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Decision-Making and Incentives in ESG-Oriented Firms: Impacts on Executive Pay-for-Performance Sensitivity

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ABSTRACT

The adoption of ESG principles plays a crucial role in advancing the high-quality development of enterprises. This research examines the influence of ESG implementation on the sensitivity of executive compensation to performance, alongside the underlying mechanisms of their interaction. The findings demonstrate that improved ESG performance is significantly linked to a heightened alignment between executive remuneration and organisational performance. ESG initiatives appear to positively influence the structuring of compensation agreements. Further analysis shows that ESG practices enhance this pay-for-performance sensitivity by increasing corporate transparency and mitigating excessive executive pay. The heterogeneity analysis indicates that the positive impact of ESG on executive compensation sensitivity is more pronounced in non-state-owned enterprises, firms operating within less transparent information environments, and those characterised by labour-intensive operations. This research deepens the understanding of the microeconomic implications of ESG adoption and offers theoretical support for both regulatory ESG frameworks and corporate engagement in sustainable practices.

1. Introduction

The compensation contract serves as a vital mechanism for addressing the principal-agent issue [1-3]. However, in practice, due to insufficient corporate governance mechanisms, information asymmetry, and incomplete contracts, managers tend to manage earnings or exaggerate their contributions through their influence to secure excessive compensation, making compensation itself part of the agency problem [4]. This undermines the effectiveness of the compensation contract. Alongside reforms in the compensation systems of emerging markets, the compensation of executives at listed companies has been increasing annually. However, negative growth in

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performance, coupled with positive growth in managerial compensation, has caused an "inversion," leading to numerous instances of "exorbitant pay." The surge in executive compensation has far outstripped changes in company size, performance, and industry classification [5]. Consequently, executive compensation has become disordered, threatening the enterprise's value and investor interests, while exacerbating income inequality within the organization, prompting widespread concerns and calls for a reassessment of the fairness of executive compensation [6; 7].

In the context of the sluggish global economic recovery, falling corporate profitability, rising unemployment, and growing social inequality post-COVID-19, the distorted remuneration contract has further compromised corporate sustainability and social justice, leading to widespread dissatisfaction among investors and the public. ESG (Environmental, Social, and Governance) has emerged as an investment and evaluation framework focused on sustainability. As the international market places more emphasis on green development and socially responsible investment, ESG performance has gained significant public attention [8]. Furthermore, regulators continue to enhance their oversight of ESG practices, while consumers and institutional investors increasingly favor companies demonstrating strong ESG performance [9; 10]. Shareholders are also demanding that companies integrate ESG principles into their business operations [11; 12].

In comparison to developed markets, China's ESG development began later but has made notable progress, with regulators continually strengthening the regulatory framework. In 2018, the China Securities Regulatory Commission (CSRC) revised the Governance Code for Listed Companies, establishing the framework for ESG information disclosure. Later, in April 2024, the stock exchanges of Beijing, Shanghai, and Shenzhen issued guidelines for Sustainability Reporting (for trial implementation). In December 2024, the Ministry of Finance introduced the Corporate Sustainability Disclosure Guidelines—Basic Guidelines (for trial implementation), aimed at guiding listed companies in practicing sustainable development and standardizing sustainability-related disclosures. Simultaneously, the number of companies disclosing ESG reports has risen sharply, with improvements in the quality of disclosures. As ESG practices are increasingly promoted, corporate transparency has improved, reducing information asymmetry between boards (remuneration committees) and managers. ESG practices have also contributed to strengthening corporate governance, creating an effective system of checks and balances, and limiting managerial power, thereby reducing the manipulation of compensation. This, in turn, improves the effectiveness of remuneration contracts.

The academic literature on the economic consequences of ESG performance has grown, focusing on aspects such as corporate reputation [13; 14], financing constraints [15; 16], corporate investment and innovation [17-20], and corporate value [19; 20]. Regarding executive compensation, some studies suggest that better ESG performance is associated with higher executive compensation [21; 22], while others argue that improved ESG performance leads to lower executive compensation or shows no significant correlation [23]. Research into the economic consequences of adopting ESG pay practices has also been inconsistent. Some studies indicate that ESG pay reduces managerial short-sightedness Ikram et al. [24] and enhances green innovation output and firm value [25], while the study in [26] contend that ESG pay exacerbates the agency problem in executive compensation. Although existing literature has explored the impact of ESG on overall executive compensation, firm motivations, and the economic outcomes of adopting ESG pay, it has yet to examine how ESG practices affect the effectiveness of executive compensation contracts, particularly by improving the information environment and limiting managerial power.

This paper applies information asymmetry theory and managerial power theory to explore the impact and mechanisms through which ESG practices affect the effectiveness of executive compensation contracts. The study uses data from A-share listed companies in China, spanning from

2009 to 2022. The findings indicate that higher ESG performance correlates with stronger executive pay-for-performance sensitivity, and that ESG practices enhance the effectiveness of executive compensation contracts. This result remains consistent through various robustness tests. Mechanism analyses show that ESG practices strengthen pay-for-performance sensitivity by increasing corporate transparency and curbing excessive executive compensation. Heterogeneity analysis reveals that the impact of ESG practices on executive pay-for-performance sensitivity is more pronounced in non-state-owned firms, those with poorer information environments, and labor-intensive firms.

This study contributes to the literature in three significant ways. First, it broadens the research on the economic consequences of ESG practices by integrating ESG performance and the efficacy of executive compensation contracts into a unified analytical framework, expanding the scope of research on the micro effects of corporate ESG practices, and providing empirical evidence for a deeper understanding of the impact of ESG in emerging markets. Second, it bridges the gap in the literature regarding the mechanisms through which ESG works. By applying managerial power theory, the study demonstrates that curbing excessive executive compensation is a crucial mechanism through which ESG practices exert their influence. Third, it enhances research on the factors affecting executive pay-for-performance sensitivity. While existing literature has concentrated on internal governance mechanisms such as equity structure [27; 28], executive power [4; 29], board size [28], institutional investors [30; 31], and external governance mechanisms such as media reports [32] and pay controls [6], this paper examines the effect of ESG on executive pay-for-performance sensitivity across different contexts, contributing to a more nuanced understanding of managerial compensation contracts in emerging markets.

The structure of this paper is as follows: Section 2 presents the theoretical analysis and research hypothesis, Section 3 outlines the research design, Section 4 provides the empirical analysis, Section 5 discusses the mechanism analysis, Section 6 presents the heterogeneity analysis, and Section 7 concludes the paper.

2. Theoretical Analysis and Research Hypotheses

2.1 The Impact of ESG Practices on Executive Pay-for-Performance Sensitivity

It has been demonstrated that compensation structures linking executive pay to corporate performance can be effective [1; 33]. The role of a compensation committee, established under the board of directors, is to ensure that executive compensation is rationally determined. However, a prevalent issue is the information asymmetry between the board and executives. In such instances, executives may leverage their position and information advantage to influence compensation policies, transforming the pay system into a means for personal gain [4]. This leads to a misalignment between executive compensation and their actual contributions, resulting in an imbalance between the risks and rewards executives face. Consequently, reducing information asymmetry between boards and executives, and curbing executives' power to extract disproportionate compensation, are key factors in enhancing the efficacy of compensation contracts.

On one hand, firms are incentivized to increase transparency in order to alleviate information asymmetry during ESG practices. This expanded information allows the board of directors (or remuneration committee) to better evaluate executive performance, thereby improving the rationality of the compensation contract. Reducing information asymmetry yields numerous benefits, including lower financing costs, increased firm value, reduced risks, and enhanced liquidity [15; 34-36]. As a result, firms are encouraged to increase disclosure during ESG practices. ESG reports published by firms, along with ratings from ESG agencies, provide comprehensive, high-quality information to the board, reducing the information gap between executives and the board of

directors [37]. This reduction in asymmetry enables the board to more accurately assess executives' contributions, adjusting compensation based on performance and firm outcomes. The correlation between executive compensation and performance is thereby strengthened. Furthermore, ESG performance acts as a predictor of future performance [38; 39], enabling the board to evaluate and adjust remuneration covenants based on anticipated future outcomes. This alignment enhances the relevance of the compensation structure, ensuring it reflects performance in future periods.

On the other hand, as companies engage in ESG practices, they continually refine their corporate governance, establishing a robust system of checks and balances to prevent executives from securing excessive compensation through their influence. In practice, executives often wield significant control over director nominations and the incentive system, enabling them to influence the board and remuneration committee in setting their pay [41]. Additionally, executives may exploit their power to manipulate earnings in order to secure higher compensation, with excessive pay serving as an indicator of managerial dominance. During the implementation of ESG initiatives, firms focus on strengthening both internal and external governance mechanisms, such as board independence, internal controls, institutional investors, external market forces, and legal frameworks [40; 41]. These efforts limit executives' ability to intervene in the compensation process, thereby reducing the opportunities for them to capture excessive pay. Instead, executives receive compensation that is closely aligned with their contributions and the company's performance, thereby enhancing the connection between executive compensation and corporate outcomes. Based on this, we propose the following hypothesis.

H1: There is a significant positive relationship between ESG performance and executive pay-for-performance sensitivity.

2.2 ESG Practices, Information Transparency and Executive Pay-for-Performance Sensitivity

Regarding the voluntariness of information disclosure, firms project a responsible image to external stakeholders through their ESG practices, thereby enhancing their corporate reputation. Firms demonstrating strong ESG performance are more likely to disclose comprehensive ESG information [42], showcasing their commitment to environmental, social responsibility, and corporate governance, as well as the outcomes achieved. Typically, companies with robust ESG performance are more diligent in following ESG disclosure guidelines, leading to higher quality ESG reporting. From the perspective of regulatory oversight, the growing intensity of ESG disclosure regulations globally has driven firms to disclose more detailed and thorough ESG information, significantly improving the quality of such disclosures. Furthermore, the verification of ESG performance by ESG rating agencies has played a key role in further elevating the quality of the disclosed information.

Additionally, companies with outstanding ESG performance are more inclined to comply with financial reporting standards when disclosing financial data, thus ensuring greater consistency between financial and non-financial information and enhancing the credibility of the disclosed information [43; 44]. This stricter adherence to financial reporting norms helps reduce opportunistic behaviour and earnings management in financial disclosures. It is clear that ESG practices not only increase the volume and quality of information disclosed but also promote greater corporate transparency. This, in turn, helps mitigate information asymmetry between the board and executives, enabling the board to more accurately assess executives' contributions and offer fair compensation, thereby increasing the sensitivity of executive pay to corporate performance. Based on this, we propose the following hypothesis.

H2: ESG practices promote executive pay-for-performance sensitivity by increasing corporate information transparency.

2.3 ESG Practices, Excessive Compensation and Executive Pay-for-Performance Sensitivity

Excessive compensation refers to remuneration that surpasses the amounts that have been fairly negotiated, with executives using their influence and authority to intervene in the formulation of the remuneration contract. This phenomenon is regarded as a manifestation of management's power [4; 45]. Effective corporate governance, both internal and external, plays a pivotal role in establishing mechanisms that ensure power is subject to checks and balances, thereby limiting the misuse of power by executives for personal gain. Regarding internal governance, ESG underscores the importance of board independence. As the autonomy of the board of directors increases, it becomes more capable of maintaining objectivity and neutrality when formulating executive compensation contracts. This strengthens its ability to supervise executives' opportunistic behavior and acts as a deterrent against fraudulent actions [46].

Additionally, ESG highlights the necessity of robust internal control mechanisms. Research in Li et al. [47] indicates that better ESG performance correlates with higher quality internal control systems. A well-developed internal control framework formalizes business processes, reducing the scope for managerial intervention and establishing power checks within the system. This constrains managers' ability to engage in rent-seeking behavior through the abuse of their power [48]. Furthermore, ESG advocates for enhancing corporate governance structures. Firms often improve their governance frameworks and augment their governance capacity by integrating institutional investors with ESG investment priorities. During the ESG implementation process, institutional investors place constraints on management's power by nominating directors, participating in business decisions, and influencing compensation contracts. This serves to limit executive compensation levels and strengthens the alignment between executive pay and performance [9; 49].

From the perspective of external governance, firms demonstrating strong ESG performance are more likely to attract attention from the media, analysts, regulators, and the public, thereby strengthening the effectiveness of external oversight. This external scrutiny helps deter executives from engaging in opportunistic behavior [50; 51]. As discussed earlier, superior ESG performance results in more efficient internal power allocation and control mechanisms, as well as enhanced external monitoring. This, in turn, reduces the likelihood of executives exploiting their power to secure excessive compensation and ensures that their pay is more closely aligned with their actual performance, thus improving the sensitivity of executive compensation to performance. Based on this, we propose the following hypothesis.

H3: ESG practices promote executive pay-for-performance sensitivity by curbing excessive executive compensation.

3. Research Design

3.1 Data and Sample

The study uses a sample of Chinese A-share listed firms from 2009 to 2022. ESG data is sourced from the WIND database and Syntao's ESG rating system, while financial data is gathered from the CSMAR database. To ensure the reliability of the results, the following exclusions were made: i) financial and insurance firms; ii) insolvent firms; iii) firms marked as ST, ST*, and PT; iv) firm-year observations with missing key or control variables. To mitigate the impact of extreme values on the primary findings, all continuous variables are winsorised at the 1st and 99th percentiles. In total, the final sample consists of 28,713 firm-year observations from 4,004 firms.

3.1.1 ESG Performance

The Sino-Securities-Index (CSI) ESG rating serves as the core indicator of ESG performance in this

study. The CSI began assessing the ESG performance of A-share listed enterprises in 2009, and the index has been widely recognized by both industry and academia [17]. The ESG ratings are divided into 9 grades: C, CC, CCC, B, BB, BBB, A, AA, and AAA. For the purposes of this study, these ratings are assigned a numerical scale from 1 to 9, with 1 representing the lowest grade and 9 the highest.

3.1.2 Executive Compensation

We use the natural logarithm of the total compensation of the top three executives (Lnpay) as the measure of corporate executive compensation. While many studies focusing on U.S. firms utilize equity and stock options to assess executive compensation, the structure of executive compensation in firms within emerging capital markets differs significantly. Specifically, these firms tend to have a higher proportion of monetary compensation and a lower percentage of equity and stock options compared to their U.S. counterparts. Consequently, this study primarily concentrates on the monetary compensation of executives [31], [55].

3.1.3 Firm Performance

This paper employs return on assets (ROA) as the primary measure of firm performance. Additionally, we substitute net profit with earnings before interest and taxes (EBIT), creating an alternative measure, ROA2 = EBIT/total assets. For robustness checks, we also utilize return on equity (ROE) alongside ROA and ROA2.

3.1.4 Mediator Variable

(1) Information Transparency (Trans): Following Firth et al. [52], Trans is constructed based on five indicators: earnings quality, disclosure evaluation scores, the number of analysts tracking the firm, the accuracy of analysts' earnings forecasts, and whether the firm hires a Big Four accounting firm. A higher Trans indicates greater corporate information transparency.

(2) Excessive Compensation (Overpay): This paper employs the method developed by Xin et al. [53] and Cai et al. [54] to calculate excessive executive compensation using model (1). The value is derived from the regression residual of model (1), representing the difference between actual and expected executive compensation (Overpay). A larger Overpay value indicates a higher level of excessive executive compensation.

$$Lnpay_{i,t} = \alpha_0 + \alpha_1 Lnpay_{i,t-1} + \alpha_2 LnSize_{i,t} + \alpha_3 Roa_{i,t} + \alpha_4 Roa_{i,t-1} + \alpha_5 Intan_{i,t} + \alpha_6 TobinQ_{i,t} + \alpha_7 District_{i,t} + Year + Industry + \varepsilon_{i,t} \quad (1)$$

In model (1), Intan represents the proportion of intangible assets at the end of the year, Tobin's Q is the ratio of the market value of the enterprise to total assets, and District indicates the geographical characteristics, taking the value of 1 if the enterprise's registered location is in the central and western regions, and 0 otherwise. The definitions of the other variables are provided in Table 1.

3.1.5 Control Variables

Following previous research [31, 59], this study defines a set of control variables. The definitions of these variables are provided in Table 1.

Table 1.
Research Variable Description

Variable	Name	Description
Lnpay	Executive Compensation	The natural logarithm of the total compensation of the top three executives
ESG	ESG Performance	CSI ESG rating
Per	Firm Performance	Return on assets (Roa)

Trans	Information Transparency	Constructed based on five metrics: surplus quality, disclosure appraisal score, number of analysts tracked, accuracy of analysts' surplus forecasts and whether or not a Big 4 accounting firm was hired
Overpay	Excessive Compensation	Residuals of model (1)
LnSize	The Size of the Firm	Natural logarithm of total assets at year-end
Lev	Financial Leverage	Total liabilities/total assets
Growth	Growth Ability	Growth rate of operating income
Top1	Shareholding Ratio of the Largest Shareholder	Number of the largest shareholder/ Total shares
Board	The Size of the Board of Directors	Number of board of directors
Dual	Duality	1 for Duality; otherwise, 0
Indep	The Size of the Independent Directors	Number of independent directors/ number of directors

3.2 Research model

To examine the impact of ESG Performance on executive pay-for-performance sensitivity, this paper uses the following regression model:

$$Lnpay_{i,t+1} = \alpha_0 + \alpha_1 ESG_{i,t} + \alpha_2 Per_{i,t} + \alpha_4 ESG_{i,t} \times Per_{i,t} + \sum Controls + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (2)$$

In the model, Lnpay measures executive compensation, ESG represents ESG performance, Per indicates firm performance, and Control refers to a set of control variables. As ESG ratings are updated at the end of each period, decisions are based on the previous period's ratings; hence, lagged one-period values are used for ESG and control variables. i denotes the firm, t denotes the year, and γi and δt represent firm and year fixed effects, respectively. A significant positive (negative) α_3 indicates that increased (reduced) ESG performance enhances (lowers) executive pay-for-performance sensitivity.

4. Empirical Analysis

4.1 Descriptive Statistics

The descriptive statistics of the variables in this study are presented in Table 2. Over the sample period, the minimum value of Lnpay is 11.42, the maximum value is 16.42, with a mean value of 14.46 (approximately RMB 1,632,000), and a standard deviation of 0.716. This suggests that executive compensation in listed companies is relatively high compared to the general population, although there is notable variability in compensation levels across firms. The minimum value of ESG is 1, the maximum is 8, the mean is 4.164, and the standard deviation is 1.072. The majority of firms in the sample are rated in the B category (B, BB, or BBB), with a comparatively low percentage of firms in the A category (A, AA, or AAA). Notably, no firm received an AAA ESG rating during the sample period. The descriptive statistics for the remaining variables in Table 2 are broadly consistent with those reported in previous studies.

Table 2
Descriptive Statistics

Variables	N	Mean	SD	Min	p50	Max
Lnpay	28713	14.462	0.716	11.424	14.445	16.421
ESG	28713	4.164	1.072	1	4	8
Roa	28713	0.046	0.059	-0.224	0.042	0.223
LnSize	28713	22.263	1.266	19.122	22.080	25.956
Lev	28713	0.423	0.200	0.053	0.418	0.884
Growth	28713	0.184	0.387	-0.597	0.121	2.499
Dual	28713	0.274	0.446	0	0	1

Top1	28713	34.530	14.890	8.750	32.370	75.250
Board	28713	10.100	2.534	5	10	18
Indep	28713	0.382	0.073	0.143	0.364	0.600

4.2 Baseline Regression

Column (1) in Table 3 presents the effect of firm performance on executive compensation. The coefficient between Per and Lnpay is significantly and positively correlated at the 1% level, suggesting that firms with better performance tend to offer higher levels of executive compensation. The regression results in column (2) of Table 3 show that the coefficient between ESG×Per and Lnpay is 0.186, which is significantly positive at the 1% level. This indicates that a firm's ESG performance significantly strengthens the sensitivity of executive pay to performance. Therefore, H1 is supported by the findings.

Table 3
ESG Performance and Executive Pay-for-Performance Sensitivity

	(1)	**(2)**
Variables	Lnpay	Lnpay
Per	1.036***	1.096***
	(20.847)	(21.665)
ESG		-0.008***
		(-2.799)
ESG*Per		0.186***
		(5.593)
LnSize	0.202***	0.205***
	(35.279)	(35.651)
Lev	-0.024	-0.035
	(-0.997)	(-1.456)
Growth	0.022***	0.022***
	(3.810)	(3.790)
Dual	0.021***	0.021***
	(2.911)	(2.878)
Top1	-0.002***	-0.002***
	(-5.556)	(-5.369)
Board	0.006***	0.006***
	(5.270)	(5.058)
Indep	-0.040	-0.036
	(-1.141)	(-1.019)
_cons	9.624***	9.576***
	(79.510)	(79.010)
N	28713	28713
r2	0.473	0.474
Code	Yes	Yes
Year	Yes	Yes

Note: The T-statistics are reported in parentheses. ***, **, and * denote the significance at the 0.01, 0.05, and 0.10 levels, respectively.

4.3 Endogeneity Concerns

4.3.1 Heckman Two-Stage

A series of sample exclusions were made prior to the empirical test, which could potentially lead to sample selection bias. To address this endogeneity issue, the Heckman two-stage method was

employed. In the first stage, a dummy variable (ESG_dum) was created based on the annual provincial industry ESG averages. ESG_dum takes a value of 1 when a firm's ESG performance exceeds the annual provincial industry averages, and 0 otherwise. ESG_dum was then used as the dependent variable, with all control variables from model (2) as independent variables in the probit regression. The inverse Mills ratio (Imr) was subsequently calculated. In the second stage, the inverse Mills ratio estimated in the first stage was incorporated into model (2) as a new explanatory variable for the regression test. The first-stage regression results are presented in column (1), and the second-stage regression results are shown in column (2) of Table 4. The results indicate that the coefficient of the inverse Mills ratio is significantly negative, while the coefficient of ESG × Per is significantly positive at the 1% level. This suggests that the empirical results remain robust even after controlling for sample selection bias.

Table 4
Heckman Two-Stage and PSM

	Heckman		PSM
	(1)	(2)	(3)
	ESG_dum	Lnpay	Lnpay
ESGmean	0.041**		
	(2.045)		
Per	-0.378	1.228***	0.998***
	(-1.595)	(18.961)	(14.986)
ESG		-0.012***	-0.013***
		(-4.011)	(-3.758)
ESG*Per		0.187***	0.193***
		(5.600)	(3.991)
Imr		-1.114***	
		(-3.257)	
LnSize	0.022	0.198***	0.213***
	(1.307)	(31.851)	(27.712)
Lev	0.175*	-0.098***	-0.027
	(1.683)	(-3.189)	(-0.871)
Growth	-0.019	0.029***	0.026***
	(-0.693)	(4.677)	(3.306)
Dual	0.016	0.015**	0.021**
	(0.455)	(1.969)	(2.298)
Top1	-0.002	-0.001**	-0.002***
	(-1.526)	(-2.214)	(-5.028)
Board	0.009	0.003*	0.005***
	(1.627)	(1.856)	(3.800)
Indep	-1.216***	0.403***	-0.016
	(-7.619)	(2.895)	(-0.365)
_cons	1.221***	9.857***	9.511***
	(23.597)	(66.231)	(58.472)
N	28713	28713	18933
r2/Pseudo R2	0.0094	0.474	0.473
Code	Yes	Yes	Yes
Year	Yes	Yes	Yes

Note: The T-statistics are reported in parentheses. ***, **, and * denote the significance at the 0.01, 0.05, and 0.10 levels, respectively.

4.3.2 Propensity Score Matching (PSM)

Some firms may choose to conceal ESG-related information for various reasons, such as individual preferences or market competition. This can hinder ESG rating agencies from accurately assessing their performance, potentially leading to self-selection bias in the sample. To address the endogeneity problem arising from this self-selection issue, this paper employs propensity score matching (PSM) for robustness testing, revisiting the baseline regression. In this study, ESG_dum is used as the dependent variable, with all control variables from model (2) serving as independent variables. Propensity scores are calculated for the observed samples, and 1:1 nearest-neighbor matching with a calliper of 0.05 is applied to match the experimental and control groups, resulting in 18,933 valid observations. Using the new matched sample, the regression model (2) is applied again for empirical analysis. The results, presented in column (3) of Table 4, show that the coefficient of ESG × Per is significantly positive at the 1% level, which is consistent with the findings from the benchmark regression.

4.4 Other Robustness Tests

4.4.1 Different Proxies for Executive Compensation and Firm Performance

First, this paper uses the natural logarithm of the total compensation of all executives (Lnsumpay) and the compensation of the highest-paid executive (Lntop1pay) as proxy variables for executive compensation. Second, we employ Roa2 and return on equity (Roe) as measures of firm performance. The coefficients of ESG × Per are significantly positive at the 1% level in columns (1) through (4) of Table 5, which aligns with the results from the benchmark regression.

4.4.2 Changing the Sample Interval

At the beginning of 2020, the outbreak of COVID-19 had a significant impact on economic activities and the stability of firm performance. Since executive compensation is closely tied to firm performance, the pandemic is likely to have had a greater effect on executive pay. The considerable fluctuations in both firm performance and executive compensation may introduce bias into the results of this study. To address this, we exclude observations from 2020-2022 and perform the regression analysis on observations from 2009-2019. Column (5) in Table 5 shows that the coefficients of ESG × Per remain significantly positive at the 1% level, indicating that ESG performance continues to promote pay-for-performance sensitivity, consistent with the baseline regression results.

Table 5
Robustness Tests: Different Proxies for Main Variables, Changing the Sample Interval and ESG Performance Measures

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Lnsumpay Per=Roa	Lntop1pay Per=Roa	Lnpay Per=Roa_2	Lnpay Per=Roe	Lnpay (2009-2019)	Lnpay
Per	1.174*** (20.672)	1.105*** (19.599)	1.015*** (22.042)	0.383*** (17.517)	1.078*** (18.095)	1.089*** (21.574)
ESG	-0.006** (-2.017)	-0.010*** (-3.364)	-0.007*** (-2.655)	-0.006** (-2.384)	-0.008*** (-2.673)	
ESG*Per	0.188*** (5.030)	0.184*** (4.950)	0.173*** (5.536)	0.116*** (8.222)	0.129*** (3.135)	
ESG_2						-0.018*** (-3.124)
ESG_2*Per						0.422*** (5.183)
LnSize	0.242*** (37.457)	0.210*** (32.642)	0.206*** (35.724)	0.207*** (35.718)	0.203*** (30.366)	0.206*** (35.719)

Lev	-0.036	-0.033	-0.068***	-0.111***	-0.071***	-0.035
	(-1.349)	(-1.228)	(-2.903)	(-4.746)	(-2.597)	(-1.458)
Growth	0.023***	0.023***	0.020***	0.037***	0.021***	0.022***
	(3.562)	(3.571)	(3.390)	(6.493)	(3.381)	(3.765)
Dual	0.036***	0.027***	0.021***	0.022***	0.019**	0.021***
	(4.376)	(3.302)	(2.832)	(3.009)	(2.300)	(2.920)
Top1	-0.002***	-0.002***	-0.002***	-0.002***	-0.001***	-0.002***
	(-5.001)	(-5.034)	(-5.207)	(-4.991)	(-3.593)	(-5.405)
Board	0.006***	0.005***	0.006***	0.006***	0.006***	0.006***
	(4.875)	(3.952)	(5.026)	(5.017)	(4.952)	(5.085)
Indep	-0.027	-0.035	-0.037	-0.032	-0.014	-0.036
	(-0.679)	(-0.895)	(-1.047)	(-0.903)	(-0.345)	(-1.039)
_cons	9.304***	8.606***	9.568***	9.596***	9.595***	9.576***
	(68.397)	(63.754)	(79.003)	(78.787)	(67.858)	(78.962)
N	28713	28713	28713	28713	22205	28713
r2	0.409	0.431	0.474	0.471	0.432	0.474
Code	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes

Note: The T-statistics are reported in parentheses. ***, **, and * denote the significance at the 0.01, 0.05, and 0.10 levels, respectively.

4.4.3 Changing ESG Performance Measures

We construct an alternative measure of ESG, denoted as ESG2. ESG2 is assigned a value of 1 when the CSI ESG ratings range from C to CCC, 2 when the ratings fall between B and BBB, and 3 when the ratings are from A to AAA. We then regress model (2) using ESG2. Column (6) in Table 5 demonstrates that the coefficient of ESG2 × Per is significantly positive at the 1% level, consistent with the baseline regression results.

5. Mechanism Analysis

5.1 The Information Mechanism

Information asymmetry is one of the key factors leading to low performance sensitivity of executive compensation. Following the approach in Firth et al. [52], this paper uses a composite indicator, Trans, which is constructed based on five indicators: earning quality, disclosure appraisal score, number of analysts tracking, accuracy of analysts' earnings forecasts, and whether a Big Four accounting firm is hired, to measure corporate information transparency. A higher Trans indicates higher information transparency. Using the method of Carter et al. [55] to test the mediation effect, the regression results are shown in columns (2) and (3) of Table 6. The results in column (2) of Table 6 show that better ESG performance corresponds to higher information transparency, suggesting that firms' ESG practices can mitigate information asymmetry. The results in column (3) of Table 6 show that the coefficient of Trans×Per is significantly positive at the 1% level, while the coefficient of ESG×Per is smaller than that in the baseline regression results in column (1) of Table 6. This indicates that ESG practices improve the corporate information environment and reduce information asymmetry, thereby enhancing executive pay-performance sensitivity. Hypothesis H2 is verified.

Table 6
Mediation Effect Test Results

	(1)	(2)	(3)	(4)	(5)
Variable	Lnpay	Trans	Lnpay	Overpay	Lnpay
Per	1.096***	0.557***	1.097***	-0.165***	1.277***
	(21.665)	(33.999)	(20.697)	(-4.055)	(40.621)

ESG	-0.008***	0.010***	-0.010***	-0.011***	0.002
	(-2.799)	(10.722)	(-3.593)	(-4.774)	(1.494)
ESG*Per	0.186***		0.068**		0.182***
	(5.593)		(1.963)		(5.125)
Trans			0.210***		
			(10.867)		
Trans*Per			2.457***		
Overpay					0.962***
					(200.672)
Overpay*Per					-0.347***
					(-5.340)
LnSize	0.205***	0.039***	0.199***	0.002	0.203***
	(35.651)	(20.767)	(34.360)	(0.427)	(57.243)
Lev	-0.035	0.013	-0.040*	-0.031	-0.004
	(-1.456)	(1.630)	(-1.695)	(-1.570)	(-0.270)
Growth	0.022***	0.009***	0.018***	0.033***	-0.010***
	(3.790)	(4.782)	(3.123)	(7.026)	(-2.798)
Dual	0.021***	0.004	0.020***	-0.005	0.026***
	(2.878)	(1.463)	(2.761)	(-0.840)	(5.806)
Top1	-0.002***	-0.000***	-0.002***	-0.001***	-0.001***
	(-5.369)	(-3.156)	(-4.899)	(-4.545)	(-2.780)
Board	0.006***	-0.001***	0.006***	0.003***	0.002***
	(5.058)	(-3.098)	(5.142)	(3.726)	(3.433)
Indep	-0.036	0.020*	-0.038	-0.046	0.007
	(-1.019)	(1.733)	(-1.078)	(-1.599)	(0.318)
_cons	9.576***	-0.552***	9.636***	0.075	9.505***
	(79.010)	(-13.863)	(79.477)	(0.760)	(127.231)
N	28713	28713	28713	28713	28713
r2	0.474	0.119	0.479	0.005	0.800
Code	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes

Note: The T-statistics are reported in parentheses. ***, **, and * denote the significance at the 0.01, 0.05, and 0.10 levels, respectively.

5.2 The Excessive Compensation Mechanism

The extraction of excessive compensation by executives through their own power is another significant reason behind the mismatch between executive pay and corporate performance. Following the approach outlined in [53; 54], excessive executive compensation is calculated using model (1), where higher levels of excessive compensation indicate greater executive power. Using the method described in [60] for testing the mediation effect, the regression results are presented in columns (4) and (5) of Table 6. The findings show that the coefficient of ESG is significantly negative, while the coefficient of Overpay×Per is also significantly negative. These results suggest that better ESG performance leads to lower levels of excessive executive compensation, indicating that ESG practices strengthen internal governance and impose an effective constraint on executive power. This ultimately reduces excessive executive compensation and enhances the sensitivity of executive pay to firm performance, thereby verifying hypothesis H3.

6. Heterogeneity Analysis

6.1 Heterogeneity Analysis Based on the Nature of Property Rights

SOEs and non-SOEs differ in terms of their goals, strategic positioning, and governance [55]. While

private firms focus on financial performance, SOEs must also fulfil social and policy responsibilities, reducing executive pay-for-performance sensitivity [61]. Additionally, government-imposed salary restrictions on SOEs further limit this sensitivity. Therefore, ESG practices are expected to have a stronger effect on non-SOEs. The results in Table 7, columns (1) and (2), show that ESG×Per is significantly positive at the 1% level in non-SOEs, but has no significant impact on SOEs.

Table 7
Heterogeneity Analysis Based on the Nature of Property Rights and the Information Environment

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	Lnpay	Lnpay	Lnpay	Lnpay	Lnpay	Lnpay
	SOE	Non-SOE	ICI_High	ICI_Low	AF_High	AF_Low
Per	2.056***	0.792***	1.502***	0.950***	1.214***	0.931***
	(21.538)	(13.230)	(16.913)	(12.835)	(15.613)	(12.502)
ESG	0.001	-0.003	-0.006	0.001	-0.005	-0.002
	(0.173)	(-0.859)	(-1.333)	(0.269)	(-1.176)	(-0.567)
ESG*Per	0.092	0.141***	-0.093	0.219***	0.007	0.255***
	(1.346)	(3.685)	(-1.454)	(4.633)	(0.138)	(5.133)
LnSize	0.161***	0.216***	0.212***	0.189***	0.185***	0.165***
	(16.687)	(28.981)	(23.706)	(21.561)	(19.096)	(18.899)
Lev	-0.096**	-0.045	-0.037	-0.033	0.046	-0.027
	(-2.387)	(-1.489)	(-1.004)	(-0.920)	(1.204)	(-0.810)
Growth	0.024***	0.021***	0.010	0.032***	0.009	0.029***
	(2.617)	(2.905)	(1.211)	(3.411)	(1.015)	(3.819)
Dual	0.010	0.030***	0.028**	0.016	0.008	0.016
	(0.712)	(3.454)	(2.538)	(1.461)	(0.681)	(1.556)
Top1	-0.002***	-0.000	-0.001**	-0.003***	-0.003***	-0.003***
	(-3.649)	(-0.506)	(-2.425)	(-4.919)	(-4.430)	(-5.196)
Board	0.001	0.007***	0.004***	0.007***	0.001	0.008***
	(0.817)	(4.754)	(2.638)	(4.421)	(0.713)	(5.155)
Indep	-0.078	-0.030	-0.113**	-0.042	-0.054	0.001
	(-1.418)	(-0.663)	(-2.235)	(-0.780)	(-1.070)	(0.013)
_cons	10.558***	9.249***	9.476***	9.842***	10.190***	10.285***
	(51.371)	(59.870)	(50.386)	(53.401)	(48.671)	(56.390)
N	10585	18128	14597	14116	13429	15284
r2	0.448	0.489	0.496	0.455	0.461	0.437
Code	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes

Note: The T-statistics are reported in parentheses. ***, **, and * denote the significance at the 0.01, 0.05, and 0.10 levels, respectively.

6.2 Heterogeneity Analysis Based on Information Environment

As previously discussed, information asymmetry contributes to low executive pay-for-performance sensitivity, and ESG practices improve corporate transparency and the information environment. It is expected that ESG's impact on executive pay-for-performance sensitivity will be stronger in firms with poorer information environments. To assess this, we use two metrics: internal control quality (ICI) and analyst focus (AF). The sample is divided into high and low groups based on the annual industry median of the Dibble Index for ICI and the natural logarithm of the number of analysts tracked for AF. The results in columns (3) to (6) of Table 7 show that ESG's impact is significant only in the low internal control quality and low analyst focus groups, indicating that ESG practices improve information transparency and align executive pay with firm performance.

6.3 Heterogeneity Analysis Based on Industry Factor Intensity

According to factor endowment theory, enterprises with different factor demands exhibit variations in labor input, capital investment, and technological needs. These differences can influence corporate management practices and lead to varying impacts of ESG practices on executive pay-for-performance sensitivity across enterprises with different factor intensities. Following [17; 56], cluster analysis is used to categories samples into three groups: technology-intensive, capital-intensive, and labor-intensive. Moreover, the findings in Table 8 reveal that the coefficient of ESG×Per is significantly positive at the 1% level only for labor-intensive firms. This can be attributed to several factors: technology-intensive and capital-intensive firms tend to focus more on technological innovation, designing compensation contracts based on executives' innovative abilities rather than overall business performance to attract talent. Consequently, ESG practices have a limited impact on executive pay-for-performance sensitivity in these firms. In contrast, labor-intensive firms rely more on human resources. Enhancing ESG performance in these firms helps attract talent that positively influences operational outcomes and allows for adjustments in executive compensation based on managerial effectiveness. Thus, compared to technology-intensive and capital-intensive firms, labor-intensive firms show a more significant positive effect of ESG practices on executive pay-for-performance sensitivity.

Table 8
The Regulatory Role of Different Industry Factor Intensity

	(1)	(2)	(3)
Variable	Lnpay	Lnpay	Lnpay
	Technology	Capital	Labour
Per	0.287**	1.066***	1.213***
	(2.294)	(5.416)	(21.079)
ESG	-0.011	0.009	-0.006*
	(-1.446)	(1.006)	(-1.912)
ESG*Per	0.042	-0.055	0.198***
	(0.515)	(-0.403)	(5.278)
LnSize	0.094***	0.272***	0.193***
	(5.545)	(12.928)	(29.066)
Lev	0.094	-0.097	-0.021
	(1.300)	(-1.258)	(-0.770)
Growth	0.028*	-0.002	0.023***
	(1.699)	(-0.137)	(3.491)
Dual	0.041**	0.019	0.023***
	(2.112)	(0.672)	(2.805)
Top1	-0.003**	0.001	-0.002***
	(-2.174)	(0.773)	(-5.031)
Board	0.001	0.004	0.006***
	(0.202)	(1.408)	(4.641)
Indep	-0.076	-0.057	-0.037
	(-0.796)	(-0.541)	(-0.927)
_cons	12.169***	7.915***	9.820***
	(34.338)	(17.491)	(70.529)
N	2904	2330	23479
r2	0.432	0.428	0.471
Code	Yes	Yes	Yes
Year	Yes	Yes	Yes

Note: The T-statistics are reported in parentheses. ***, **, and * denote the significance at the 0.01, 0.05, and 0.10 levels, respectively.

7. Conclusion

7.1 Research Conclusion

The effectiveness of executive compensation contracts has always been a central issue in corporate governance, particularly in emerging capital market countries with underdeveloped governance mechanisms. In such contexts, improving the effectiveness of compensation contracts is a key concern in both practice and academia. Widespread ESG practices are likely to enhance firms' information environments and corporate governance, subsequently influencing compensation contract effectiveness. This paper empirically examines how ESG practices impact executive pay-for-performance sensitivity using data from non-financial listed companies in China's A-share market from 2009 to 2022. The findings are as follows: First, ESG practices strengthen the effectiveness of executive compensation contracts, with better ESG performance leading to greater executive pay-performance sensitivity. Second, this improvement is driven by enhanced corporate information transparency and a reduction in executives' ability to extract excessive compensation. Third, heterogeneity tests based on property rights, information environment, and industry factor intensity reveal that the positive impact of ESG on executive pay-for-performance sensitivity is most pronounced in non-state-owned firms, those with poorer information environments, and labor-intensive firms.

7.2 Research Implications

First, there is a need to accelerate the improvement of ESG information disclosure standards and to promote the mandatory disclosure system for ESG data. This would address the current issue where ESG information is primarily disclosed voluntarily by companies, leading to variations in quality due to inconsistent disclosure standards. Second, non-state-owned enterprises, firms with weaker information environments, and labor-intensive enterprises should invest more in ESG practices to enhance their ESG performance. The government should focus on supporting the involvement of these three types of firms in ESG initiatives, providing the necessary resources to facilitate the implementation of such practices. Third, ESG performance should be integrated into the executive performance evaluation system to encourage executives to actively engage in ESG practices and improve their ESG outcomes. By evaluating executives' contributions more comprehensively and accurately, based on their ESG performance, the effectiveness of executive compensation contracts can be enhanced.

7.3 Research Limitations and Perspectives

This article focuses solely on the monetary compensation of executives, excluding equity and stock options from the total executive compensation, which limits the measurement of executive compensation. Given that the proportion of equity and stock options in executive compensation is higher in non-state-owned enterprises than in state-owned firms, future research could focus on non-state-owned firms, incorporating executive shareholdings into total compensation to further explore the impact of ESG practices on pay-for-performance sensitivity. Additionally, future studies could manually collect data on corporate equity incentives and executive changes, excluding shares purchased by executives themselves, and include only shares granted through equity incentives in the total executive compensation. This approach would enable a more precise analysis of the impact of ESG performance on executive pay-for-performance sensitivity.

Author Contributions

Conceptualization, R.Z.; methodology, L.Y.; software, R.Z.; formal analysis, R.Z. and L.Y.; investigation, R.Z.; resources, L.Y.; data curation, L.Y. and R.Z.; writing—original draft preparation, R.Z.; writing—review and editing, L.Y. and J.S.; supervision, L.Y. and J.S. All authors have read and agreed to the published version of the manuscript.

Data Availability Statement

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare no conflict of interest.

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