

JCU ScholarShip

From Profits to Purpose: ESG Practices, CEO Compensation and Institutional Ownership Ciaburri

Item Type	Article
Authors	Nasta, Luigi;Magnanelli, Barbara Sveva;Ciaburri, Mirella
Citation	Nasta, Luigi, Barbara Sveva Magnanelli, and Mirella Ciaburri. "From Profits to Purpose: ESG Practices, CEO Compensation and Institutional Ownership." Management Decision 62 (13): 46-68. 2024.
DOI	https://doi.org/10.1108/MD-06-2023-0932
Rights	Attribution 4.0 International
Download date	2026-03-06 04:59:31
Item License	http://creativecommons.org/licenses/by/4.0/
Link to Item	https://hdl.handle.net/20.500.14490/938

From profits to purpose: ESG practices, CEO compensation and institutional ownership

Luigi Nasta

Department of Business and Management, Luiss Business School, Rome, Italy

Barbara Sveva Magnanelli

Department of Business Administration, John Cabot University, Rome, Italy, and

Mirella Ciaburri

Department of Business Studies, Roma Tre University, Rome, Italy

Abstract

Purpose – Based on stakeholder, agency and institutional theory, this study aims to examine the role of institutional ownership in the relationship between environmental, social and governance practices and CEO compensation.

Design/methodology/approach – Utilizing a fixed-effect panel regression analysis, this research utilized a panel data approach, analyzing data spanning from 2014 to 2021, focusing on US companies listed on the S&P500 stock market index. The dataset encompassed 219 companies, leading to a total of 1,533 observations.

Findings – The analysis identified that environmental scores significantly impact CEO equity-linked compensation, unlike social and governance scores. Additionally, it was found that institutional ownership acts as a moderating factor in the relationship between the environmental score and CEO equity-linked compensation, as well as the association between the social score and CEO equity-linked compensation. Interestingly, the direction of these moderating effects varied between the two relationships, suggesting a nuanced role of institutional ownership.

Originality/value – This research makes a unique contribution to the field of corporate governance by exploring the relatively understudied area of institutional ownership's influence on the ESG practices–CEO compensation nexus.

Keywords ESG practices, CEO compensation, Institutional ownership, Corporate governance, Stakeholder theory, Agency theory, Institutional theory

Paper type Research paper

1. Introduction

The landscape of corporate governance is continually evolving, and with it, the significance of environmental, social and governance (ESG) practices within corporate strategy is becoming increasingly evident. These practices have expanded their scope beyond mere compliance; they are integral to the strategic focus of businesses. This shift emphasizes the importance of incorporating ESG considerations into the corporate ethos, positioning them as fundamental as profit-centric goals. Decision-makers are now acknowledging the imperative to balance environmental and societal concerns with traditional financial objectives, marking a new era of corporate responsibility.

Recognizing the shift towards strategic integration of ESG practices, a notable development that aligns with this trend is the escalating interest of large institutional



investors in ESG. These investors are converging on the understanding that sustainable business practices are critical to long-term value creation and are thus adjusting their investment strategies accordingly. Characterized as firms or organizations that invest on behalf of others, institutional investors have assumed a pivotal role due to their expanded ownership and influential role in shaping corporate policies. These investors often function as “blockholders”, wielding significant sway over companies, especially when juxtaposed with private investors (Dyck *et al.*, 2019; Velte, 2020a, b and c, 2023). Consequently, there has been a significant increase in the allocation of funds towards investments in ESG-centric enterprises. This shift has catalyzed companies to commit to various ESG goals such as reducing carbon emissions, fostering diversity and enhancing labor standards. Furthermore, the trend of tethering CEO compensation to ESG objectives has emerged as a strategic move to motivate executives to embrace initiatives that might not guarantee immediate financial returns (Walker, 2022).

The existing body of literature has separately addressed the relationship between ESG practices and CEO compensation, as well as the role of institutional ownership in executive compensation (Berrone and Gomez-Mejia, 2009; Cohen *et al.*, 2023; Dong and Ozkan, 2008; Hartzell and Starks, 2003; Jang *et al.*, 2022; Khan *et al.*, 2005; Ozkan, 2007; Velte and Obermann, 2021). However, there is a notable gap in studies that consider these elements in conjunction. Specifically, there appears to be a scarcity of research investigating the interplay between ESG practices and CEO compensation in the context of institutional ownership. The discrete impact of each ESG component, under the moderating effect of institutional ownership on CEO remuneration, remains insufficiently examined. This calls the need for a comprehensive analysis of how institutional investors, with their ESG objectives, might be influencing the alignment of non-financial goals with executive remuneration frameworks.

In addressing the identified research gap, our study situates itself at the confluence of stakeholder theory, agency theory and institutional theory.

Stakeholder theory places significant emphasis on the need to consider the interests of diverse stakeholders, such as employees, customers, communities and the environment, when making corporate decisions. It provides a lens through which to understand the broader societal impact of ESG practices and their influence on CEO compensation. Agency theory focuses on the relationship between principals (shareholders) and agents (CEOs) and highlights the need for aligning incentives to ensure that agents act in the best interests of the principals. This theory helps to explain the motivation behind linking CEO compensation to ESG objectives. Institutional theory sheds light on the influence of institutional ownership and the broader institutional environment on corporate practices, including executive compensation. It provides insights into how institutional investors and external pressures shape the relationship between ESG practices and CEO compensation.

Our study aims to weave these theoretical domains into a coherent analysis that elucidates the relationships among ESG practices, institutional ownership, and CEO compensation. The following research questions have been then formulated to guide our empirical study:

RQ1. How do the individual pillars of ESG influence CEO compensation?

RQ2. What is the moderating role of institutional ownership in the relationship between ESG practices and CEO compensation?

These questions are designed to examine the intricate influences that ESG considerations, filtered through the lens of institutional ownership, have on executive compensation models.

Our theoretical contribution lies in demonstrating how environmental performance impacts CEO compensation, resonating with agency theory's emphasis on strategic alignment towards sustainability. Additionally, our findings expand stakeholder theory by highlighting the role of institutional investors in shaping executive compensation policies.

The diverse impacts of institutional ownership, as revealed in our study, further enrich the discourse in institutional theory, illustrating the intricate nature of institutional influences in corporate sustainability.

With this integrated theoretical approach, our study attempts to provide valuable insights and empirical evidence to the academic community and business practitioners by offering firms a clearer understanding of the strategic implications of ESG integration in executive remuneration schemes.

To fulfill the stated objectives, this research has analyzed panel data spanning from 2014 to 2021, emphasizing US companies listed on the S&P500 stock market index. The dataset used for this study was composed of 219 companies, yielding a total of 1,533 observations. Findings suggest divergent outcomes in the way ESG metrics correlate with CEO equity-linked compensation, contingent upon the level of institutional ownership.

The remainder of the paper is organized as follows: [Section 2](#) provides an overview of the theoretical framework and the development of hypotheses; [Section 3](#) describes the data sources and methodology employed for the analysis; [Section 4](#) presents the empirical results; [Section 5](#) includes a discussion of the findings and presents the conclusions of the study.

2. Theoretical background and hypotheses development

2.1 ESG practices and CEO compensation: a dual lens of stakeholder theory and agency theory

The conceptualization of corporate sustainability has been subject to a variety of interpretations in scholarly discourse but there is a consensus on the idea that a universally accepted delineation of corporate sustainability has yet to emerge ([Montiel and Delgado-Ceballos, 2014](#); [Schaltegger and Burritt, 2005](#)). Rooted in the notion of “sustainable development”, the term has evolved since its initial introduction in the seminal Brundtland Report by the World Commission on [Environment and Development \(1987\)](#), which describes sustainable development as meeting the needs of the present without compromising the ability of future generations to fulfil their own needs. This seminal report highlights the imperative of adopting a proactive stance in embracing corporate sustainability.

When measuring corporate sustainability, the literature often refers to ESG scores by rating agencies as indicative measures of a company’s sustainability performance ([Drempetic et al., 2020](#); [Friede et al., 2015](#); [Garcia et al., 2019](#); [Wang et al., 2018](#)). The ESG framework evaluates a firm’s non-financial impact across three primary areas: environmental, social, and governance ([Arvidsson and Dumay, 2022](#)). The integration of these domains into the corporate dictionary began in the 1980s, culminating in the 2004 foundational report “Who Cares Wins: Connecting Financial Markets to a Changing World”, initiated by Kofi Annan with the support of leading financial institutions.

The environmental dimension of ESG evaluates a company’s management of natural resources, encompassing critical issues such as emissions, pollution, water usage, recycling, waste production, impact on biodiversity, ecosystems, and plastic waste. The social dimension delves into the company’s involvement in social stewardship, assessing practices related to workplace safety, discrimination, child labor, employee treatment, poverty, community impact, training, and education. The governance dimension assesses corporate integrity, focusing on transparency, board diversity, fair executive remuneration, anti-corruption measures, and adherence to ethical codes ([Carnini Pulino et al., 2022](#); [Li et al., 2021](#)). Together, these pillars form a comprehensive framework for reviewing and advancing corporate sustainability initiatives.

Previous research exploring the relationship between corporate sustainability and CEO compensation has examined the components of the CEO remuneration to discern their association with sustainability dimensions ([Jian and Lee, 2015](#); [Karim et al., 2018](#); [Velte, 2020a](#),

b and c). An example might be found in a recent study conducted by [Cohen et al. \(2023\)](#), which examines the increasing integration of ESG criteria into executive compensation frameworks across international publicly traded firms. The findings of this study unveil an intricate network of practices shaped by geographical, industrial, and organizational dynamics, which resonate with the principles of strategic incentive alignment. Additionally, it is emphasized that firms incorporating ESG metrics in executive compensation tend to attract a higher level of engagement and financial commitment from institutional investors, reflecting a congruence with shareholder interests. Similarly, [Lee et al. \(2023\)](#) found that ESG performance ratings are strongly associated with all forms of compensation in US financial firms. Among the three ESG pillars, only social and governance exhibit persistent and significant associations with both short- and long-term executive pay.

Nevertheless, the results are inconclusive, as various studies have presented divergent findings regarding the relation between corporate sustainability initiatives and executive compensation. These studies have reported results ranging from a positive association to a statistically insignificant relationship, and even to a negative correlation ([Borghesi et al., 2014](#); [Ferrel et al., 2016](#); [Gillan et al., 2021](#); [Ikram et al., 2019](#); [Jian and Lee, 2015](#); [Malik and Shim, 2022](#); [Masulis and Reza, 2015](#)). CEO remuneration is typically segmented into three main components: fixed compensation (base salary), bonuses (short-term incentives), and equity-linked compensation (long-term incentives) ([Balsam, 2002](#); [Edmans et al., 2017](#); [Mahoney and Thorn, 2006](#); [McGuire et al., 2003](#); [Profitlich et al., 2021](#)). The fixed compensation component refers to the CEO's annual salary, which is determined by the employment contract and remains decoupled from performance outcomes. Bonuses, constituting short-term incentives, are contingent upon the fulfillment of specific goals over the preceding fiscal year. Equity-linked incentives, based on long term performance metrics spanning two to five years, embody an array of remunerative components such as extended cash incentives, stock options, long-term benefit schemes, phantom stocks, and restricted stocks.

The Compensation Committee, a group of independent directors, is responsible for determining the CEO's total remuneration package. This committee faces pressure from stakeholders who seek assurance that CEO compensation aligns with corporate performance and long-term growth strategies ([Bhagat and Bolton, 2019](#); [Daily et al., 1998](#)). The complex nature of CEO compensation has led to extensive research examining its relationship with various organizational variables, such as firm performance, innovation, and risk ([Bhuyan et al., 2022](#); [Core et al., 1999](#); [Gande and Kalpathy, 2017](#); [Houston and James, 1995](#); [Miller et al., 2002](#); [Ozkan, 2011](#); [Sheikh, 2012](#); [You et al., 2020](#); [Zhou et al., 2021](#)).

In this study, we focus on the equity-linked dimension of CEO remuneration and its relationship with corporate sustainability practices. This component of the compensation aligns CEO interests with those of the stakeholders, particularly shareholders, over the longer horizon ([McGuire et al., 2003](#)). The synergy between this component of compensation and sustainability initiatives is particularly pertinent, given their shared long-term orientation.

To explain the relationship between ESG practices and CEO compensation, this study is anchored in two theoretical frameworks: stakeholder theory and agency theory. Stakeholder theory envisions the firm as a system of agreements that involve stakeholders with varying interests, advocating for a multifaceted consideration in corporate decision-making ([Freeman, 1983](#); [Jones, 1995](#); [Jones and Wicks, 1999](#); [McGuire et al., 2003](#)). Contrasted with shareholders' theory, which prioritizes shareholder returns ([Clarkson, 1995](#); [Hillman et al., 2001](#)), stakeholder theory broadens the corporate interest to include environmental, social, and governance concerns. It is within this holistic context that incorporating ESG metrics into the structure of CEO compensation, particularly the equity-linked component, establishes an alignment with stakeholder imperatives, underscoring a shared commitment to the long-range objectives of sustainability ([Mahoney and Thorn, 2006](#)). This synthesis not only

underlines a collective commitment to corporate responsibility but also ensures that executive actions are directed towards different stakeholder voices, reflecting a strategic convergence of motivations across the spectrum of corporate interests.

Concurrently, agency theory posits the firm as a set of contracts between principals (shareholders) and agents (management), highlighting the potential divergence due to asymmetric information and conflicting priorities (Fama, 1980; Fama and Jensen, 1983; Jensen and Meckling, 1976). This divergence is mitigated by aligning agent incentives with principal objectives through compensatory structures (Eisenhardt, 1989; Haque, 2017; Ji, 2015; Mahoney and Thorn, 2006; Masulis *et al.*, 2009). Here, long-term incentive-based compensation ensures that executives' goals are in harmony with shareholder aims, which include both financial and ESG dimensions (Abudy *et al.*, 2020; Borghesi *et al.*, 2014; Edmans *et al.*, 2017; Lozano, 2008). Integrating ESG criteria into executive compensation serves as a strategic lever, aligning long-term objectives with sustainable and responsible business practices (Tsang *et al.*, 2021). The equity-linked component of compensation is particularly well-suited to this end (Ikram *et al.*, 2019; Karim *et al.*, 2018). It encourages CEOs to focus on goals that extend beyond immediate financial outcomes, considering the long-term environmental, social, and governance impact of their decisions. This harmonizes economic objectives with ESG concerns, fostering a sustainability-driven approach that aligns corporate strategies with the evolving expectations of a society increasingly attuned to social and environmental stewardship.

Building upon the theoretical foundations of stakeholder theory and agency theory, we propose specific hypotheses that articulate the anticipated influence of individual ESG pillars on the structure of CEO equity-linked compensation. Accordingly, we hypothesize the following:

- H1. There is a positive relationship between the environmental performance of a firm and the CEO equity-linked compensation.
- H2. There is a positive relationship between the social performance of a firm and the CEO equity-linked compensation.
- H3. There is a positive relationship between the governance performance of a firm and the CEO equity-linked compensation.

2.2 ESG practices and CEO compensation: the role of institutional owners

Institutional theory suggests that the environment's cultural and normative frameworks, especially as defined by institutional owners, significantly shape firm behavior (Scott, 2005). To attain and uphold legitimacy, organizations must conform to these established norms and expectations, a critical strategy for survival and success (DiMaggio and Powell, 1983). Securing corporate legitimacy is a gateway to both tangible and intangible benefits, ranging from risk mitigation to improved access to resources. For companies to capitalize on these advantages, they must align with the prevailing expectations of institutions and stakeholders, a process that demands ongoing efforts to foster and maintain social legitimacy (Bansal, 2005; Scott, 2008). This alignment often includes strategies like tying CEO remuneration to future financial outcomes, incentivizing leadership to prioritize stakeholder relationships and societal standards through ESG practices. From the perspective of institutional theory, this strategic congruence not only reinforces a firm's legitimacy but may also positively influence CEO compensation.

Institutional investors play a significant role in shaping corporate actions. Traditionally focused on shareholder value, these investors are increasingly recognizing the significance of non-financial indicators. As a result, they are including long-term executive incentives into their governance plans. This strategic orientation underscores the imperative for firms to

foster legitimacy, a pivotal element in delivering financial outcomes that resonate with the expectations of institutional investors, especially those with an inclination towards socially responsible investments and sensitivity to ESG practices (Clark and Hebb, 2005).

The literature on institutional ownership presents two contrasting perspectives on how institutional investors influence firm management and decision-making, particularly on how the CEO compensation is shaped (Callen and Fang, 2013). The monitoring perspective suggests that institutional ownership prioritizes long-term value maximization and collaborates with management toward this goal, thus exerting a positive influence on executive compensation and shareholder value (Becht *et al.*, 2010; Zheng, 2010). On the other hand, the short-termism posits that some institutional investors are primarily interested in short-term gains. This perspective portrays these investors as less concerned with the long-term sustainability of firms, and more with realizing quick profits. As a result, they may encourage management behaviors that prioritize immediate financial returns, potentially at the expense of long-term value and responsible investment practices (Graves and Waddock, 1990; Yan and Zhang, 2009).

Bridging these theoretical positions with empirical evidence reveals a complex and somewhat contradictory picture. Some studies, such as those by David *et al.* (1998), Hartzell and Starks (2003), Ozkan (2007), and Ryan and Wiggins (2001), identify a negative relationship between institutional ownership and CEO compensation levels. Conversely, other research points to an increase in executive remuneration, including salaries and options (Crocchi *et al.*, 2012; Khan *et al.*, 2005; Victoravich *et al.*, 2012).

Emerging from this complex evidentiary landscape is the increasing influence of specialized institutional investors, such as pension funds and socially responsible investment funds. These institutions have established a specific position as catalysts for promoting corporate sustainability. They are responsible for leading the market towards an integrated performance framework that combines financial metrics with ESG goals (Aluchna *et al.*, 2022; Sparkes and Cowton, 2004; Velte, 2023). The growing trend of non-financial shareholder activism among these investors reflects a broader redefinition of value, challenging firms to elevate ESG performance as a central component of corporate strategy (Briscoe and Gupta, 2016; Goranova and Ryan, 2013; Guay *et al.*, 2004; Liu *et al.*, 2023). In this evolving context, firms are increasingly incentivized to boost their ESG credentials not merely to satisfy a moral or regulatory imperative but to align with the more comprehensive performance metrics now demanded by a diverse array of institutional stakeholders (Velte, 2017). This new valuation framework implies that for firms to attract and retain the interest of discerning institutional investors, they must display an enhanced commitment to ESG priorities.

Within this shifting financial landscape, a proactive cohort of socially responsible investment funds, public pension funds, and engaged institutional investors is asserting considerable influence on corporate agendas (Serafeim, 2018). Their investment decisions are increasingly predicated on a company's commitment to ESG principles, as these are seen as indicators of sustainable competitive advantages, performance enhancements, compliance with evolving industry standards, and the fulfillment of legal and ethical responsibilities (Park *et al.*, 2019). The trend of channeling investments into socially responsible firms has gained momentum, reflecting a strategic pivot towards businesses that can demonstrate an enduring commitment to societal and environmental stewardship (Basse Mama and Mandaroux, 2022; Guenster, 2012).

In this particular setting, the eager focus of institutional investors on corporate legitimacy amplifies the role of ESG considerations in the formulation of executive compensation packages. This is evidenced by recent research by Dikolli *et al.* (2023), who revealed that ESG funds are significantly more likely than non-ESG funds to support proposals that align executive compensation with environmental and social objectives. Within the given context, the long-term incentive plans for CEOs are being recalibrated to incorporate ESG criteria.

This adjustment is pivotal, considering the protracted interval over which ESG initiatives often achieve their desired outcome. Aligning ESG efforts with extended long-term compensation structures ensures that these long-term incentives are consistent with the delayed rewards ESG goals provide, thereby fostering a sustained dedication to ESG commitments.

Accordingly, we hypothesize the following:

- H4.* The presence of institutional owners moderates the relationship between the environmental score and CEO equity-linked compensation.
- H5.* The presence of institutional owners moderates the relationship between the social score and CEO equity-linked compensation.
- H6.* The presence of institutional owners moderates the relationship between the governance score and CEO equity-linked compensation.

3. Data and methodology

3.1 Sample selection

The primary objective of this study is to assess and measure how institutional ownership impacts the relationship between ESG scores and CEO equity-linked compensation. To achieve this objective, an exhaustive analysis was conducted using panel data from 2014 to 2021, focusing on US companies listed on the S&P500 stock market index. We chose this timeframe to capture significant shifts in the global and US market dynamics concerning ESG considerations. This period witnessed the adoption of the UN's Sustainable Development Goals (2015) and the Paris Agreement (2016), both having a profound influence on companies and institutional investors globally. In the US, ESG-focused funds saw notable growth, and prominent institutional investors started to emphasize ESG considerations in their investment decisions. Thus, this timeframe offers a valid setting for analyzing the interplay between ESG scores, CEO compensation, and institutional ownership.

To ensure robust and reliable data, various reputable sources were employed. CEO-related details, including compensation details, were extracted from BoardEX, an internationally recognized data company that specializes in providing comprehensive and up-to-date data on board members of publicly traded companies across North America, the United Kingdom, and Europe. The ESG scores, which cover environmental, social, and governance aspects, employed in our study, originate from the MSCI database, a credible source for ESG indicators since 2007. MSCI's comprehensive assessment methodology is well-established. Specifically, environmental score offers insights into a company's performance on environmental issues such as carbon emissions, natural resource conservation, waste management, and leveraging environmental opportunities; social score delves into matters related to workforce treatment, community interactions, human rights adherence, and product responsibilities; governance score evaluates corporate governance practices, including structures, executive compensation models, and ethical business conduct. Lastly, financial information pertaining to the companies under investigation was obtained from Orbis, a reputable database renowned for its vast repository of global financial data.

Companies on the S&P500 were selected for their representation of the broader US economy. Although our initial data collection encompassed all S&P500 companies, the final sample was narrowed down to 219 companies due to missing CEO compensation data, institutional ownership, and some control variables. Beyond these exclusions, no other specific exclusion criteria were applied, ensuring our sample remained as comprehensive as possible. After removing the observation with incomplete data, the remaining dataset incorporated 219 companies, totaling 1,533 observations.

3.2 Main variables

The study focuses on examining the relationship between CEO equity-linked compensation, ESG scores and, institutional ownership.

CEO equity-linked compensation refers to the financial rewards associated with a company's stock performance and serves as the dependent variable in our study. The rationale for using CEO equity-linked compensation to assess the impact of ESG scores lies in its alignment with long-term value creation. This type of compensation is designed to incentivize CEOs to make decisions that contribute to the company's long-term success and value (Collins *et al.*, 2019; Abudy *et al.*, 2023). By studying the relationship between ESG scores and CEO equity-linked compensation, we attempt to determine whether companies are rewarding CEOs for integrating sustainable and responsible practices into their decision-making processes.

The independent variables in the analysis are the ESG scores, which are further divided into environmental (ENS), social (SOS), and governance (GS) scores. Each of these scores represents a pillar for separate regression analyses.

Following previous studies (Chung and Zhang, 2011; Velte, 2020a, b and c), we also included a moderator variable called INSOWN, which measures the proportion of shares held by institutional investors relative to the total number of shares outstanding.

To address endogeneity concerns, the research design includes control variables and industry and year fixed effects. These control variables include firm characteristics that could influence CEO compensation, such as financial performance indicators (e.g. ROA and ROE), firm size (measured by the natural logarithm of employees), and financial leverage (measured as the ratio of total debt to total assets). Additionally, CEO-related characteristics that may impact CEO equity-linked compensation, including the previous year's compensation (addressing endogeneity through lagged variables), CEO tenure, and CEO educational background, are also controlled for. Lastly, the percentage of independent board members is included as a corporate governance variable in the model.

3.3 Regression model

In this study, we employ a panel regression model with fixed effects to examine the relationship between the variables of interest. Panel regression is a robust statistical technique that allows for the analysis of data that is collected over time and across different entities, such as firms or countries. By incorporating both time-series and cross-sectional dimensions, panel regression enables us to control for unobserved heterogeneity and time-specific factors that may influence the relationship we are investigating.

We selected the fixed effect as the preferred estimation approach following the Hausman test. The Hausman test is commonly used to compare the consistency and efficiency of fixed effects (FE) and random effects (RE) models in panel data analysis. Its purpose is to determine whether the random effects assumption, which allows for correlation between the independent variables and the entity-specific effects, holds true. In our case, after conducting the Hausman test, we found evidence to reject the null hypothesis of no correlation between the independent variables and the entity-specific effects. This suggests that the random effects assumption may not be valid, indicating the presence of endogeneity. As a result, we have opted for the fixed effects model as a more appropriate choice.

For estimation, the following equations are formed:

$$\begin{aligned} CEOELCOMP_t = & \alpha_0 + \beta_0 ENS + \beta_1 CEOELCOMP_{t-1} + \beta_1 ROA + \beta_2 ROE \\ & + \beta_3 FIRMSIZE + \beta_4 FINLEV + \beta_5 CEOTEN + \beta_6 CEOEDU \\ & + \beta_7 BOARDIND + \epsilon \end{aligned}$$

$$\begin{aligned} CEO\ EL\ COMP_t = & \alpha_0 + \beta_0 SOSS + \beta_1 CEO\ EL\ COMP_{t-1} + \beta_1 ROA + \beta_2 ROE \\ & + \beta_3 FIRMSIZE + \beta_4 FINLEV + \beta_5 CEOTEN + \beta_6 CEOEDU \\ & + \beta_7 BOARDIND + \epsilon \end{aligned}$$

$$\begin{aligned} CEO\ EL\ COMP_t = & \alpha_0 + \beta_0 GS + \beta_1 CEO\ EL\ COMP_{t-1} + \beta_1 ROA + \beta_2 ROE + \beta_3 FIRMSIZE \\ & + \beta_4 FINLEV + \beta_5 CEOTEN + \beta_6 CEOEDU + \beta_7 BOARDIND + \epsilon \end{aligned}$$

$$\begin{aligned} CEO\ EL\ COMP_t = & \alpha_0 + \beta_0 ENS + \beta_1 INSOWN + \beta_2 ENS \times INSOWN \\ & + \beta_3 CEO\ EL\ COMP_{t-1} + \beta_4 ROA + \beta_5 ROE + \beta_6 FIRMSIZE \\ & + \beta_7 FINLEV + \beta_8 CEOTEN + \beta_9 CEOEDU + \beta_{10} BOARDIND + \epsilon \end{aligned}$$

$$\begin{aligned} CEO\ EL\ COMP_t = & \alpha_0 + \beta_0 SOS + \beta_1 INSOWN + \beta_2 SOS \times INSOWN \\ & + \beta_3 CEO\ EL\ COMP_{t-1} + \beta_4 ROA + \beta_5 ROE + \beta_6 FIRMSIZE \\ & + \beta_7 FINLEV + \beta_8 CEOTEN + \beta_9 CEOEDU + \beta_{10} BOARDIND + \epsilon \end{aligned}$$

$$\begin{aligned} CEO\ EL\ COMP_t = & \alpha_0 + \beta_0 GS + \beta_1 INSOWN + \beta_2 GS \times INSOWN + \beta_3 CEO\ EL\ COMP_{t-1} \\ & + \beta_4 ROA + \beta_5 ROE + \beta_6 FIRMSIZE + \beta_7 FINLEV + \beta_8 CEOTEN \\ & + \beta_9 CEOEDU + \beta_{10} BOARDIND + \epsilon \end{aligned}$$

The equations model the CEO equity-linked compensation (CEO EL COMP_t) as a function of various factors with α_0 representing the constant term, and the β coefficients indicating the influence of each variable on CEO compensation. Specifically, ENS, SOS, and GS reflect the company's performance in environmental, social, and governance aspects respectively. CEO EL COMP_(t-1) captures the previous year's CEO compensation, suggesting that current compensation is influenced by its historical value. ROA and ROE are indicators of the company's financial performance. FIRMSIZE and FINLEV represent the size of the firm and the financial leverage of the company respectively. CEOTEN and CEOEDU are included to reflect the CEO's experience and educational background. BOARDIND suggests the influence of board composition on CEO pay. Finally, INSOWN is included to capture the effect of institutional ownership on CEO compensation.

The interaction terms, such as ENS \times INSOWN, SOS \times INSOWN, and GS \times INSOWN, in our regression models are critical as they capture the moderating role of institutional ownership on the relationships between the respective ESG scores (ENS, SOS, GS) and CEO equity-linked compensation.

4. Research results

Table 1 presents the descriptive statistics of the variables after preliminary analysis. CEO equity-linked compensation ranges from \$1,735 to nearly \$6.8 million, with an average value of \$21,874.95. The environmental score (ENS) has an average value of 5.78, which is higher compared to the social (SOS) and governance (GS) scores, with average values of 4.14 and 5.47, respectively. On average, institutional owners control 43.12% of the companies in the sample. The average CEO tenure is 5.47, and CEOs in the sample have diverse backgrounds, including engineering (18%), finance (14%), law (17%), management (20%), political sciences

Variable	Obs	Mean	Std. dev	Min	Max
CEO EL COMP	1,584	21874.95	170249.40	1735	6,745,596
ENS	1,619	5.78	2.50	0	10
SOS	1,619	4.14	1.62	0	9.8
GS	1,619	5.47	1.85	0	10
INSOWN	1,752	43.12	139.72	5	89
ROE	1,657	30.17	71.93	-75.85	107.76
ROA	1,730	6.72	8.65	-67.43	84.21
FIRM SIZE	1,718	9.95	1.38	5.95	14.29
FIN LEV	1,623	4.35	2.88	0.96	12.48
CEO TEN	1,752	5.47	2.39	2	9
BOARD IND	1,752	0.65	0.13	0.43	0.87
ENGIN	1,751	0.18	0.39	0	1
FINANCE	1,751	0.14	0.34	0	1
LAW	1,751	0.17	0.37	0	1
MANAG	1,751	0.20	0.40	0	1
OTHERS	1,751	0.13	0.33	0	1
POL SCI	1,751	0.19	0.39	0	1

From profits to purpose

Table 1.
Descriptive statistics

(19%), and others (13%). The average percent of independent board members is 65%, ranging from 43% to 87%.

Before conducting the main regression analysis, we checked for multicollinearity and stationarity using correlation analysis and the Im-Pesaran-Shin unit root test. The correlation matrix in [Table 2](#) indicates no signs of multicollinearity among the independent and control variables. The results of the Im-Pesaran-Shin unit root test are reported in [Table 3](#).

The fixed effect panel regression results are presented in [Tables 4 and 5](#). Model 1 shows a positive and statistically significant relationship between the environmental score and CEO equity-linked compensation ($b = 1717.830, p < 0.05$). This suggests that for every one-unit increase in the environmental score, CEO equity-linked compensation rises by \$1717.830. Among the control variables, CEO equity-linked compensation in t-1 ($\beta = 0.151, p > 0.001$), firm size ($\beta = 6674.073, p < 0.05$), and financial leverage ($\beta = 21.786, p < 0.05$) also exhibit statistically significant coefficients. However, Models 2 and 3 do not support our hypotheses, as there are no significant statistical relationships between the social score and CEO equity-linked compensation, nor between the governance score and CEO equity-linked compensation ([H2](#) and [H3](#)).

In [Table 5](#), models 4, 5, and 6, the interaction terms are introduced with institutional ownership as the moderator variable. Model 4 reveals a positive and statistically significant interaction between the environmental score and institutional ownership ($\beta = 93.567, p < 0.1$). Similarly, in Model 5, the interaction term between the social score and institutional ownership is positive and statistically significant ($\beta = 126.841, p < 0.1$). However, the interaction term between the governance score and institutional ownership in Model 6 is not statistically significant. Consequently, [H4](#) and [H5](#) are supported, while [H6](#) is not.

To investigate the moderation effect of institutional ownership on the relationship between ESG scores and CEO compensation, we utilized a fixed effects panel regression model with interaction terms such as $ENS \times INSOWN$, $SOS \times INSOWN$, and $GS \times INSOWN$. The outcomes of this analytical approach informed our visual representations, which further depict the interaction terms and the nature of these relationships. [Figure 1](#) illustrates the graph depicting the moderating role of institutional ownership in the relationship between environmental score and CEO equity-linked compensation. The plot shows a steeper and positive gradient for high levels of institutional ownership as compared to low levels of

Table 2.
Correlation matrix

	CEO EL COMP	ENS	SOS	GS	INSOWN	ROE	ROA	FIRM SIZE	FIN LEV	CEO TEN	BOARD IND
CEO EL COMP	1										
ENS	0.057+	1									
SOS	-0.017	-0.02	1								
GS	-0.021	-0.16***	0.018	1							
INSOWN	-0.015	-0.014	-0.0058	0.025	1						
ROE	-0.036	0.12***	-0.049	0.044	0.041	1					
ROA	-0.038	0.061*	0.0095	0.03	0.11***	0.68***	1				
FIRM SIZE	0.047	0.14***	-0.057+	-0.095**	-0.14***	0.14***	0.057+	1			
FIN LEV	0.039	0.11***	-0.053+	-0.011	-0.027	0.35***	-0.13***	0.14***	1		
CEO TEN	-0.027	-0.097**	0.0073	-0.10**	-0.094**	-0.078*	-0.15***	0.14***	0.026	1	
BOARD IND	0.015	-0.046	0.12***	0.071*	-0.00098	-0.037	-0.056+	-0.0047	0.038	-0.037	1

Note(s): + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

institutional ownership. Thus, this shows that the impact of environmental score in increasing CEO equity-linked compensation is stronger when there is a high presence of institutional owners. Institutional investors often have significant voting power and can use their influence to shape corporate governance, including executive compensation policies. They may be more inclined to advocate for greater alignment between CEO equity-linked compensation and environmental performance, as they recognize the long-term benefits of sustainable business practices. Additionally, institutional investors typically have a longer investment horizon compared to individual investors. Consequently, they are more likely to value the long-term advantages of improved environmental performance, such as reduced regulatory risk, enhanced brand reputation, and increased operational efficiency. This long-term perspective could lead them to support a stronger correlation between environmental scores and CEO equity-linked compensation.

Figure 2 illustrates the graph depicting the moderating role of institutional ownership in the relationship between social score and CEO equity-linked compensation is considered. The plot shows a steeper and negative gradient for low levels of institutional ownership as compared to high levels of institutional ownership. Thus, this shows that the impact of social score in reducing CEO equity-linked compensation is stronger when there is a low presence of institutional owners. When the institutional ownership is low, the management, including the CEO, might have more discretion over their compensation policies. A high social score in this context could mean that the company is committed to responsible practices, including restraint in CEO equity-linked compensation. This commitment could be particularly pronounced in the absence of large institutional investors, leading to a steeper negative relationship between social score and CEO equity-linked compensation. In other words, as social responsibility increases, CEO compensation decreases at a higher rate when institutional ownership is low.

The contrast in the moderating effects between environmental and social scores reflects the different weightages institutional owners might attribute to these aspects of ESG. While environmental practices, with their tangible long-term benefits, attract institutional investors who then advocate for compensatory alignment, strong social practices in the absence of dominant institutional influence might signify a self-imposed commitment to societal values, which often manifests in moderated executive compensations.

5. Discussion

In this study, we sought to explore the intricate dynamics between environmental, social, and governance scores and CEO compensation, particularly focusing on the moderating role of institutional ownership. Our findings, derived from fixed effect panel regression models, reveal that while environmental scores positively influence CEO equity-linked compensation, especially in the presence of significant institutional ownership, social scores exhibit a contrasting effect in environments with lower institutional influence. Notably, governance scores showed no significant impact on CEO compensation.

Variable	Fisher-ADF (Z-stat)
CEO EL COMP	-4.8889 (0.000)
ENS	-6.2218 (0.000)
SOS	-6.0879 (0.000)
GS	-29.2010 (0.000)
INSOWN	-22.5003 (0.000)

Note(s): The statistics in the first row represent the estimated coefficients of the variables while the second row represents their respective p -values

Table 3.
Panel unit root test

Table 4.
Panel regressions (CEO
EL COMP as
dependent variable)

	Model 1		Model 2		Model 3	
	Coef	Std. err	Coef	Std. err	Coef	Std. err
ENS	1717.830*	719.771				
CEO EL COMP ($t-1$)	0.151***	0.037	0.159***	0.037	0.158***	0.037
ROE	-6.657	46.866	-0.455	46.972	-0.097	46.972
ROA	115.572	187.588	104.916	188.271	102.854	188.296
FIRM SIZE	6674.073*	3016.786	7099.580*	3038.105	6993.275*	3026.37
FIN LEV	21.786*	8.502	21.361*	8.554	21.041*	8.533
CEO TENURE	262.546	279.257	235.208	278.012	183.693	277.881
BOARD IND	4053.802	4675.867	3558.333	4710.999	4742.765	4673.207
CEO EDU = = Engineering	-3745.664	4118.184	-3190.434	4130.502	-3220.175	4130.826
CEO EDU = = Finance	-170.035	4204.475	37.719	4220.155	44.046	4222.493
CEO EDU = = Law	-159.591	4188.784	36.664	4204.823	44.653	4209.023
CEO EDU = = Management	-240.703	3881.909	-55.08	3896.104	-34.29	3898.55
CEO EDU = = Others	1687.992	3927.288	1633.986	3943.455	1661.366	3943.239
SOS			-303.084	717.954		
GS					-86.941	463.703
Constant	-64580.486*	30598.303	-57890.003+	30588.325	-57572.624+	30648.444
R-squared	0.55		0.48		0.48	
N. of cases	884		884		884	

Note(s): + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

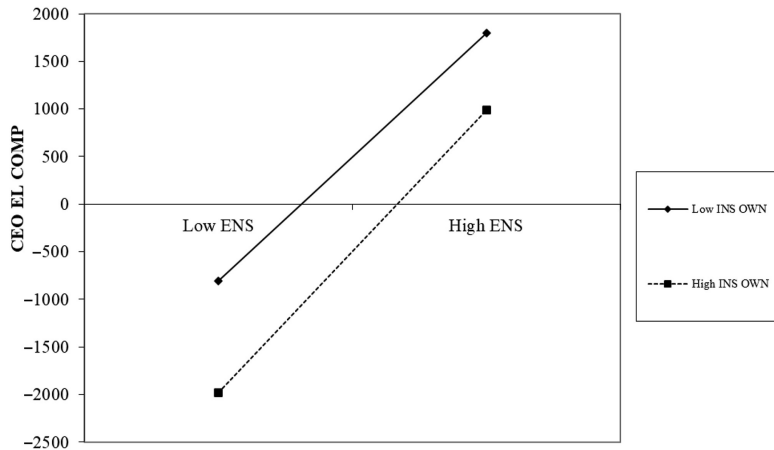
	Model 4		Model 5		Model 6	
	Coef	Std. err.	Coef	Std. err.	Coef	Std. err.
ENS	1394.501+	745.092				
INS OWN	-496.619	352.589	-487.808	349.677	222.028	264.109
ENS × INS OWN	93.567+	56.554				
CEO EL COMP (<i>t</i> -1)	0.153***	0.037	0.161***	0.037	0.158***	0.037
ROE	-12.651	46.976	-4.806	47.016	0.398	47.019
ROA	135.379	187.873	118.283	188.385	106.273	188.59
FIRM SIZE	6598.565*	3016.759	6915.235*	3040.269	6957.254*	3032.249
FIN LEV	21.639*	8.501	20.723*	8.559	20.826*	8.547
CEO TENURE	174.549	282.462	200.306	278.845	184.51	278.62
BOARD.IND	4495.114	4674.427	4355.078	4728.296	4875.062	4689.691
CEO EDU = = Engineering	-3832.367	4116.071	-2932.46	4130.633	-3203.88	4134.714
CEO EDU = = Finance	-260.185	4202.357	23.469	4217.867	27.44	4226.593
CEO EDU = = Law	-68.358	4186.485	121.991	4202.482	63.517	4213.095
CEO EDU = = Management	-484.417	3882.61	-148.099	3895.039	-57.956	3903.248
CEO EDU = = Others	1614.609	3926.86	1289.946	3946.862	1660.311	3949.94
SOS			-717.785	760.169		
SOS × INS OWN			126.841+	76.883		
GS					94.095	541.61
GS × INS OWN					-36.187	50.935
Constant	-62009.187*	30661.604	-54391.150+	30693.941	-58302.271+	30698.55
R-squared	0.59		0.52		0.49	
N. of cases	884		884		884	

Note(s): +*p* < 0.10, **p* < 0.05, ***p* < 0.01, ****p* < 0.001

From profits to purpose

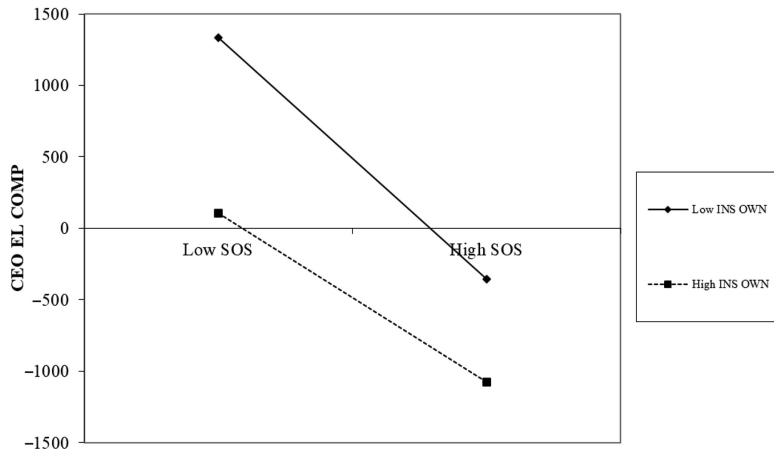
Table 5. Panel regressions with moderator (CEO EL COMP as dependent variable)

Figure 1.
Moderation effect (ENS
as an independent
variable)



Source(s): Authors own creation

Figure 2.
Moderation effect (SOS
as an independent
variable)



Source(s): Authors own creation

5.1 Theoretical implications

Our study presents important theoretical implications for agency theory, stakeholder theory, and institutional theory. In the domain of agency theory, our findings both align with and diverge from traditional approaches. Historically, this theory has primarily focused on aligning CEO compensation with shareholder interests, often measured in financial terms. However, our research, highlighting the positive association between environmental performance and CEO equity-linked compensation, expands this traditional focus to include environmental sustainability as a key performance metric. This shift is reflective of a broader, more progressive understanding of corporate governance where financial and environmental performances are seen as intertwined (Flammer, 2021). This reflects a conscious shift toward leveraging compensation to direct CEOs towards decisions that reinforce a firm's environmental footprint. Such a direction aligns with the increasing global

concern for sustainability, highlighted by [Li et al. \(2018\)](#). Conversely, the absence of significant relationship between social and governance scores with CEO equity-linked compensation may suggest the intricate nature of the incentive mechanisms for the social and governance aspects of corporate sustainability. These findings imply that the mechanisms driving environmental performance rewards might differ from those associated with social and governance performances ([Karim et al., 2018](#)). Moreover, this difference suggests that agency theory may not apply consistently across all ESG aspects concerning CEO compensation.

Our findings also offer insights for stakeholder theory. The observed interaction effect of institutional ownership with environmental and social performance on CEO equity-linked compensation suggests that institutional investors, as key stakeholders of a firm, can influence the firm's executive compensation policy. By this logic, our findings support stakeholder theory's assertion that firms have responsibilities towards various stakeholder groups beyond just shareholders ([Focke, 2022](#)). However, while traditional stakeholder theory emphasizes balancing diverse interests, our study suggests a more proactive role for certain stakeholders, particularly institutional investors. This represents an evolution in the theory, showing stakeholders as not just passive recipients of corporate actions but active influencers in shaping executive compensation strategies. Indeed, empirical evidence confirms that institutional investors can effectively steer the alignment of CEO compensation with environmental and social performance.

Furthermore, institutional theory benefits from our research, especially considering our demonstration of the nuanced moderating effect of institutional ownership on the relationships between different ESG scores and CEO equity-linked compensation. This contrasts with earlier, more homogenous views within institutional theory, which often viewed institutional influences as more uniformly applied across different corporate aspects. Our findings highlight the intricate and varied nature of these institutional pressures. While some ESG elements encounter strong institutional pressures, others may operate with a degree of independence, thus broadening the scope of institutional theory. This complex landscape of institutional pressures, as discussed by [Velte \(2023\)](#), reveals that not all aspects of sustainability are influenced equally, offering a more sophisticated understanding of how institutional factors shape corporate sustainability efforts.

5.2 Managerial implications

Our study's findings bear significant implications for firms and policymakers.

For firms, the clear emphasis on the positive relationship between environmental indicators and CEO compensation underscores the importance of integrating sustainability measures into executive compensation frameworks. Embedding these sustainability indicators into executive compensation not only aligns financial incentives with environmental objectives but also communicates a firm's commitment to environmental sustainability. From a management standpoint, this practice is instrumental in cultivating a corporate culture that prioritizes environmental stewardship. It ensures that top executives are financially motivated to pursue eco-friendly initiatives, thereby aligning their personal goals with broader environmental objectives. This integration not only incentivizes sustainable decision-making at the executive level but also symbolizes the firm's strong commitment to environmental sustainability, reinforcing its role as a key component of the company's overall management strategy.

Furthermore, our results identify potential gaps in how social and governance scores interact with CEO compensation. It is vital for firms, especially their compensation committees, to undertake comprehensive reviews of their remuneration structures. Such reviews can assess whether these frameworks adequately reward executive efforts in these pivotal sustainability

areas. A thorough introspection and subsequent recalibration of these structures can enhance organizational credibility. Moreover, this practice extends beyond internal benefits. It has the potential to strengthen the firm's credibility in the eyes of socially conscious investors and stakeholders. The assurance that executive compensation is intricately tied to sustainability performance sends a powerful message about the company's dedication to responsible and forward-thinking management. This, in turn, can enhance the organization's standing and attractiveness to those who prioritize sustainable and ethical business practices, solidifying its position as a leader in responsible management within the industry.

Another key insight from our study centers on the intricate dynamics of ownership structure, especially concerning social metrics and CEO compensation. Our study suggests that firms, especially those with less dominant institutional ownership, should contemplate the integration of social performance indicators into their executive compensation strategies. This alignment would not only reflect a commitment to social responsibilities but also help in enhancing stakeholder trust. By ensuring that compensation is commensurate with social performance, firms can demonstrate their ethical commitment, thereby enhancing their reputation and building stronger relational capital with stakeholders. This approach can serve as a catalyst for fostering a more responsible and sustainable business environment, reflecting a holistic understanding of the interplay between financial performance and social impact in contemporary corporate governance.

From a policymaking perspective, the role of institutional investors in linking ESG performance with CEO compensation is vital. Policymakers might consider designing frameworks encouraging institutional investors to support remuneration policies anchored in sustainability paradigms. By fostering such an environment, regulators can catalyze a shift toward embedding sustainability at the very core of corporate compensation philosophies.

Moreover, while many firms report on ESG, the absence of a universal reporting standard creates data inconsistencies. The lack of standardized ESG reporting can hinder institutional investors from making informed decisions. Policymakers could mandate a standardized ESG reporting mechanism and solicit feedback from institutional investors to ensure it aligns with their decision-making criteria.

Furthermore, policymakers, in their unique position, can promote stronger ties between firms and their institutional investors. By advocating for enhanced dialogues and interactions, they can ensure that executive compensation structures align with the long-term sustainability goals often supported by institutional investors. These reinforced collaborations not only deepen corporate commitment but also bridge the gap between immediate corporate objectives and overarching societal sustainability ambitions.

5.3 Societal implications

Our study also highlights broader societal implications. First, aligning executive compensation with ESG metrics can contribute to a stable economic environment by prioritizing long-term sustainable practices over short-term gain. This alignment can deter myopic management practices and promote sustainable economic growth.

Furthermore, our findings indicate that when executive compensation is tied to environmental metrics, it incentivizes top leadership to advocate for environmentally friendly business operations. Over time, this can reduce the environmental footprints of major corporations, contributing massively to global sustainability goals.

Finally, our analysis underscores the critical role played by institutional investors in directing firms towards societal objectives. Their influence can ensure that executive compensation strategies align not only with shareholder wealth maximization but also with societal value creation. Such an alignment creates a business ecosystem where profitability and societal welfare coexist, magnifying the societal benefits of corporate operations.

5.4 Limitations and future research

While our study offers valuable insights, it does come with limitations. First, while our data sources – BoardEX, MSCI, and Orbis – are credible, they could contain biases in collection or reporting. Proprietary databases or industry-specific reports might provide richer, more detailed data that we did not have access to. Secondly, our study primarily focuses on US companies listed on the S&P500. Although these companies reflect a large portion of the US economy, they may not encompass the full range of corporate practices and structures found in other markets or among smaller firms. The specific corporate governance structures, market dynamics, and cultural contexts of the US might differ from other regions, potentially influencing the observed relationship between ESG scores, CEO compensation, and institutional ownership. Future studies could delve into these relationships in diverse geographical regions or with firms not listed on major indices like the S&P500. Lastly, our chosen period, 2014 to 2021, although significant for global and US ESG considerations, has its inherent limitations. Noteworthy events of this period, like the ratification of the UN's Sustainable Development Goals and the Paris Agreement, could have influenced corporate and investor behaviors uniquely. It is crucial to contextualize our findings within this timeframe. We recommend future research to extend their analysis to other periods or monitor these relationships as they progress beyond 2021, aiding in a deeper understanding of the temporal trends and the enduring nature of these relationships.

References

- Abudy, M., Amiram, D., Rozenbaum, O. and Shust, E. (2020), "Do executive compensation contracts maximize firm value? Indications from a quasi-natural experiment", *Journal of Banking and Finance*, Vol. 114, 105787, doi: [10.1016/j.jbankfin.2020.105787](https://doi.org/10.1016/j.jbankfin.2020.105787).
- Abudy, M.M., Gavius, I. and Shust, E. (2023), "Does adopting voluntary ESG practices affect executive compensation?", *Journal of International Financial Markets, Institutions and Money*, Vol. 83, 101718, doi: [10.1016/j.intfin.2022.101718](https://doi.org/10.1016/j.intfin.2022.101718).
- Aluchna, M., Roszkowska-Menkes, M., Kamiński, B. and Bosek-Rak, D. (2022), "Do institutional investors encourage firm to social disclosure? The stakeholder salience perspective", *Journal of Business Research*, Vol. 142, pp. 674-682, doi: [10.1016/j.jbusres.2021.12.064](https://doi.org/10.1016/j.jbusres.2021.12.064).
- Arvidsson, S. and Dumay, J. (2022), "Corporate ESG reporting quantity, quality and performance: where to now for environmental policy and practice?", *Business Strategy and the Environment*, Vol. 31 No. 3, pp. 1091-1110, doi: [10.1002/bse.2937](https://doi.org/10.1002/bse.2937).
- Balsam, S. (2002), *An Introduction to Executive Compensation*, Academic Press, San Diego.
- Bansal, P. (2005), "Evolving sustainably: a longitudinal study of corporate sustainable development", *Strategic Management Journal*, Vol. 26 No. 3, pp. 197-218, doi: [10.1002/smj.441](https://doi.org/10.1002/smj.441).
- Basse Mama, H. and Mandaroux, R. (2022), "Do investors care about carbon emissions under the European Environmental Policy?", *Business Strategy and the Environment*, Vol. 31 No. 1, pp. 268-283, doi: [10.1002/bse.2886](https://doi.org/10.1002/bse.2886).
- Becht, M., Franks, J., Mayer, C. and Rossi, S. (2010), "Returns to shareholder activism: evidence from a clinical study of the Hermes UK focus fund", *Review of Financial Studies*, Vol. 23 No. 3, pp. 3093-3129, doi: [10.1093/rfs/hhn054](https://doi.org/10.1093/rfs/hhn054).
- Berrone, P. and Gomez-Mejia, L.R. (2009), "Environmental performance and executive compensation: an integrated agency-institutional perspective", *Academy of Management Journal*, Vol. 52 No. 1, pp. 103-126, doi: [10.5465/amj.2009.36461950](https://doi.org/10.5465/amj.2009.36461950).
- Bhagat, S. and Bolton, B. (2019), "Corporate governance and firm performance: the sequel", *Journal of Corporate Finance*, Vol. 58, pp. 142-168, doi: [10.1016/j.jcorpfin.2019.04.006](https://doi.org/10.1016/j.jcorpfin.2019.04.006).
- Bhuyan, R., Butchey, D., Haar, J. and Talukdar, B. (2022), "CEO compensation and firm performance in the insurance industry", *Managerial Finance*, Vol. 48 No. 7, pp. 1086-1115, doi: [10.1108/mf-04-2019-0154](https://doi.org/10.1108/mf-04-2019-0154).

- Borghesi, R., Houston, J.F. and Naranjo, A. (2014), "Corporate socially responsible investments: CEO altruism, reputation, and shareholder interests", *Journal of Corporate Finance*, Vol. 26, pp. 164-181, doi: [10.1016/j.jcorpfin.2014.03.008](https://doi.org/10.1016/j.jcorpfin.2014.03.008).
- Briscoe, F. and Gupta, A. (2016), "Social activism in and around organizations", *Academy of Management Annals*, Vol. 10 No. 1, pp. 671-727, doi: [10.5465/19416520.2016.1153261](https://doi.org/10.5465/19416520.2016.1153261).
- Callen, J.L. and Fang, X. (2013), "Institutional investor stability and crash risk: monitoring versus short-termism?", *Journal of Banking and Finance*, Vol. 37 No. 8, pp. 3047-3063, doi: [10.1016/j.jbankfin.2013.02.018](https://doi.org/10.1016/j.jbankfin.2013.02.018).
- Carnini Pulino, S., Ciaburri, M., Magnanelli, B.S. and Nasta, L. (2022), "Does ESG disclosure influence firm performance?", *Sustainability*, Vol. 14 No. 13, p. 7595, doi: [10.3390/su14137595](https://doi.org/10.3390/su14137595).
- Chung, K.H. and Zhang, H. (2011), "Corporate governance and institutional ownership", *Journal of Financial and Quantitative Analysis*, Vol. 46 No. 1, pp. 247-273, doi: [10.1017/s0022109010000682](https://doi.org/10.1017/s0022109010000682).
- Clark, G.L. and Hebb, T. (2005), "Why should they care? The role of institutional investors in the market for corporate global responsibility", *Environment and Planning A*, Vol. 37, pp. 11-2031, doi: [10.1068/a38116](https://doi.org/10.1068/a38116).
- Clarkson, M.E. (1995), "A stakeholder framework for analyzing and evaluating corporate social performance", *Academy of Management Review*, Vol. 20 No. 1, pp. 92-117, doi: [10.2307/258888](https://doi.org/10.2307/258888).
- Cohen, S., Kadach, I., Ormazabal, G. and Reichelstein, S. (2023), "Executive compensation tied to ESG performance: international evidence", *Journal of Accounting Research*, Vol. 61 No. 3, pp. 805-853, doi: [10.1111/1475-679X.12481](https://doi.org/10.1111/1475-679X.12481).
- Collins, D., Marquardt, B.B. and Niu, X. (2019), "Equity-based incentives and shareholder say-on-pay", *Journal of Business Finance and Accounting*, Vol. 46 Nos 5-6, pp. 739-761, doi: [10.1111/jbfa.12373](https://doi.org/10.1111/jbfa.12373).
- Core, J.E., Holthausen, R.W. and Larcker, D.F. (1999), "Corporate governance, chief executive officer compensation, and firm performance", *Journal of Financial Economics*, Vol. 51 No. 3, pp. 371-406, doi: [10.1016/s0304-405x\(98\)00058-0](https://doi.org/10.1016/s0304-405x(98)00058-0).
- Croci, E., Gonenc, H. and Ozkan, N. (2012), "CEO compensation, family control, and institutional investors in Continental Europe", *Journal of Banking and Finance*, Vol. 36 No. 12, pp. 3318-3335, doi: [10.1016/j.jbankfin.2012.07.017](https://doi.org/10.1016/j.jbankfin.2012.07.017).
- Daily, C.M., Johnson, J.L., Ellstrand, A.E. and Dalton, D.R. (1998), "Compensation committee composition as a determinant of CEO compensation", *Academy of Management Journal*, Vol. 41 No. 2, pp. 209-220, doi: [10.2307/257103](https://doi.org/10.2307/257103).
- David, P., Kochhar, R. and Levitas, E. (1998), "The effect of institutional investors on the level and mix of CEO compensation", *Academy of Management Journal*, Vol. 41 No. 2, pp. 200-208, doi: [10.5465/257102](https://doi.org/10.5465/257102).
- Dikolli, S.S., Frank, M.M., Guo, Z. and Lynch, L.J. (2023), "ESG mutual fund voting on executive compensation shareholder proposals", *Journal of Management Accounting Research*, Vol. 35 No. 3, pp. 51-74, doi: [10.2308/jmar-2022-036](https://doi.org/10.2308/jmar-2022-036).
- DiMaggio, P.J. and Powell, W.W. (1983), "The iron cage revisited: institutional isomorphism and collective rationality in organizational fields", *American Sociological Review*, Vol. 48 No. 2, pp. 147-160, doi: [10.2307/2095101](https://doi.org/10.2307/2095101).
- Dong, M. and Ozkan, A. (2008), "Institutional investors and director pay: an empirical study of UK companies", *Journal of Multinational Financial Management*, Vol. 18 No. 1, pp. 16-29, doi: [10.1016/j.mulfin.2007.06.001](https://doi.org/10.1016/j.mulfin.2007.06.001).
- Drempetic, S., Klein, C. and Zwergel, B. (2020), "The influence of firm size on the ESG score: corporate sustainability ratings under review", *Journal of Business Ethics*, Vol. 167 No. 2, pp. 333-360, doi: [10.1007/s10551-019-04164-1](https://doi.org/10.1007/s10551-019-04164-1).
- Dyck, A., Lins, K.V., Roth, L. and Wagner, H.F. (2019), "Do institutional investors drive corporate social responsibility? International evidence", *Journal of Financial Economics*, Vol. 131 No. 3, pp. 693-714, doi: [10.1016/j.jfineco.2018.08.013](https://doi.org/10.1016/j.jfineco.2018.08.013).

- Edmans, A., Gabaix, X. and Jenter, D. (2017), "Executive compensation: a survey of theory and evidence", *The Handbook of the Economics of Corporate Governance*, Vol. 1, pp. 383-539.
- Eisenhardt, K.M. (1989), "Agency theory: an assessment and review", *Academy of Management Review*, Vol. 14 No. 1, pp. 57-74, doi: [10.2307/258191](https://doi.org/10.2307/258191).
- Environment, W.C. and Development, W.C. (1987), *Our Common Future*, United Nations, New York.
- Fama, E.F. (1980), "Agency problems and the theory of the firm", *Journal of Political Economy*, Vol. 88 No. 2, pp. 288-307, doi: [10.1086/260866](https://doi.org/10.1086/260866).
- Fama, E.F. and Jensen, M.C. (1983), "Separation of ownership and control", *The Journal of Law and Economics*, Vol. 26 No. 2, pp. 301-325, doi: [10.1086/467037](https://doi.org/10.1086/467037).
- Ferrell, A., Liang, H. and Renneboog, L. (2016), "Socially responsible firms", *Journal of Financial Economics*, Vol. 122 No. 3, pp. 585-606, doi: [10.1016/j.jfineco.2015.12.003](https://doi.org/10.1016/j.jfineco.2015.12.003).
- Flammer, C. (2021), "Corporate green bonds", *Journal of Financial Economics*, Vol. 142 No. 2, pp. 499-516, doi: [10.1016/j.jfineco.2021.01.010](https://doi.org/10.1016/j.jfineco.2021.01.010).
- Focke, M. (2022), "Do sustainable institutional investors influence senior executive compensation structures according to their preferences? Empirical evidence from Europe", *Corporate Social Responsibility and Environmental Management*, Vol. 29 No. 5, pp. 1109-1121, doi: [10.1002/csr.2257](https://doi.org/10.1002/csr.2257).
- Freeman, R.E. (1983), *Strategic Management: A Stakeholder Approach*, Cambridge University Press, Cambridge.
- Friede, G., Busch, T. and Bassen, A. (2015), "ESG and financial performance: aggregated evidence from more than 2000 empirical studies", *Journal of Sustainable Finance and Investment*, Vol. 5 No. 4, pp. 210-233, doi: [10.1080/20430795.2015.1118917](https://doi.org/10.1080/20430795.2015.1118917).
- Gande, A. and Kalpathy, S. (2017), "CEO compensation and risk-taking at financial firms: evidence from US federal loan assistance", *Journal of Corporate Finance*, Vol. 47, pp. 131-150, doi: [10.1016/j.jcorpfin.2017.09.001](https://doi.org/10.1016/j.jcorpfin.2017.09.001).
- Garcia, A.S., Mendes-Da-Silva, W. and Orsato, R.J. (2019), "Corporate sustainability, capital markets, and ESG performance", in *Individual Behaviors and Technologies for Financial Innovations*, pp. 287-309.
- Gillan, S.L., Koch, A. and Starks, L.T. (2021), "Firms and social responsibility: a review of ESG and CSR research in corporate finance", *Journal of Corporate Finance*, Vol. 66, 101889, doi: [10.1016/j.jcorpfin.2021.101889](https://doi.org/10.1016/j.jcorpfin.2021.101889).
- Goranova, M. and Ryan, L.V. (2013), "Shareholder activism", *Journal of Management*, Vol. 40 No. 5, pp. 1230-1268, doi: [10.1177/0149206313515519](https://doi.org/10.1177/0149206313515519).
- Graves, S.B. and Waddock, S.A. (1990), "Institutional ownership and control: implications for long-term corporate strategy", *Academy of Management Perspectives*, Vol. 4 No. 1, pp. 75-83, doi: [10.5465/ame.1990.4274714](https://doi.org/10.5465/ame.1990.4274714).
- Guay, T., Doh, J.P. and Sinclair, G. (2004), "Non-governmental organizations, shareholder activism, and socially responsible investments: ethical, strategic, and governance implications", *Journal of Business Ethics*, Vol. 52 No. 1, pp. 125-139, doi: [10.1023/b:busi.0000033112.11461.69](https://doi.org/10.1023/b:busi.0000033112.11461.69).
- Guenster, N. (2012), "Performance implications of SR investing: past versus future", in *Socially Responsible Finance and Investing: Financial Institutions, Corporations, Investors, and Activists*.
- Haque, F. (2017), "The effects of board characteristics and sustainable compensation policy on carbon performance of UK firms", *The British Accounting Review*, Vol. 49 No. 3, pp. 347-364, doi: [10.1016/j.bar.2017.01.001](https://doi.org/10.1016/j.bar.2017.01.001).
- Hartzell, J.C. and Starks, L.T. (2003), "Institutional investors and executive compensation", *The Journal of Finance*, Vol. 58 No. 6, pp. 2351-2374, doi: [10.1046/j.1540-6261.2003.00608.x](https://doi.org/10.1046/j.1540-6261.2003.00608.x).
- Hillman, A.J., Keim, G.D. and Luce, R.A. (2001), "Board composition and stakeholder performance: do stakeholder directors make a difference?", *Business and Society*, Vol. 40 No. 3, pp. 295-314, doi: [10.1177/000765030104000304](https://doi.org/10.1177/000765030104000304).

- Houston, J.F. and James, C. (1995), "CEO compensation and bank risk is compensation in banking structured to promote risk taking?", *Journal of Monetary Economics*, Vol. 36 No. 2, pp. 405-431, doi: [10.1016/0304-3932\(95\)01219-2](https://doi.org/10.1016/0304-3932(95)01219-2).
- Ikram, A., Li, Z.F. and Minor, D. (2019), "CSR-contingent executive compensation contracts", *Journal of Banking and Finance*, Vol. 105655, 105655, doi: [10.1016/j.jbankfin.2019.105655](https://doi.org/10.1016/j.jbankfin.2019.105655).
- Jang, G.Y., Kang, H.G. and Kim, W. (2022), "Corporate executives' incentives and ESG performance", *Finance Research Letters*, Vol. 49, 103187, doi: [10.1016/j.frl.2022.103187](https://doi.org/10.1016/j.frl.2022.103187).
- Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360, doi: [10.1016/0304-405x\(76\)90026-x](https://doi.org/10.1016/0304-405x(76)90026-x).
- Ji, Y.Y. (2015), "Top management team pay structure and corporate social performance", *Journal of General Management*, Vol. 40 No. 3, pp. 3-20, doi: [10.1177/030630701504000302](https://doi.org/10.1177/030630701504000302).
- Jian, M. and Lee, K.W. (2015), "CEO compensation and corporate social responsibility", *Journal of Multinational Financial Management*, Vol. 29, pp. 46-65, doi: [10.1016/j.mulfin.2014.11.004](https://doi.org/10.1016/j.mulfin.2014.11.004).
- Jones, T.M. (1995), "Instrumental stakeholder theory: a synthesis of ethics and economics", *Academy of Management Review*, Vol. 20 No. 2, pp. 404-437, doi: [10.5465/amr.1995.9507312924](https://doi.org/10.5465/amr.1995.9507312924).
- Jones, T.M. and Wicks, A.C. (1999), "Convergent stakeholder theory", *Academy of Management Review*, Vol. 24 No. 2, pp. 206-221, doi: [10.2307/259075](https://doi.org/10.2307/259075).
- Karim, K., Lee, E. and Suh, S. (2018), "Corporate social responsibility and CEO compensation structure", *Advances in Accounting*, Vol. 40, pp. 27-41, doi: [10.1016/j.adiac.2017.11.002](https://doi.org/10.1016/j.adiac.2017.11.002).
- Khan, R., Dharwadkar, R. and Brandes, P. (2005), "Institutional ownership and CEO compensation: a longitudinal examination", *Journal of Business Research*, Vol. 58 No. 8, pp. 1078-1088, doi: [10.1016/j.jbusres.2004.02.002](https://doi.org/10.1016/j.jbusres.2004.02.002).
- Lee, J., Koh, K. and Shim, E.D. (2023), "Managerial incentives for ESG in the financial services industry: direct and indirect association between ESG and executive compensation", *Managerial Finance*, Vol. 50 No. 1, pp. 10-27, doi: [10.1108/mf-03-2023-0149](https://doi.org/10.1108/mf-03-2023-0149).
- Li, Y., Gong, M., Zhang, X.Y. and Koh, L. (2018), "The impact of environmental, social, and governance disclosure on firm value: the role of CEO power", *The British Accounting Review*, Vol. 50 No. 1, pp. 60-75, doi: [10.1016/j.bar.2017.09.007](https://doi.org/10.1016/j.bar.2017.09.007).
- Li, T.T., Wang, K., Sueyoshi, T. and Wang, D.D. (2021), "ESG: research progress and future prospects", *Sustainability*, Vol. 13 No. 21, 11663, doi: [10.3390/su132111663](https://doi.org/10.3390/su132111663).
- Liu, J., Xiong, X., Gao, Y. and Zhang, J. (2023), "The impact of institutional investors on ESG: evidence from China", *Accounting and Finance*, Vol. 63 No. S2, pp. 2801-2826, doi: [10.1111/acfi.13011](https://doi.org/10.1111/acfi.13011).
- Lozano, R. (2008), "Envisioning sustainability three-dimensionally", *Journal of Cleaner Production*, Vol. 16 No. 17, pp. 1838-1846, doi: [10.1016/j.jclepro.2008.02.008](https://doi.org/10.1016/j.jclepro.2008.02.008).
- Mahoney, L.S. and Thorn, L. (2006), "An examination of the structure of executive compensation and corporate social responsibility: a Canadian investigation", *Journal of Business Ethics*, Vol. 69 No. 2, pp. 149-162, doi: [10.1007/s10551-006-9073-x](https://doi.org/10.1007/s10551-006-9073-x).
- Malik, M. and Shim, E.D. (2022), "Empirical examination of the direct and moderating role of corporate social responsibility in top executive compensation", *Pacific Accounting Review*, Vol. 34 No. 5, pp. 708-727, doi: [10.1108/par-09-2021-0162](https://doi.org/10.1108/par-09-2021-0162).
- Masulis, R.W. and Reza, S.W. (2015), "Agency problems of corporate philanthropy", *The Review of Financial Studies*, Vol. 28 No. 2, pp. 592-636, doi: [10.1093/rfs/hhu082](https://doi.org/10.1093/rfs/hhu082).
- Masulis, R.W., Wang, C. and Xie, F. (2009), "Agency problems at dual-class companies", *The Journal of Finance*, Vol. 64 No. 4, pp. 1697-1727, doi: [10.1111/j.1540-6261.2009.01477.x](https://doi.org/10.1111/j.1540-6261.2009.01477.x).
- McGuire, J., Dow, S. and Argheyd, K. (2003), "CEO incentives and corporate social performance", *Journal of Business Ethics*, Vol. 45 No. 4, pp. 341-359, doi: [10.1023/a:1024119604363](https://doi.org/10.1023/a:1024119604363).

- Miller, J.S., Wiseman, R.M. and Gomez-Mejia, L.R. (2002), "The fit between CEO compensation design and firm risk", *Academy of Management Journal*, Vol. 45 No. 4, pp. 745-756, doi: [10.5465/3069308](https://doi.org/10.5465/3069308).
- Montiel, I. and Delgado-Ceballos, J. (2014), "Defining and measuring corporate sustainability: are we there yet?", *Organization and Environment*, Vol. 27 No. 2, pp. 113-139, doi: [10.1177/1086026614526413](https://doi.org/10.1177/1086026614526413).
- Ozkan, N. (2007), "Do corporate governance mechanisms influence CEO compensation? An empirical investigation of UK companies", *Journal of Multinational Financial Management*, Vol. 17 No. 5, pp. 349-364, doi: [10.1016/j.mulfin.2006.08.002](https://doi.org/10.1016/j.mulfin.2006.08.002).
- Ozkan, N. (2011), "CEO compensation and firm performance: an empirical investigation of UK panel data", *European Financial Management*, Vol. 17 No. 2, pp. 260-285, doi: [10.1111/j.1468-036x.2009.00511.x](https://doi.org/10.1111/j.1468-036x.2009.00511.x).
- Park, S., Song, S. and Lee, S. (2019), "The influence of CEOs' equity-based compensation on restaurant firms' CSR initiatives: the moderating role of institutional ownership", *International Journal of Contemporary Hospitality Management*, Vol. 31 No. 9, pp. 3664-3682, doi: [10.1108/ijchm-03-2018-0221](https://doi.org/10.1108/ijchm-03-2018-0221).
- Profitlich, M., Bouzzine, Y.D. and Lueg, R. (2021), "The relationship between CFO compensation and corporate sustainability: an empirical examination of German listed firms", *Sustainability*, Vol. 13 No. 21, 12299, doi: [10.3390/su132112299](https://doi.org/10.3390/su132112299).
- Ryan, H.E. Jr and Wiggins, R.A. III (2001), "The influence of firm-and manager-specific characteristics on the structure of executive compensation", *Journal of Corporate Finance*, Vol. 7 No. 2, pp. 101-123, doi: [10.1016/s0929-1199\(00\)00021-3](https://doi.org/10.1016/s0929-1199(00)00021-3).
- Schaltegger, S. and Burritt, R. (2005), "Corporate sustainability", in *The International Yearbook of Environmental and Resource Economics*, doi: [10.4337/9781845425593](https://doi.org/10.4337/9781845425593).
- Scott, W.R. (2005), "Institutional theory: contributing to a theoretical research program", *Great Minds in Management: The Process of Theory Development*, Vol. 37 No. 2, pp. 460-484.
- Scott, W.R. (2008), "Approaching adulthood: the maturing of institutional theory", *Theory and Society*, Vol. 37 No. 5, pp. 427-442, doi: [10.1007/s11186-008-9067-z](https://doi.org/10.1007/s11186-008-9067-z).
- Serafeim, G. (2018), "Investors as stewards of the commons?", *Journal of Applied Corporate Finance*, Vol. 30 No. 2, pp. 8-17, doi: [10.1111/jacf.12294](https://doi.org/10.1111/jacf.12294).
- Sheikh, S. (2012), "Do CEO compensation incentives affect firm innovation?", *Review of Accounting and Finance*, Vol. 11 No. 1, pp. 4-39, doi: [10.1108/14757701211201803](https://doi.org/10.1108/14757701211201803).
- Sparkes, R. and Cowton, C.J. (2004), "The maturing of socially responsible investment: a review of the developing link with corporate social responsibility", *Journal of Business Ethics*, Vol. 52 No. 1, pp. 45-57, doi: [10.1023/b:busi.0000033106.43260.99](https://doi.org/10.1023/b:busi.0000033106.43260.99).
- Tsang, A., Wang, K.T., Liu, S. and Yu, L. (2021), "Integrating corporate social responsibility criteria into executive compensation and firm innovation: international evidence", *Journal of Corporate Finance*, Vol. 70, 102070, doi: [10.1016/j.jcorpfin.2021.102070](https://doi.org/10.1016/j.jcorpfin.2021.102070).
- Velte, P. (2017), "Does ESG performance have an impact on financial performance? Evidence from Germany", *Journal of Global Responsibility*, Vol. 8 No. 2, pp. 169-178, doi: [10.1108/JGR-11-2016-0029](https://doi.org/10.1108/JGR-11-2016-0029).
- Velte, P. (2020a), "Do CEO incentives and characteristics influence corporate social responsibility (CSR) and vice versa? A literature review", *Social Responsibility Journal*, Vol. 16 No. 8, pp. 1293-1323, doi: [10.1108/srj-04-2019-0145](https://doi.org/10.1108/srj-04-2019-0145).
- Velte, P. (2020b), "Does CEO power moderate the link between ESG performance and financial performance? A focus on the German two-tier system", *Management Research Review*, Vol. 43 No. 5, pp. 497-520, doi: [10.1108/mrr-04-2019-0182](https://doi.org/10.1108/mrr-04-2019-0182).
- Velte, P. (2020c), "Institutional ownership, environmental, social, and governance performance and disclosure – a review on empirical quantitative research", *Problems and Perspectives in Management*, Vol. 18 No. 3, pp. 282-305, doi: [10.21511/ppm.18\(3\).2020.24](https://doi.org/10.21511/ppm.18(3).2020.24).

-
- Velte, P. (2023), "Which institutional investors drive corporate sustainability? A systematic literature review", *Business Strategy and the Environment*, Vol. 32 No. 1, pp. 42-71, doi: [10.1002/bse.3117](https://doi.org/10.1002/bse.3117).
- Velte, P. and Obermann, J. (2021), "Compensation-related institutional investor activism—a literature review and integrated analysis of sustainability aspects", *Journal of Global Responsibility*, Vol. 12 No. 1, pp. 22-51, doi: [10.1108/jgr-10-2019-0096](https://doi.org/10.1108/jgr-10-2019-0096).
- Victoravich, L.M., Xu, P. and Gan, H. (2012), "Institutional ownership and executive compensation: evidence from US banks during the financial crisis", *Managerial Finance*, Vol. 39 No. 1, pp. 28-46, doi: [10.1108/03074351311283559](https://doi.org/10.1108/03074351311283559).
- Walker, D.I. (2022), "The economic (in) significance of executive pay ESG incentives", *SSRN Electronic Journal*, No. 2, doi: [10.2139/ssrn.4034877](https://doi.org/10.2139/ssrn.4034877).
- Wang, Z., Hsieh, T.S. and Sarkis, J. (2018), "CSR performance and the readability of CSR reports: too good to be true?", *Corporate Social Responsibility and Environmental Management*, Vol. 25 No. 1, pp. 66-79, doi: [10.1002/csr.1440](https://doi.org/10.1002/csr.1440).
- Yan, X. and Zhang, Z. (2009), "Institutional investors and equity returns: are short-term institutions better informed?", *The Review of Financial Studies*, Vol. 22 No. 2, pp. 893-924, doi: [10.1093/revfin/hhl046](https://doi.org/10.1093/revfin/hhl046).
- You, Y., Srinivasan, S., Pauwels, K. and Joshi, A. (2020), "How CEO/CMO characteristics affect innovation and stock returns: findings and future directions", *Journal of the Academy of Marketing Science*, Vol. 48 No. 6, pp. 1229-1253, doi: [10.1007/s11747-020-00732-4](https://doi.org/10.1007/s11747-020-00732-4).
- Zheng, Y. (2010), "Heterogeneous institutional investors and CEO compensation", *Review of Quantitative Finance and Accounting*, Vol. 35 No. 1, pp. 21-46, doi: [10.1007/s11156-009-0142-y](https://doi.org/10.1007/s11156-009-0142-y).
- Zhou, B., Li, Y.M., Sun, F.C. and Zhou, Z.G. (2021), "Executive compensation incentives, risk level and corporate innovation", *Emerging Markets Review*, Vol. 47, 100798, doi: [10.1016/j.ememar.2021.100798](https://doi.org/10.1016/j.ememar.2021.100798).

Corresponding author

Luigi Nasta can be contacted at: lnasta@luiss.it