapter-II/part-229/subpart-229.400/section-229.402>.

On average, 18% of the firms have adopted ES pay during the sample period. As shown in Figure 1, the percentage of firms adopting ES pay has experienced a robust increase since 2007.⁴ Among the firms that have adopted ES pay, 52.2% employ purely subjective ES goals, 36.5% use purely objective ES goals, and 11.3% incorporate a mix of subjective and objective ES goals. Around half of the ES pay has objective ES goals, whereas the other half is purely subjective. The adoption varies across industries and topics: Over half of the companies in electric, gas, & sanitary services have adopted ES pay, which is the highest percentage of adoption among all industries. Firms with ES pay are more likely to have ES goals related to human capital, especially in the electric, gas, & sanitary and mining & construction firms (Figure A2 in Appendix).

---- Insert Figure 1 around here ----

3.3. Dependent variable: ES shareholder proposal

I identified shareholder proposals manually based on the description of shareholder proposals. Consistent with the categorization of ES pay, a proposal is categorized as an ES proposal if it is related to environment, social capital, human capital, or general ES/CSR issues, following SASB standards. *ES shareholder proposal* (t+1) is an indicator equal to one if the firm is targeted by shareholder proposals related to environmental and social topics in year t+1, zero otherwise. Results are robust using count variables. Around 15% of the firms are targeted by ES proposals, with a higher likelihood of being targeted after 2013 (Figure A4 in Appendix). Among firms that have been targeted by shareholder proposals, environmental proposals account for the most common type of proposals, especially in the electric, gas, & sanitary as well as mining & construction firms (Figure A5 in Appendix).

3.4. Moderator: Industry peer ES controversies

⁴ Due to the unclear scope of ES and sample differences, different studies may report different percentages of ES pay adoption. For instance, Flammer et al. (2019) observed 37% adoption in S&P 500 firms in 2013, while Cohen et al. (2023) reported 8% in a global sample, predominantly US and European firms, for the same year. This study aims for a comprehensive analysis of ESG pay, incorporating keywords from previous studies and manual verification, and documents an 18% adoption rate in 2013 among S&P 500 and the 750 largest US firms. Results are similar when excluding governance- or customer-related goals.

I measured ES controversies using negative media coverage of firms' exposure to environmental and social issues using Reprisk, which has been widely used in recent ESG research (e.g., Colak *et al.*, 2024; Dai, Liang, and Ng, 2021b; Kölbel *et al.*, 2017; Li and Wu, 2020). Starting in 2007, RepRisk tracks over 200,000 companies globally on a daily basis from 100,000 public media sources in 23 languages. They use a machine learning algorithm to do an initial screening and deduplication of firms' association with 28 different topics related to ESG risk incidents. An analyst team reviews the incident and assesses three properties: severity, reach of the information source, and novelty. Based on the number of ES incidents and the three properties, RepRisk calculates the RepRisk Index (RRI) to dynamically capture reputational risk exposure related to ESG issues. To ease the presentation of the results, I scaled *ES controversies* (ranging from 0 to 100) by 100 so that it is a continuous variable ranging from 0 to 1, with a higher value indicating a higher negative publicity due to exposure to ES incidents.

I measured *industry peer ES controversies* based on the mean value of the environmental and social portion of RRI of the industry peers, excluding focal firms' controversies. The environmental dimension includes climate change, greenhouse gas emissions, global and local pollution, impacts on landscapes, ecosystems, and biodiversity, overuse and wasting of resources, waste issues, and animal mistreatment. The social-community relations dimension encompasses human rights abuses and corporate complicity, impacts on communities, local participation issues, and social discrimination. Meanwhile, the social-employee relations dimension addresses forced labor, child labor, restrictions on freedom of association and collective bargaining, employment discrimination, occupational health and safety issues, and poor employment conditions. Industry is defined by the three-digit SIC code, and the results are robust using two-digit or four-digit code. RRI is well-suited to this study for two reasons. First, it captures negative media coverage of ES incidents, aligning with the definition of ES controversies as negative publicity due to exposure to ES incidents. Second, it is based on ES

incidents instead of company's self-disclosed ESG policies or performance, mitigating the concern of greenwashing.

3.5. Control variables

First, I controlled for basic financial characteristics of the firm, including *firm size*, measured as the natural logarithm of the total assets; firm operational performance *ROA*, measured as the net income divided by total assets; *leverage*, measured as the book value of the debt divided by the total assets. I controlled *media coverage*, as firm visibility could affect firms' adoption of ES pay and shareholder activism (Barko *et al.*, 2022). It is measured as the natural logarithm of the monthly average number of news reports related to the company. These variables are winsorized at the 1st and 99th percentiles to mitigate the influence of outliers. Second, I included governance factors in the regressions as previous studies have found an association between governance and ESG pay adoption (e.g. Hong *et al.*, 2016; Ikram *et al.*, 2019). Specifically, I controlled *board independence*, measured as the number of independent directors divided by board size; *board size*, measured as the number of directors; *female CEO*, measured as a dummy variable that equals one if the CEO is female, and zero otherwise; *CEO Tenure*, measured as the natural logarithm of the number of years the CEO has been in office; and natural logarithm of *CEO age*; and *CEO total compensation*, measured as the natural logarithm of the CEO total compensation (Ertimur *et al.* 2011). Third, I controlled for other contextual factors. As focal firms' ES performance may affect the adoption of ES pay and the likelihood of being targeted by shareholder activism, I controlled for *focal firms' ES controversies*, focal firms' environmental and social portion of RRI. As shareholder activism can happen in waves across industries (Flammer *et al.* 2021), I controlled for *industry peer ES shareholder proposals*, measured as the average likelihood of firms being targeted by industry peers in that year, excluding the focal firm. Table 1 shows the summary statistics and correlation table.

---- Insert Table 1 around here ----

3.6. Analysis

To test H1, I used ordinary least squares (OLS) regressions to test the hypotheses.

$$ES\ shareholder\ proposals_{i,t+1} = \beta ES\ pay_{i,t} + \eta Controls_{i,t} + \alpha_i + \lambda_t + \mu_{i,t}, \quad (1)$$

where i indexes firm and t indexes year. α_i is firm fixed effects, λ_t is year fixed effects, and $\mu_{i,t}$ is the error term. The model is a lead-lag design where the dependent variable is measured in year $t+1$. For example, the business model of certain firms, such as electric, gas, and sanitary services, may affect the likelihood of adopting ES pay and being targeted by ES shareholder proposals. I controlled for firm-fixed effects α_i to account for firm-specific time-invariant characteristics such as business models that are prone to ES risks. Note that including firm-fixed effects has also accounted for industry-level time-invariant characteristics. By accounting for firm fixed effects, β estimates how much a *within-firm* change in the likelihood of adopting ES pay in year t is associated with a change in the likelihood of being targeted by ES shareholder proposals in year $t+1$ (Li and Wibbens 2022). I also controlled for year-fixed effects to account for macroeconomic trends. The standard errors are clustered at the firm level to account for serial correlation within firms. Admittedly, there could be other time-variant firm characteristics, such as boards' value, driving the likelihood of both ES pay adoption and the targeting decision of ES proposals. Additional analysis mitigates this endogeneity concern further.

The test of H2 divided the independent variable ES pay into three types:

$$\begin{aligned} ES\ shareholder\ proposals_{i,t+1} = & \beta_1 purely\ objective\ ES\ pay_{i,t} + \\ & \beta_2 purely\ subjective\ ES\ pay_{i,t} + \beta_3 mix\ of\ objective\ and\ subjective\ ES\ pay_{i,t} + \\ & \eta Controls_{i,t} + \alpha_i + \lambda_t + \mu_{i,t}. \end{aligned} \quad (2)$$

For H3, I interacted *industry peer ES controversies* with *ES pay*.

$$ES \text{ shareholder proposals}_{i,t+1} = \theta_1 ES \text{ pay}_{i,t} + \theta_2 \text{Industry peer ES controversies}_{i,t} + \theta_3 ES \text{ pay}_{i,t} \times \text{Industry peer ES controversies}_{i,t} + \eta \text{Controls}_{i,t} + \alpha_i + \lambda_t + \mu_{i,t} .$$

(3)

For H4, I interacted *industry peer ES controversies* with the three types of ES pay adoption. An increase in *industry peer ES controversies* is often unexpected to companies, thereby mitigating the endogeneity concern. In addition, the measurement of ESG controversies has put more emphasis on the novelty of the incidents, hence putting a lower weight on anticipated incidents. Due to the binary nature of the dependent variable, I also tested the hypotheses with conditional logit models as robustness checks.

4. RESULTS

4.1. Hypotheses testing: ES pay and ES shareholder proposals

Table 2 presents the regression results for hypothesis testing. Column 1 shows the baseline model with control variables. Firm size, board independence, focal firms' ES controversies, and industry peer ES shareholder proposal rates each correlate positively with firms receiving shareholder proposals as targets. Supporting H1, Column 2 reveals that adopting ES pay is associated with a reduction in the likelihood of being targeted by an ES proposal by 3.4% in the following year ($\beta = -0.034$, $p = 0.016$). This represents a 22.6% relative decrease from the average targeting rate (i.e., 15%).

Column 3 examines H2 and finds that firms using purely objective ES pay (quantitative performance targets) face a 7.0% lower likelihood of receiving proposals ($\beta = -0.070$, $p = 0.001$) - a 46.7% relative reduction. However, firms using purely subjective ES pay or a mix of objective and subjective ES pay show similar targeting rates to firms without ES pay.

Supporting H3, Column 4 demonstrates that high levels of ES controversies among industry peers strengthen the negative relationship between ES pay and ES shareholder proposals ($\beta = -0.633$,

$p = 0.009$). Figure 2 illustrates this moderating effect: ES pay has no association with ES proposals when industry peers have few ES controversies, but the association becomes more negative as peer ES controversies increase, especially above 0.05.

Column 5 supports H4 by showing that industry peer ES controversies amplify how effectively purely objective ES pay reduces shareholder proposals ($\beta = -0.908$, $p = 0.014$). Interestingly, under high levels of industry peer ES controversies, even purely subjective ES pay demonstrates a negative association with ES proposals. This finding suggests that heightened screen necessity—triggered by poor ES performance among industry peers—lowers the threshold for screen credibility. Under conditions of elevated information asymmetry and uncertainty, shareholders become more receptive to information cues that might otherwise lack sufficient credibility. Specifically, even subjective ES goals, typically regarded as weaker indicators of a firm's ES quality and intent, can serve as meaningful informational cues to shareholders in contexts where uncertainty about industry-wide ES capabilities is pronounced.

---- Insert Table 2 and Figure 2 around here ----

4.2. Endogeneity

While the main results account for multiple control variables and fixed effects, endogeneity concerns may persist. One potential issue is reverse causality, where the adoption of ES pay could be influenced by ES shareholder activism. However, we would expect firms to adopt ES pay in response to receiving ES shareholder proposals to better align the interests of shareholders and managers. Therefore, we would anticipate a positive association rather than the negative one observed in the analysis. In addition, the dependent variable in the main result is one year after the independent variable. To further explore the possibility of reverse causality, I examine the dynamic relationship between ES pay and ES proposals using lead-lag analyses. Table 3, visualized in

Figure 3, shows that ES pay is not related to the targeting decisions of ES proposals in the years preceding its adoption but is negatively associated with ES proposals in the same year or the years following adoption. This provides further evidence that reverse causality is unlikely to explain the finding.

Second, while fixed effects account for time-invariant firm characteristics, unobserved time-varying factors could drive both ES pay adoption and reduced ES shareholder proposals. For example, gradual governance reforms toward responsible business practices may simultaneously motivate ES pay adoption and reduce ES shareholder activism. To address this concern, I conduct a staggered difference-in-differences analysis (or “event study”) around firms' first ES pay adoption as the treatment event, with the year before adoption as the baseline. If time-varying confounders or reverse causality were driving the results, we would expect differential trends in ES proposals between treatment and control groups before adoption. Column 5 of Table 3 shows no significant pre-treatment differences in targeting rates between adopting and non-adopting firms, but a significant reduction in targeting rates following adoption. In addition to the two-way fixed effect (TWFE) approach, I estimate the dynamic effects using two robust alternatives (de Chaisemartin and D’Haultfœuille 2020) to address the concern of heterogeneous treatment effects (Goodman-Bacon 2021, Baker et al. 2022, Roth et al. 2023) (Figure 4). The absence of pre-trends mitigates concerns about reverse causality and time-varying confounders, which would typically manifest as gradual changes in outcomes before treatment.

Third, firms that adopt ES pay may systematically differ from those that do not, and certain firm characteristics may influence boards' decisions to adopt ES pay. To address this concern, I employed propensity score matching (PSM) to identify comparable treatment (i.e., firms that have ever adopted ES pay) and control groups (i.e., firms that have never adopted ES pay). I performed one-to-one matching based on all control variables within the same two-digit SIC industry and year.

T-tests indicate that all control variables show no significant differences between the 241 matched pairs of treated and control firms. Table 4 presents the results using the panel sample of matched firms. The findings remain consistent: ES pay, particularly purely objective ES pay, is negatively associated with the likelihood of firms being targeted by ES proposals (Columns 1 and 2). Industry peer ES controversies amplify the negative relationship between ES pay and ES proposals (Columns 3 and 4).

---- Insert Table 3, Table 4,

Figure 3, and Figure 4 around here ----

4.3. Robustness checks

I conducted several robustness checks, as shown in Table 5. First, I replaced the dependent variable—a dummy variable—with the number of ES proposals. Column 1 confirms a similar negative association. Second, the findings remain robust when using a conditional fixed-effects logit model (Column 2). Third, although the main analysis controls for focal firms' ES controversies, I included the interaction between ES pay and focal firms' ES controversies as an additional control variable. Column 3 indicates that the screening effect of ES pay does not vary with focal firms' ES controversies, while the moderating effect of industry peer ES controversies remains significant. Finally, Columns 4 to 7 demonstrate that the results hold when using either four-digit or two-digit SIC industry classifications.

---- Insert Table 5 around here ----

5. SUPPLEMENTARY ANALYSES

5.1. Status of ES proposals following ES pay

When shareholders submit proposals, there are three possible outcomes: the proposal proceeds to a vote, is withdrawn by the activists, or is omitted by management. Table 6 presents the analysis of how ES pay relates to the outcomes of ES shareholder proposals if firms receive them.

The results show that ES pay does not relate to whether ES proposals proceed to a vote (Column 1) or receive majority support when voted upon (Column 2). However, ES pay is positively associated with proposal withdrawals by activist shareholders (Column 3), suggesting that ES pay may satisfy activist demands and reduce their inclination to maintain opposition (Gantchev 2013). ES pay shows no significant relationship with proposal omissions by management (Column 4). Collectively, these findings suggest that ES pay may help shareholders and management reach a consensus on ES issues.

---- Insert Table 6 around here ----

5.2. Unpacking ES topics

To provide a more nuanced understanding, I disaggregate both ES pay and ES shareholder proposals into their component categories: environmental, social capital, human capital, and general ES goals. Table 7 reveals that the adoption of ES pay is mostly associated with human capital-related shareholder proposals. Specifically, companies that incorporate human capital goals into CEO pay experience a significant reduction in human capital-focused shareholder proposals in the following year (Column 11). Additionally, the adoption of general ES goals in compensation is also associated with a lower likelihood of being targeted by human capital-related proposals (Column 12). This pattern suggests that shareholders perceive human capital-related performance goals as credible information cues of management's commitment to addressing workforce concerns, aligning with Qian et al. (2020)'s findings on the screening effect of employee-friendly policies. In contrast, environmental, social capital, and general ES-related goals have weak associations with ES proposals.

---- Insert Table 7 around here ----

To account for industry-specific variation in the materiality of different ES topics, I classify ES performance goals and ES proposals as material or immaterial using SASB's Materiality Map, which evaluates the materiality of ES topics across 77 industries. Table 8 shows that while adopting material ES goals in executive compensation shows no significant relationship with subsequent ES

shareholder proposals (Column 1), the adoption of immaterial ES goals is associated with fewer ES proposals (Column 2). Further analysis by proposal type in Columns 3-6 shows that this reduction primarily occurs for immaterial ES proposals, with a match between immaterial ES goals in compensation and fewer immaterial ES proposals from shareholders. This pattern suggests that immaterial ES pay may resolve greater information asymmetry. This is because material ES issues are already under strong scrutiny by shareholders and analysts as they directly impact financial performance. In contrast, immaterial ES issues suffer from higher information asymmetry - shareholders have less visibility into how the firm approaches these ES areas. When firms adopt material ES pay, it may be interpreted as standard risk management. However, ES-conscious activist shareholders can interpret immaterial ES pay as a credible information cue of firms' ES intent and quality that extends beyond financial considerations.

---- Insert Table 8 around here ----

5.3. Future ES controversies

While the main results indicate that ES pay is positively perceived by ES-conscious shareholders, it remains unclear whether this perception aligns with firms' actual ES performance. In other words, ES pay may be decoupled from actual ES outcomes (Westphal 2023). Table 9 shows that, on average, adopting ES pay is not associated with ES controversies in the following year (Column 1). However, firms that adopt purely objective ES pay experience a (marginal) reduction in ES controversies, whereas those using subjective ES pay do not show a similar effect (Column 2). This suggests that shareholder activists' positive view of objective ES pay aligns with its subsequent impact on reducing ES controversies. It also implies that ES pay signals not only ES intent but also, to some extent, firms' ES quality.

---- Insert Table 9 around here ----

6. CONCLUSION AND DISCUSSION

This study examines the relationship between firms linking environmental and social performance goals in CEO compensation (ES pay) and environmental and social (ES)-related shareholder activism. The findings show that firms are less likely to be targeted by ES proposals following the adoption of ES pay. This reduced likelihood is primarily driven by the adoption of ES pay with purely objective performance goals. The association between ES pay and the reduced likelihood of being targeted by ES proposals is particularly strong when industry peers' ES controversies are high. Additional analyses reveal that shareholders are more likely to withdraw ES proposals when firms have ES pay. The screening effect of ES pay is especially pronounced in human capital and immaterial ES topics.

6.1. Contributions and implications

This study makes several contributions. First, it extends research on the implications of ES pay adoption in corporate governance. While previous studies focus on traditional tools for incentive alignment, such as equity ownership and performance bonuses (Devers et al. 2007, Edmans et al. 2017, 2023), ES pay has become increasingly prevalent over the past two decades (Bloomberg 2022, Forbes 2022). Previous studies have presented mixed views on its implications for firms and shareholders. Some researchers have identified benefits, including improved financial and ES performance, enhanced managerial long-term orientation, and increased innovation (Flammer et al. 2019, Tsang et al. 2021, Cohen et al. 2023). Others have raised concerns that ES pay might exacerbate misalignment between shareholder interests and managerial incentives, particularly by creating opportunities for CEO rent extraction through metrics that are subjective (Edmans 2021, Bebchuk and Tallarita 2023, Financial Times 2023). This study reveals a critical implication of ES pay: its role as an information cue for activist shareholders. This screening mechanism enables firms to communicate their ES strategies and quality to shareholders—especially those concerned with ES issues—thereby fostering consensus around ES strategies and better aligning managerial and

shareholder interests. The effectiveness of this alignment only exists when firms adopt objective ES performance goals and industry-specific factors that influence shareholder attention to ES concerns. In addition, it expands on the perspective that executive actions and incentives carry symbolic value, influencing external stakeholders' perceptions of firms, including shareholders (Hambrick and Lovelace 2018, Westphal 2023). Broadly, it contributes to the CEO compensation literature by demonstrating that, in addition to the traditional incentive mechanisms such as ownership, ES pay serves as a valuable tool for building consensus.

Second, this study contributes to the shareholder activism literature by revealing that ES pay serves as an important governance tool that can potentially mitigate ES-related shareholder activism. ES shareholder activism has become an increasingly prevalent tool for shareholders to voice their opinions—often opposition—regarding companies' ES strategies (Chuah et al. 2024), as it is shaping firms' ES strategies, governance structures, and performance (McDonnell et al. 2015, Flammer 2015, Flammer et al. 2021, Lee et al. 2022). Existing research indicates that firms are more likely to be targeted by ESG activism when they demonstrate poor ES performance or indicate receptivity to activists' demands (Briscoe et al. 2014, McDonnell et al. 2015, Barko et al. 2022, Chuah et al. 2024). Hence, it is unclear how ES pay is associated with ES-related shareholder activism. If ESG pay indicates strong ES intent and high ES quality, firms should experience fewer ES shareholder proposals. Conversely, if ES pay diverges from shareholder interests or is perceived as indicating greater receptivity to shareholder demands, firms might face increased targeting by ES activism. This study addresses this puzzle by showing that ES pay effectively indicates a better alignment of interests between ESG-conscious shareholders and managers, thereby reducing shareholder opposition.

Third, this study advances screening theory by identifying CEO compensation design—specifically, ES pay—as a novel information cue that shapes shareholders' perceptions. Previous

research has revealed that governance conditions, such as board structure, successor CEOs' characteristics, and pay disparity between CEOs and other executives, can serve as information cues for external stakeholders of the companies (Connelly et al. 2016, 2025, Solal and Snellman 2019, Essman et al. 2021). This study contributes by revealing how ES pay serves as an important information cue that enables ESG-conscious shareholder activists to identify firms with high ES intent and quality, consequently reducing ESG-related shareholder activism. Importantly, it suggests that the objectivity of the ES goals matters for screen credibility. In addition, the interpretation of such information cue is context-dependent. In industries characterized by heightened ES controversies, the screen necessity of ES pay becomes especially pronounced. Therefore, this study extends the emerging stakeholder-screening perspective to the context of shareholder activism (Qian et al. 2020). It enriches the boundary conditions of screening theory (Zhang et al. 2024) by showing that heightened screen necessity may compensate for lower screen credibility.

Last but not least, this study has managerial implications. As the adoption of ES pay continues to gain momentum globally (Bloomberg 2022, Forbes 2022), both investors and board members have expressed concerns. Despite some studies showing the positive implications of ES pay, some investors remain skeptical about whether ES pay truly enhances shareholder value (Financial Times 2023) while board members worldwide express their confusion about the design of ES pay (Willis Towers Watson 2021). This study addresses these concerns by demonstrating that objective ES pay can effectively align shareholder and management interests, particularly in industries where ES controversies are prevalent among industry peers.

6.2. Limitations and future directions

The study has several limitations, presenting opportunities for future research. First, by focusing on ES shareholder activism as the dependent variable, this study captures the perceptions of ES-conscious shareholders. Future studies can broaden the research scope by examining the

detailed nature, such as content and sentiments, of shareholder proposals and investigating the alignment between the content of shareholder proposals and ES pay. In addition, future studies can investigate how different shareholder groups perceive ES pay. For instance, shareholders primarily driven by financial returns may sometimes view ES pay as a deviation from their interests. Investigating how different shareholder groups perceive ES pay could reveal potential synergies and conflicts among different shareholder demands. Moreover, while this study focuses on shareholder proposals, a major form of shareholder activism, it does not account for other types, such as proxy contests, shareholder litigation, or private engagement.

Second, while this study examines the implications of ES pay for shareholder activism, the adoption of ES pay is an endogenous choice of the boards. Boards may implement ES pay for various reasons, including a genuine commitment to ES strategies, efforts to enhance corporate reputation, the need to communicate ES strategies, or pressure from shareholders. While this study does not randomly assign ES pay, it mitigates endogeneity concerns by looking into the time trend and accounting for observable differences in the treatment and control groups. Future research could delve into the different motivations behind ES pay adoption, distinguishing among substantive commitments, symbolic compliance, and the subsequent shareholder reactions.

Third, while this study finds that, on average, ES pay reduces shareholder activism related to ES issues, it does not rule out the possibility that ES pay indicates high receptivity to ES-related demands. As a result, it may be perceived as an opportunity structure for activism (King and Pearce 2010, McDonnell et al. 2015). In other words, ES pay could incentivize stakeholders to push for further ES-related changes in other contexts, such as NGO or employee activism. Future research could explore the conditions under which ES pay mitigates or amplifies stakeholder activism.

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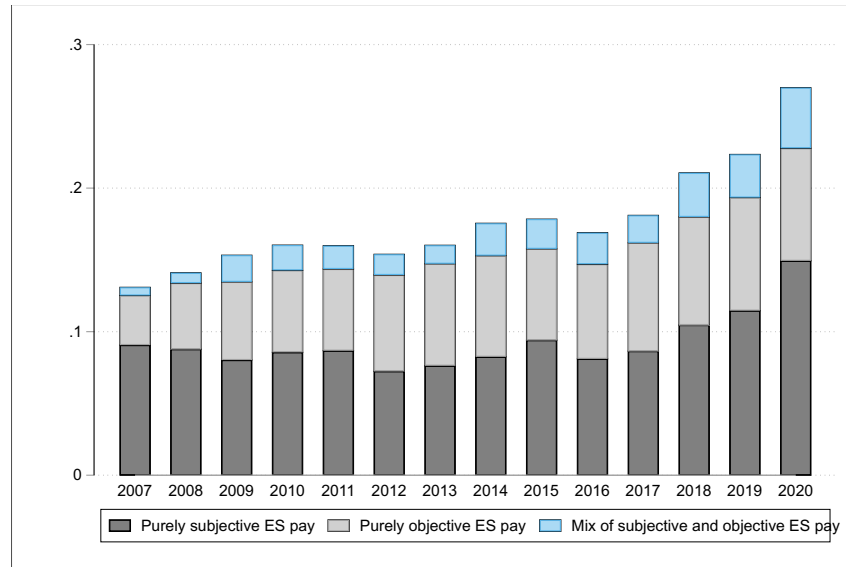
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FIGURES AND TABLES



Note. This figure shows the rate of ES pay adoption over the years. ES pay is classified into three types: *Purely objective ESG goals* refers to ES pay with only quantitative targets; *Purely subjective ESG goals* refers to ES pay with qualitative target (i.e., no quantitative target); and *Mix of subjective and objective ESG goals* refers to ES pay with both quantitative and qualitative targets.

Figure 1 The trend of ES pay adoption

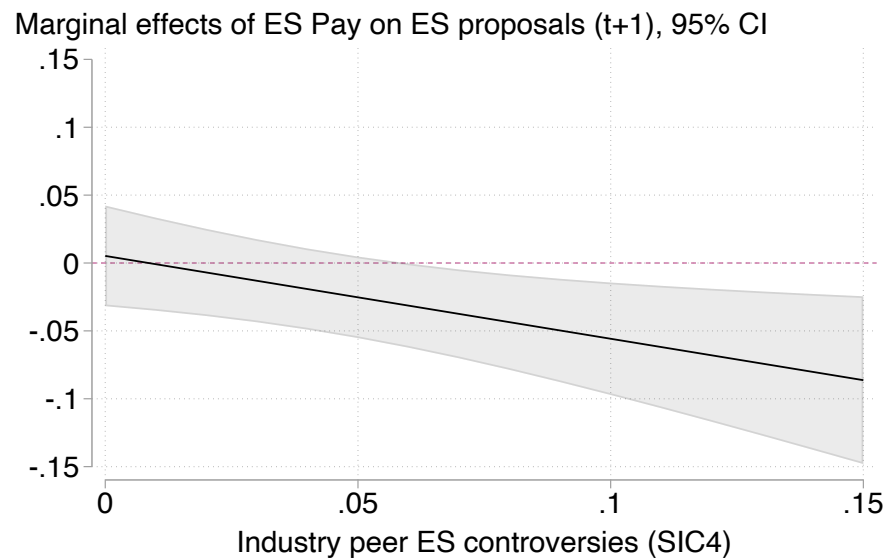


Figure 2 Marginal effect of ES pay on ES proposals varied by industry peer ES controversies

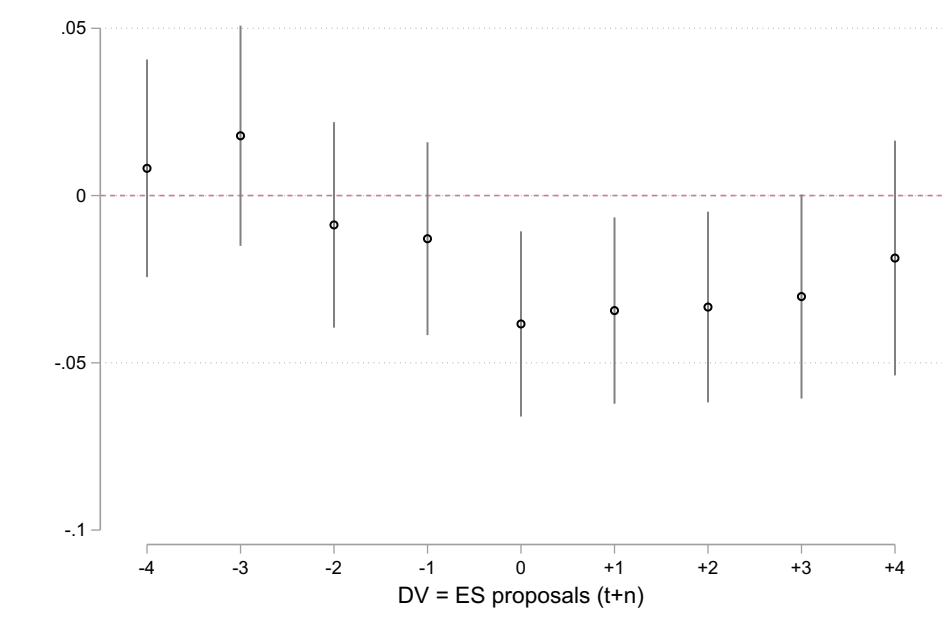


Figure 3 Dynamic relationship between ES pay and ES proposals (lead-lag analysis)

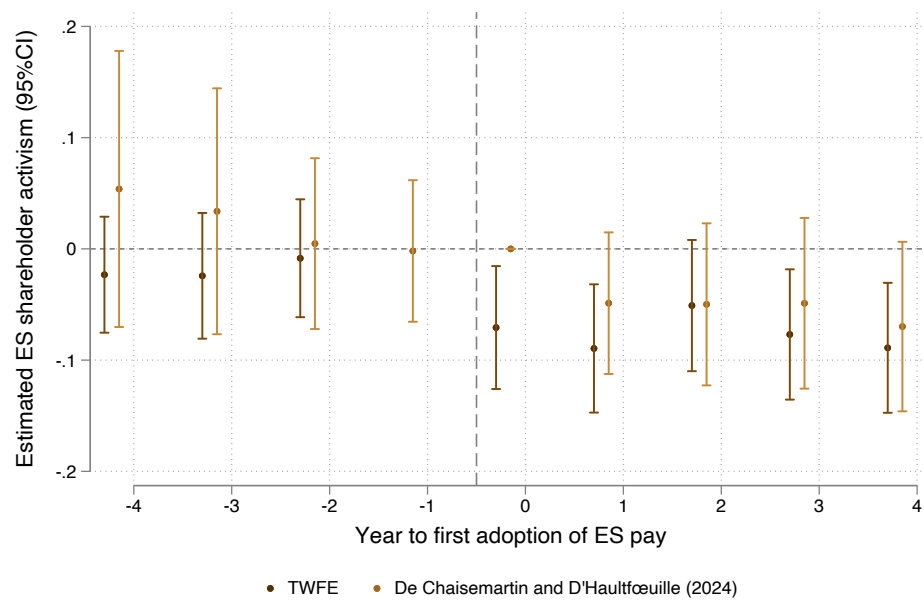


Figure 4 Staggered difference-in-differences analysis of the first adoption of ES pay

Table 1 Summary statistics and correlation table

Variable	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) <i>ES shareholder proposals (t+1)</i>	0.15	0.35	1.00																	
(2) <i>ES pay</i>	0.18	0.38	0.06	1.00																
(3) <i>Purely objective ES pay</i>	0.06	0.24	0.00	0.57	1.00															
(4) <i>Purely subjective ES pay</i>	0.09	0.29	0.06	0.69	-0.08	1.00														
(5) <i>Mix of objective and subjective ES pay</i>	0.02	0.14	0.04	0.31	-0.04	-0.05	1.00													
(6) <i>Industry peer ES controversies</i>	0.05	0.05	0.13	0.26	0.20	0.08	0.19	1.00												
(7) <i>Firm Size</i>	9.02	1.4	0.30	0.17	0.06	0.12	0.11	0.13	1.00											
(8) <i>ROA</i>	0.05	0.09	0.06	-0.09	-0.06	-0.04	-0.05	-0.02	-0.07	1.00										
(9) <i>Leverage</i>	0.29	0.23	0.04	0.05	0.02	0.03	0.04	0.10	0.02	-0.09	1.00									
(10) <i>Media coverage</i>	3.05	0.97	0.11	0.02	-0.03	0.05	0.01	0.07	0.16	0.11	-0.07	1.00								
(11) <i>Board independence</i>	0.79	0.12	0.11	0.10	0.05	0.07	0.03	0.11	0.23	0.02	-0.03	0.12	1.00							
(12) <i>Board size</i>	10.3	2.24	0.17	0.08	0.04	0.05	0.06	0.07	0.54	-0.01	-0.02	0.13	0.22	1.00						
(13) <i>Female CEO</i>	0.04	0.2	0.03	0.01	0.01	-0.01	0.03	0.06	0.06	0.01	-0.01	-0.03	0.02	0.03	1.00					
(14) <i>CEO Tenure</i>	1.75	0.84	-0.03	-0.07	-0.07	-0.03	-0.02	-0.07	-0.05	0.05	-0.06	0.02	0.00	-0.07	-0.09	1.00				
(15) <i>CEO age</i>	4.03	0.11	0.06	0.01	0.00	0.00	0.03	0.10	0.16	0.01	0.00	0.06	0.04	0.08	-0.01	0.38	1.00			
(16) <i>CEO total compensation</i>	8.87	0.73	0.21	0.08	-0.01	0.09	0.04	0.09	0.54	0.09	0.07	0.18	0.20	0.26	0.06	0.02	0.12	1.00		
(17) <i>Focal firms' ES controversies</i>	0.08	0.1	0.32	0.23	0.12	0.13	0.16	0.45	0.42	0.00	0.09	0.14	0.19	0.27	0.06	-0.10	0.09	0.31	1.00	
(18) <i>Industry peer ES shareholder proposals</i>	0.06	0.09	0.10	0.07	0.06	0.00	0.06	0.36	0.07	0.01	0.06	0.03	0.03	0.02	0.06	-0.04	0.03	0.02	0.16	1.00

Note. Number of observations= 10,106 firm-years.

Table 2 ES pay and ES shareholder proposals

Dependent variable	<i>ES shareholder proposals (t+1)</i>				
	(1)	(2)	(3)	(4)	(5)
<i>ES pay</i>		-0.034** (0.016)		0.003 (0.875)	
<i>Purely objective ES pay</i>			-0.070*** (0.001)		-0.003 (0.902)
<i>Purely subjective ES pay</i>			-0.022 (0.189)		0.006 (0.795)
<i>Mix of objective and subjective ES pay</i>			-0.024 (0.449)		-0.067 (0.176)
<i>Industry peer ES controversies</i>				0.240 (0.140)	0.246 (0.131)
<i>ES pay × Industry peer ES controversies</i>				-0.633*** (0.009)	
<i>Purely objective ES pay × Industry peer ES controversies</i>					-0.908** (0.014)
<i>Purely subjective ES pay × Industry peer ES controversies</i>					-0.520* (0.086)
<i>Mix of objective and subjective ES pay × Industry peer ES controversies</i>					0.215 (0.649)
<i>Firm Size</i>	0.062*** (0.000)	0.062*** (0.000)	0.062*** (0.000)	0.061*** (0.000)	0.061*** (0.000)
<i>ROA</i>	0.049 (0.256)	0.046 (0.289)	0.047 (0.281)	0.043 (0.323)	0.044 (0.304)
<i>Leverage</i>	0.005 (0.892)	0.004 (0.910)	0.003 (0.936)	0.003 (0.944)	0.003 (0.942)
<i>Media coverage</i>	0.006 (0.409)	0.006 (0.402)	0.005 (0.446)	0.006 (0.403)	0.005 (0.460)
<i>Board independence</i>	0.120** (0.036)	0.121** (0.034)	0.122** (0.033)	0.122** (0.032)	0.123** (0.031)
<i>Board size</i>	-0.004 (0.180)	-0.004 (0.180)	-0.005 (0.179)	-0.005 (0.160)	-0.005 (0.151)
<i>Female CEO</i>	-0.008 (0.824)	-0.007 (0.837)	-0.006 (0.871)	-0.008 (0.814)	-0.007 (0.850)
<i>CEO Tenure</i>	-0.002 (0.720)	-0.002 (0.740)	-0.002 (0.760)	-0.002 (0.774)	-0.002 (0.801)
<i>CEO age</i>	0.084 (0.151)	0.078 (0.178)	0.075 (0.195)	0.076 (0.188)	0.074 (0.203)
<i>CEO total compensation</i>	0.011 (0.192)	0.011 (0.180)	0.011 (0.185)	0.011 (0.188)	0.011 (0.188)
<i>Focal firms' ES controversies</i>	0.228*** (0.001)	0.233*** (0.001)	0.231*** (0.001)	0.231*** (0.001)	0.225*** (0.001)
<i>Industry peer ES shareholder proposal rate</i>	0.145*** (0.006)	0.143*** (0.006)	0.145*** (0.006)	0.140*** (0.007)	0.142*** (0.006)
<i>Firm FE</i>	Yes	Yes	Yes	Yes	Yes
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.287	0.287	0.288	0.288	0.288
Observations	10106	10106	10106	10106	10106

Note. This table presents the regression results for testing H1 to H3. Column 1 shows the regression with control variables and fixed effects. Column 2 includes ES pay, all control variables, and firm- and year-fixed effects to test H1, following equation (1). Column 3 includes different types of ES pay adoption to test H2. Column 4 interacts ES pay with industry peer ES controversies to test H3. Column 5 interacts different types of ES controversies with industry peer ES controversies to test H4. Standard errors are clustered at the firm level. *p*-values in parentheses. * *p* < 0.1, ** *p* < 0.05, *** *p* < 0.01.

Table 3 Dynamic relationship between ES pay and ES shareholder proposals

Dependent variable	<i>ES shareholder proposals (t+n)</i>									<i>ES shareholder proposals</i>
	t-4	t-3	t-2	t-1	t	t+1	t+2	t+3	t+4	Event study of the first adoption of ES pay
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>ES pay</i>	0.008 (0.623)	0.018 (0.287)	-0.009 (0.575)	-0.013 (0.380)	-0.038*** (0.007)	-0.034** (0.016)	-0.033** (0.022)	-0.030* (0.052)	-0.019 (0.296)	
<i>ES Pay (t-5 and beyond)</i>										-0.024 (0.391)
<i>ES Pay (t-4)</i>										-0.020 (0.493)
<i>ES Pay (t-3)</i>										-0.024 (0.399)
<i>ES Pay (t-2)</i>										-0.008 (0.753)
<i>ES Pay (t)</i>										-0.071** (0.012)
<i>ES Pay (t+1)</i>										-0.089*** (0.002)
<i>ES Pay (t+2)</i>										-0.051* (0.093)
<i>ES Pay (t+3)</i>										-0.077** (0.010)
<i>ES Pay (t+4)</i>										-0.091*** (0.006)
<i>ES Pay (t+5 and beyond)</i>										-0.088*** (0.005)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.311	0.302	0.301	0.281	0.289	0.287	0.294	0.295	0.300	0.289
Observations	8022	8776	9506	10237	10241	10106	9220	8324	7437	10106

Note. This table shows the dynamic association between ES pay and ES shareholder proposals. The regressions include the full set of control variables as in Table 2. Standard errors are clustered at the firm level. *p*-values in parentheses. * *p* < 0.1, ** *p* < 0.05, *** *p* < 0.01.

Table 4 Regression results in the propensity score matched sample

Dependent variable	<i>ES shareholder proposals (t+1)</i>			
	(1)	(2)	(3)	(4)
<i>ES pay</i>	-0.045** (0.030)		0.008 (0.781)	
<i>Purely objective ES pay</i>		-0.116*** (0.000)		-0.010 (0.792)
<i>Purely subjective ES pay</i>		-0.018 (0.472)		0.006 (0.850)
<i>Mix of objective and subjective ES pay</i>		-0.060 (0.263)		-0.131 (0.107)
<i>Industry peer ES controversies</i>			0.389 (0.163)	0.407 (0.146)
<i>ES pay × Industry peer ES controversies</i>			-0.913** (0.026)	
<i>Purely objective ES pay × Industry peer ES controversies</i>				-1.445** (0.020)
<i>Purely subjective ES pay × Industry peer ES controversies</i>				-0.480 (0.377)
<i>Mix of objective and subjective ES pay × Industry peer ES controversies</i>				0.447 (0.584)
Control variables	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Adjusted R ²	0.233	0.234	0.234	0.236
Observations	4201	4201	4201	4201

Note. This table shows results in the propensity score matched (PSM) sample. The regressions include the full set of control variables as in Table 2. Standard errors are clustered at the firm level. *p*-values in parentheses. * *p* < 0.1, ** *p* < 0.05, *** *p* < 0.01.

Table 5 Robustness checks

Dependent variable	<i>ES shareholder proposals (t+1)</i>						
	Alternative DV: number of ES proposals	Alternative model: conditional logit	Additional control: interaction of focal firms' ES controversies and ES pay	Alternative industry classification: SIC4	Alternative industry classification: SIC2		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>ES pay</i>	-0.042** (0.044)	-0.353** (0.024)	0.002 (0.903)	0.004 (0.826)		0.011 (0.608)	
<i>Industry peer ES controversies</i>			0.242 (0.139)	0.352** (0.015)	0.356** (0.014)	0.461 (0.108)	0.457 (0.112)
<i>ES pay × Industry peer ES controversies</i>			-0.651** (0.017)	-0.674*** (0.003)		-0.808** (0.014)	
<i>ES pay × Focal firms' ES controversies</i>			0.018 (0.896)				
<i>Purely objective ES pay</i>					-0.011 (0.749)		-0.007 (0.772)
<i>Purely objective ES pay × Industry peer ES controversies</i>					-0.900* (0.059)		-0.900*** (0.007)
<i>Purely subjective ES pay</i>					0.023 (0.382)		0.009 (0.652)
<i>Purely subjective ES pay × Industry peer ES controversies</i>					-0.851** (0.039)		-0.605** (0.037)
<i>Mix of objective and subjective ES pay</i>					-0.075 (0.295)		-0.069 (0.156)
<i>Mix of objective and subjective ES pay × Industry peer ES controversies</i>					0.280 (0.720)		0.169 (0.704)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.439		0.288	0.289	0.290	0.289	0.289
Observations	10106	5545	10106	9908	9908	10189	10189

Note. This table shows robustness checks. Column 1 replaces the dependent variable with the number of ES proposals. Column 2 uses a conditional fixed-effects logit model. Column 3 includes the interaction between ES pay and focal firms' ES controversies as an additional control variable. Finally, Columns 4 to 7 use four-digit and two-digit industry classifications instead of the three-digit SIC codes. The regressions include the full set of control variables as in Table 2. Standard errors are clustered at the firm level. *p*-values in parentheses. * *p* < 0.1, ** *p* < 0.05, *** *p* < 0.01.

Table 6 Status of ES shareholder proposals following ES pay

Dependent variable	<i>ES proposals voted (t+1)</i>	<i>ES proposals passed (t+1)</i>	<i>ES proposals withdrawn (t+1)</i>	<i>ES proposals omitted (t+1)</i>
	(1)	(2)	(3)	(4)
<i>ES pay</i>	0.004 (0.924)	0.004 (0.838)	0.143*** (0.006)	-0.062 (0.201)
Control variables	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Adjusted R ²	0.371	0.085	0.121	0.191
Observations	1306	1306	1306	1306

Note. This table shows the association between ES pay and the status of the ES proposals if firms have been targeted by ES proposals in the following year. The regressions include the full set of control variables as in Table 2. Standard errors are clustered at the firm level. *p*-values in parentheses. * *p* < 0.1, ** *p* < 0.05, *** *p* < 0.01.

Table 7 Unpacking topics in ES pay and ES proposals

Dependent variable	<i>Environmental proposals (t+1)</i>				<i>Social capital proposals (t+1)</i>				<i>Human capital proposals (t+1)</i>				<i>General ES proposals (t+1)</i>			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
<i>Environmental goals</i>	-				0.00				-				-			
	0.01				8				0.01				0.00			
	2								1				7			
	(0.6				(0.4				(0.5				(0.2			
	43)				94)				25)				54)			
<i>Social capital goals</i>		0.00				-				-				-		
		4				0.00				0.00				0.00		
						7				0				8		
		(0.7				(0.5				(0.9				(0.1		
		48)				30)				72)				93)		
<i>Human capital goals</i>			-				-				-				-	
			0.02				0.00				0.02				0.00	
			0				1				0**				2	
			(0.1				(0.9				(0.0				(0.6	
			04)				42)				45)				55)	
<i>General ES goals</i>				0.00				0.01				-				0.01
				1				9				0.04				1
												1**				
				(0.9				(0.2				(0.0				(0.2
				84)				45)				34)				65)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.25	0.25	0.25	0.25	0.28	0.28	0.28	0.28	0.20	0.20	0.20	0.20	0.04	0.04	0.04	0.04
Observations	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101
	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06	06

Note. This table shows the association between ES pay and ES proposals across four topics: environment, social capital, human capital, general ES goals. The classification follows SASB standards. Standard errors are clustered at the firm level. *p*-values in parentheses. * *p* < 0.1, ** *p* < 0.05, *** *p* < 0.01.

Table 8 Topic materiality of ES pay and ES proposals

Dependent variable	<i>ES shareholder proposals (t+1)</i>		<i>Material ES proposals (t+1)</i>		<i>Immaterial ES proposals (t+1)</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>ES pay with material goals</i>	-0.019		-0.011		-0.020	
	(0.386)		(0.522)		(0.146)	
<i>ES pay with immaterial goals</i>		-0.043**		-0.018		-0.034**
		(0.033)		(0.248)		(0.033)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.293	0.293	0.271	0.271	0.275	0.276
Observations	7265	7265	7265	7265	7265	7265

Note. I classify ES performance goals and ES proposals as material or immaterial using SASB's Materiality Map. The regressions include the full set of control variables as in Table 2. Standard errors are clustered at the firm level. *p*-values in parentheses. * *p* < 0.1, ** *p* < 0.05, *** *p* < 0.01.

Table 9 ES pay and future ES controversies

Dependent variable	<i>Focal firms' ES controversies (t+1)</i>	
	(1)	(2)
<i>ES pay</i>	-0.000 (0.885)	
<i>Purely objective ES pay</i>		-0.007* (0.066)
<i>Purely subjective ES pay</i>		0.002 (0.343)
<i>Mix of objective and subjective ES pay</i>		-0.000 (0.961)
Control variables	Yes	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
Adjusted R ²	0.759	0.759
Observations	9435	9435

Note. This table shows the association between ES pay and the focal firms' ES controversies in the subsequent year. The regressions include the full set of control variables as in Table 2. Standard errors are clustered at the firm level. *p*-values in parentheses. * *p* < 0.1, ** *p* < 0.05, *** *p* < 0.01.

Appendix

A1. Adoption of ESG pay

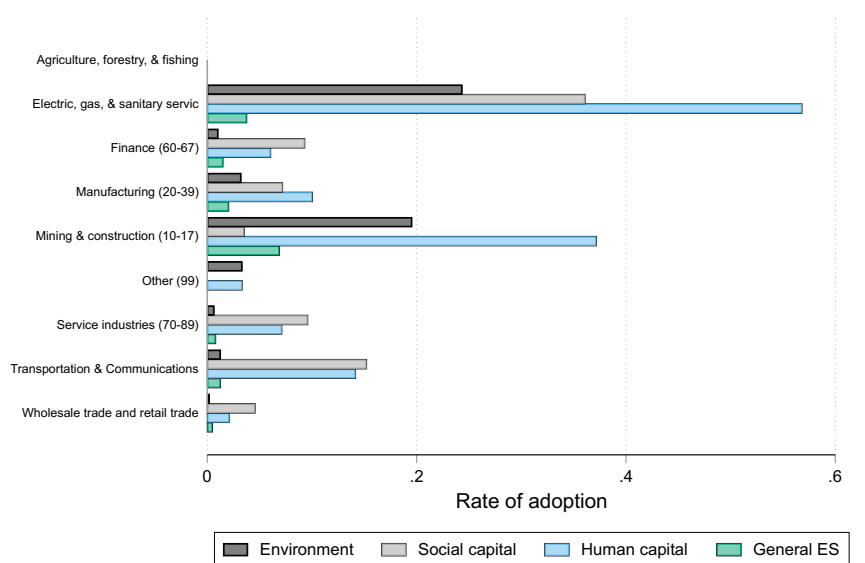
Executive Compensation | Compensation Discussion and Analysis | Components of ParentCo's 2016 Executive Compensation Program (continued)

The below chart describes the specific metrics and results for ParentCo and Alcoa for the 2016 annual IC awards:

Performance Metric(1)	ParentCo Targets	ParentCo Performance	Alcoa Targets	Alcoa Performance	Metric Weight (%)
Adjusted Free Cash Flow(2)	\$ (710) M	\$ (533) M	\$ (247) M	\$ 6M	40%
Adjusted EBITDA(2)	\$ 2,386 M	\$ 2,360 M	\$ 893 M	\$ 1,002 M	40%
Safety(3)					
DART (measured in days away from work)	0.48	0.36	0.385	0.276	5%
Environmental(4)					
CO2 Emissions Reduction (thousand tons)	195	101	171	38.5	5%
Diversity (as percentage of workforce)					10%
Executive Level Women, Global	22.8%	23.2%	20.9%	20.9%	
Executive Level Minorities, U.S.	16.0%	16.1%	23.4%	24.3%	
Professional Level Women, Global	28.0%	28.3%	20.9%	20.7%	
Professional Level Minorities, U.S.	19.0%	18.6%	16.8%	17.6%	
Total	—	—	—	—	100%

Note. This table shows an example of an executive compensation plan in a proxy statement. 80% of the metrics in the annual cash award incentive plan are financially oriented (cash flow and EBITDA targets). The remaining 20% of the annual cash incentive is linked to ESG performance, including 5% to safety targets, 5% to environmental targets, and 10% to diversity targets. In this specific example, although the disclosure of results is not required, the company disclosed both targets and results in the previous year.

Figure A1 Example of ES pay in CEO compensation



Note. This figure shows the adoption rate of ES pay across topics and industries. The topics related to the Environment include GHG emissions, air quality, energy management, water and wastewater management, waste and hazardous materials management, and ecological impacts. The topics related to the Social Capital dimension include human rights and community relations, customer privacy, data security, access and affordability, product quality and safety, customer welfare, and selling practices & product labeling. The topics related to the Human Capital dimension include labor practices, employee health & safety, and employee engagement, diversity & inclusion. The topics related to General ES include a broad mention of ESG, CSR, or business ethics.

Figure A2 ES pay across topics and industries

Performance Measure	2009 Target Performance	2009 Actual Performance	Target Payout Rate*	Actual Payout Rate**
ROCE	<6.0% 6.0% 12.0% ≥ 18.0%	(18.7)%	0% 40% 80% 160%	0%
Shipment Tons (millions)	<16.2 16.2 20.3 ≥ 24.4	15.0	0% 10% 20% 40%	0%
Safety		Improvement		10%
Environmental		Improvement		5%
Total (Corporate Performance Payout Rate)				15%

Panel A

COMPONENT	MEASURES	PURPOSE	2019 CALCULATION	2019 RESULTS	COMPARISON TO 2018
Absolute Net Income (25% Weighting)	Reflects year-over-year growth of Intel's net income or adjusted net income	Rewards executive officers for sustained performance	2019 net income (in millions) divided by 2018 adjusted net income (in millions) \$21,048/\$20,759	101.4%	2019 net income was 1.4% higher than in 2018, resulting in a score of 101.4% for this component, whereas Intel's 2018 adjusted net income was 38% higher than the prior year.
Relative Net Income (25% Weighting)	Reflects Intel's year-over-year net income growth compared with the net income or adjusted net income growth of 15 technology peer companies	Rewards executive officers for how well Intel's year-over-year net income performs compared with the broader technology market	2019 net income growth divided by the average net income growth of our 15 company technology peer group 101%/98%	103%	2019 net income growth was down compared with the 2018 relative score of 108%
Operational Performance (50% Weighting)	Reflects specific operational goals that the committee approves for each business group	Rewards executive officers for achieving meaningful measures of operational performance in key areas that support our long-term strategy. Drives focus and accountability at the 10 business group levels	Each of our listed officers, other than Messrs. Shenoy and Bryant, are paid based on average of 10 business groups' scores, including our CEO Payouts for Messrs. Shenoy and Bryant are based on results of the Data Platforms Group and the Client Computing Group, respectively, since they are the general managers of those groups	Operational Performance with adjustment for ESG goals achievement Corporate Average: 106.4% Data Platforms Group: 105% Client Computing Group: 126.7%	2019 average corporate score on operational goals was higher than the 2018 average corporate score of 91%
ESG Metrics	Reflects corporate wide ESG goals that can impact the operational performance results: - Promoting parity in representation of women in leadership - Driving an inclusive culture - Customer obsession in Intel culture - Product quality enhancements	Rewards executive officers for advancing our commitment and leadership in ESG issues	Achieved performance against ESG goals including: - Promoting parity in representation of women in leadership - Driving an inclusive culture	Additional 13.3% added to the Operational Performance Score	Did not achieve performance against ESG goals in 2018 while we achieved 2 out of 4 ESG goals in 2019
Final Payout Results	Corporate Average Payout: 101.4% (25%) + 103% (25%) + 106.4% (50%) = 104.3% Data Platforms Group Payout: 101.4% (25%) + 103% (25%) + 105% (50%) = 103.6% Client Computing Group Payout: 101.4% (25%) + 103% (25%) + 126.7% (50%) = 114.4%				

Panel B

Note. The figures in Panels A and B show examples of subjective ESG goals. In Panel A, the incentive plan links 10% and 5% of the annual bonus to safety and environmental “improvement”, without mentioning any numeric targets. In Panel B, the incentive plan assesses ESG metrics qualitatively.

Figure A3 Example of qualitative targets in CEO compensation

A2. ESG-related proposals

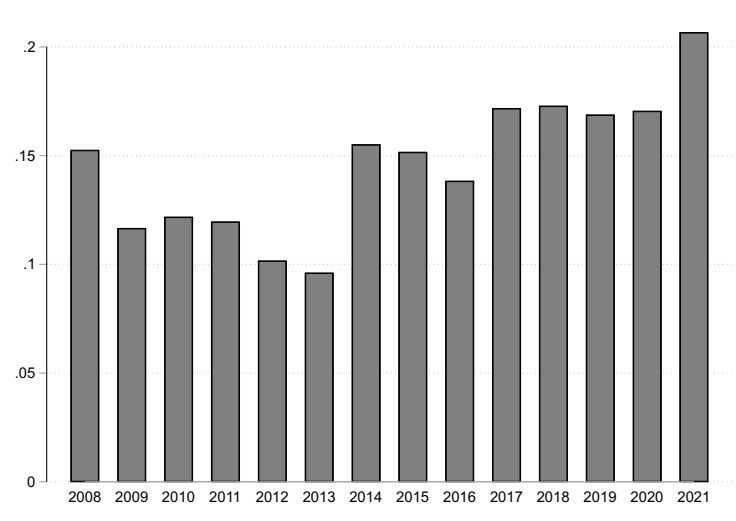


Figure A4 The rate of firms targeted by ES shareholder proposals over time

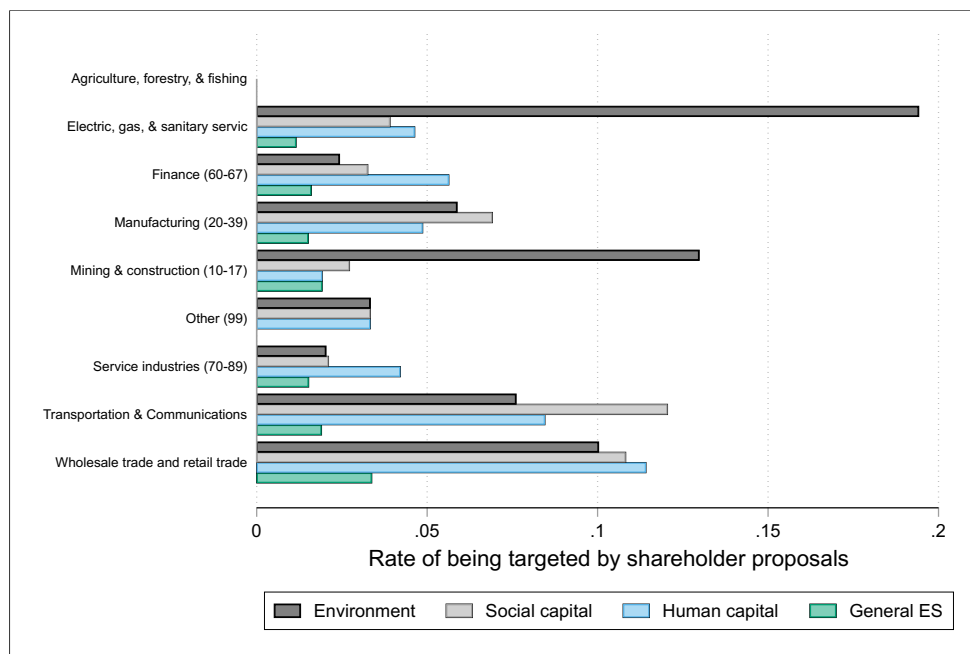


Figure A5 ES shareholder proposals across topics and industries

A3. Industry ES Controversies

I measured ES controversies using negative media coverage of ES incidents from RepRisk. The data has been used by major financial institutions (e.g., banks, insurance providers, asset managers), corporates, government, and non-profits for due diligence, research, and monitoring. It has also been recently used in ESG research (Colak, Korkeamäki, and Meyer, 2024; Dai, Liang, and Ng, 2021; Kölbel, Busch, and Jancso, 2017; Li and Wu, 2020). The purpose of RepRisk's dataset is to systematically identify and assess material ESG risks based on risk incidents.

Starting in 2007, RepRisk uses algorithms and human intelligence to track over 200,000 companies globally on a daily basis from 100,000 public sources and stakeholders in 23 languages, including print media, online media, government bodies, regulators, think tanks, etc. Analyst teams conduct quality checks and regularly review the list of sources. With this list of sources, RepRisk uses a machine learning algorithm to do an initial screening and deduplicating of firms' association with ESG risk incidents. An analyst team reviews the incident and assesses three properties: severity (based on the consequences, extent of impact, and intention), reach of the information source (based on the readership of the media sources), and novelty (based on companies' historical ES issues). The data is based only on what the media and external stakeholders report and does not verify or validate the reported allegations. Hence, the data captures negative media allegations of firms' association with ESG incidents.

Reprisk identifies 28 ESG issues covering environmental, social, governance, and cross-cut issues, listed in Table A1. The scope of this list is in accordance with the key international standards related to ESG issues and business conduct, such as the World Bank Group Environmental, Health, and Safety Guidelines, the IFC Performance Standards, the Equator Principles, the OECD Guidelines for Multinational Enterprises, and the ILO Conventions.

Based on these ESG incidents and the associated severity, reach, and novelty, Reprisk uses a proprietary algorithm to calculate the RepRisk Index (RRI) to “dynamically capture and quantify reputational risk exposure related to ESG issues”. It is a monthly continuous variable that ranges from 0 to 100, with a higher value of RRI indicating a higher exposure to ESG incidents. I then retained the environmental and social subset of the index, and aggregated them to annual level by taking the average value of monthly RRI. To ease the presentation of the results, I scaled the index by 100 so that the variable ranges from 0 to 1 (*ES controversies*).¹ Then I calculate *industry peer ES controversies* based on the average *ES controversies* of three-digit SIC peers, excluding focal firms' controversies.

To ensure the face validity of the measure, I manually searched ESG issues for firm-year observations with high values of *ES controversies*. Table A2 shows ten examples of ESG incidents associated with high *ES controversies*. Note that companies may concurrently be linked to multiple incidents, each related to various topics.

¹ For more detailed methodology of the database, please refer to their website: <https://www.reprisk.com/news-research/resources/methodology>.

Table A1 Coverage of ESG controversies

Environment	Social - Community Relations	Social - Employee Relations	Governance	Cross-cutting Issues
	(Included in <i>ES controversies</i>)		(Not included in <i>ES controversies</i>)	
Climate change, GHG emissions, and global pollution	Human rights abuses and corporate complicity	Forced labor	Corruption, bribery, extortion, money laundering	Controversial products and services
Local pollution	Impacts on communities	Child labor	Executive compensation issues	Products (health and environmental issues)
Impacts on landscapes, ecosystems, and biodiversity	Local participation issues	Freedom of association and collective bargaining	Misleading communication	Supply chain issues
Overuse and wasting of resources	Social discrimination	Discrimination in employment	Fraud	Violation of national legislation
Waste issues		Occupational health and safety issues	Tax evasion	Violation of international standards
Animal mistreatment		Poor employment conditions	Tax optimization	
			Anti-competitive practices	

Note. Reprisk identifies firms' exposure to ESG risk incidents related to 28 topics from public sources and stakeholders in 23 languages, including print media, online media, government bodies, regulators, think tanks, etc. The scope of this list is in accordance with the key international standards related to ESG issues and business conduct, such as the World Bank Group Environmental, Health, and Safety Guidelines, the IFC Performance Standards, the Equator Principles, the OECD Guidelines for Multinational Enterprises, and the ILO Conventions.

Table A2 Examples of ESG controversies

Company	Year	ES incidents associated with a big increase in Reprisk Index (non-exhaustive examples)
PFIZER INC	2012	Paid \$60 million to settle U.S. government claims of bribing officials in Europe and Asia to secure drug approvals; Paid around \$1billion to settle lawsuits claiming its Prempro drug caused breast cancer. ²
MICROSOFT CORP	2014	Antitrust issues in EU and China; Sexist comments from executives; Data privacy concerns; Bribery scandal ³
CAMERON INTERNATIONAL CORP	2010	Involved in Deepwater Horizon oil spill as the manufacturer of the blowout preventer ⁴
CVS HEALTH CORP	2008	Fined \$2.25 million for failure to Protect Medical and Financial Privacy of Customers and Employees; Pay \$36.7 Million to U.S., 23 States, & D.C. to Settle Medicaid Prescription Drug Fraud Allegations ⁵
PATTERSON-UTI ENERGY INC	2018	Fatal explosion at one of its drilling rigs in Oklahoma that killed five workers ⁶
FORD MOTOR CO	2014	Recalled over 1 million vehicles due to safety concerns; local toxic pollution; antitrust issue in India ⁷
GENERAL MOTORS CO	2014	Recalled 30 million vehicles due to ignition-switch defect ⁸
KIRBY CORP	2014	Spilled 4,000 barrels of oil into the Houston Ship Channel. ⁹
JOHNSON & JOHNSON	2012	Recalling its entire United States supply of Infants' Tylenol. The recall caused wiped around \$1.4 billion off Johnson & Johnson's non-prescription drug sales ¹⁰

Note. This table shows examples of ESG incidents that are associated with big increases (99th percentile) in Reprisk Index. Note that companies may concurrently be linked to multiple incidents, each of which can relate to various topics. For instance, in 2012, Pfizer predominantly faced media allegations of corruption, fraud, and violation of national legislation due to its settlement over bribing officials for drug approvals. Additionally, Pfizer was subject to negative media coverage on 14 other ESG topics, including local pollution, animal mistreatment, human rights abuses, misleading communications, among others. In 2014, Ford encountered product safety issues, leading to negative media coverage of their products, supply chain issues, and violations of national legislation. In the same year, Ford also faced media allegations related to 22 other ESG topics, such as climate issues, local pollution, impacts on landscapes, human rights abuses, social discrimination, supply chain issues, and fraud.

² https://www.washingtonpost.com/business/economy/pfizer-agrees-to-pay-60m-to-settle-foreign-bribery-case/2012/08/07/a2426f5e-e0b6-11e1-8fc5-a7def1fc161d_story.html; <https://corporatewatch.org/pfizer-six-scandals-to-remember>. Retrieved on Jan 23, 2023.

³ https://en.wikipedia.org/wiki/Microsoft_licensing_corruption_scandal; <https://euobserver.com/eu-political/125868>; <https://www.romania-insider.com/microsoft-case-judicial-error>; <https://www.theguardian.com/technology/2014/apr/29/us-court-microsoft-personal-data-emails-irish-server>; <https://www.cnn.com/2014/08/26/chinese-antitrust-regulator-targets-microsoft.html>; <https://www.reuters.com/article/us-microsoft-browser-lawsuit-idUSBREA3A1Y120140411>; <https://www.npr.org/sections/alltechconsidered/2014/10/10/355100973/microsoft-ceo-nadellas-remarks-add-to-techs-sexism-problem>. Retrieved on Jan 23, 2023.

⁴ https://www.washingtonpost.com/business/economy/cameron-settles-with-bp-on-oil-spill-claims/2011/12/16/gIQAnXudyO_story.html. Retrieved on Jan 23, 2023.

⁵ <https://www.securityinfowatch.com/security-executives/loss-prevention-solutions/news/10489358/cvs-settles-patient-privacy-suit>. Retrieved on Jan 23, 2023.
https://www.justice.gov/archive/opa/pr/2008/March/08_crt_214.html. Retrieved on Jan 23, 2023.

⁶ <https://www.houstonpublicmedia.org/articles/news/2018/08/17/300663/investigation-into-fatal-explosion-at-gas-drilling-rig-owned-by-houston-company-continues/>. Retrieved on Jan 23, 2023.

⁷ <https://www.nytimes.com/2014/05/30/business/ford-recalls-1-1-million-suvs-because-of-faulty-power-steering.html>; <http://america.aljazeera.com/articles/2014/6/16/ramapough-ford-toxic.html>; <https://www.nytimes.com/2014/08/27/business/international/india-fines-14-carmakers-over-competition-violations.html>. Retrieved on Jan 23, 2023.

⁸ <https://www.vox.com/2014/10/3/18073458/gm-car-recall>. Retrieved on Jan 23, 2023.

⁹ <https://www.justice.gov/opa/pr/kirby-inland-marine-pay-49-million-civil-penalties-and-provide-fleet-wide-improvements>. Retrieved on Jan 23, 2023.

¹⁰ <https://www.nytimes.com/2012/02/18/health/johnson-johnson-recalls-infants-tylenol.html>. Retrieved on Jan 23, 2023.