THE GOVERNANCE EFFECT OF ESG RESPONSIBILITY FULFILLMENT: FROM THE PERSPECTIVE OF EXCESSIVE EXECUTIVE COMPENSATION

Rongyan Zhang[1,2], Yulun Wu[3], Wenting Song[4], & Jiafu Su[5*]

[1.] School of Business Administration, South China University of Technology, Guangzhou 510640, China.
[2.] Department of Finance, Guangxi University, Nanning 530004, China;
[3.] School of Business, The University of Sydney, New South Wales 2006, Australia;
[4.] MPAcc Center, Guangxi University of Finance and Economics, Nanning 530003, China;
[5.] International college, Krirk University, Bangkok, Thailand.

rongyanzhang@gxu.edu.cn[2]
yuwu0889@uni.sydney.edu.au[3]
20230208209@stu.gxufe.edu.cn[4]
sjf1987@ctbu.edu.cn[5]

Abstract
Embedding ESG principles into internal and external corporate governance mechanisms to effectively mitigate agency conflicts is pivotal for achieving sustainable development. This study examines the impact of ESG responsibility fulfillment on agency conflicts, using excessive executive compensation as a focal lens, with data from Chinese A-share listed companies (2009–2022). The findings reveal that higher levels of ESG responsibility fulfillment correlate with lower levels of excessive executive compensation, indicating ESG's role in alleviating agency conflicts. Mechanism tests identify four pathways: enhancing information transparency, constraining managerial power, attracting media attention, and increasing analyst focus, all of which suppress excess compensation. Heterogeneity analysis shows that the inhibitory effect of ESG responsibility fulfillment on managers' excess compensation is more pronounced in firms with better operational performance, higher market competition intensity, non-polluting industries, and those located in economically advanced regions. Further analysis demonstrates that ESG responsibility fulfillment improves executive pay-performance sensitivity. The study highlights ESG's governance utility in mitigating agency conflicts through internal and external mechanisms, enhancing compensation contract effectiveness, and protecting investor interests. This research enriches the literature on the microeconomic consequences of ESG responsibility fulfillment and provides a theoretical foundation for policymakers to design ESG regulations and for firms to engage in ESG practices.

Keywords
ESG responsibility fulfillment; Agency conflict; Excessive executive compensation; Information asymmetry; Managerial power; Media attention; Analyst focus

1   Introduction

ESG (Environmental, Social, and Governance) is an investment philosophy and strategic framework that integrates environmental, social, and governance considerations to advance corporate sustainable development. Since the concept was introduced by the United Nations Global Compact (UNGC) in 2004, ESG principles have gradually become a critical component of global sustainable development strategies. According to the Global Sustainable Investment Alliance (GSIA), global ESG-related assets under management reached $30.3 trillion in 2022, accounting for approximately one-third of total global assets under management. While ESG development in emerging markets started later, its growth momentum has been robust (Ye and Wang, 2024). In China, for instance, ESG investment continued to expand from 2023 to 2024, reflecting broad market acceptance of sustainable investment principles and signaling that ESG

responsibility fulfillment can be recognized by the market. In April 2024, the Shanghai, Shenzhen, and Beijing Stock Exchanges officially released the ESG Reporting Guidelines to standardize ESG disclosures. As both an investment philosophy and a strategic framework for sustainable development, ESG's governance efficacy is primarily realized through internal and external corporate governance mechanisms.

With the deepening of global ESG practices, theoretical research has achieved notable progress. Existing studies reveal that ESG responsibility fulfillment positively impacts corporate total factor productivity (Deng et al., 2023), investment efficiency (Ellili, 2022), financing costs (Tan et al., 2020), financial performance (Dhaliwal et al., 2012), and innovation capabilities (Fang and Hu, 2023). However, how ESG responsibility fulfillment influences agency conflicts between managers and stakeholders remains debated. On one hand, ESG disclosures help alleviate information asymmetry between stakeholders and managers (Clarkson et al., 2019), strengthening stakeholders' ability to monitor managerial opportunistic behavior (Christensen, 2016). External pressure from third-party ESG ratings also disciplines corporate misconduct (Heese et al., 2022). On the other hand, managers may overinvest in ESG activities to enhance personal reputation at the expense of shareholder interests (Friedman, 1970; Martin and Moser, 2016). ESG responsibility fulfillment could also serve as a pretext for managers to conceal operational inefficiencies (Wang et al., 2015; Wang, 2023). Thus, the net effect of ESG on agency conflicts remains unclear.

Under modern corporate systems, compensation contracts serve as a critical mechanism to mitigate agency problems (Jensen and Meckling, 1976). In practice, however, due to weak governance structures, information asymmetry, and incomplete contracts, compensation design often becomes subject to managerial power, enabling managers to extract excess compensation—a prominent manifestation of agency conflicts (Bebchuk et al., 2002; Bebchuk and Fried, 2003). Managerial excess compensation reduces corporate efficiency, undermines sustainable development, exacerbates social inequality, and provokes public dissatisfaction. As firms enhance governance frameworks, internal controls, and disclosure practices through ESG responsibility fulfillment, can ESG curb managers' excess compensation and thereby alleviate agency conflicts?

Against this backdrop, this study utilizes data from Chinese A-share listed companies (2009–2022) and focuses on excessive executive compensation as an entry point to address the following research questions: Can ESG responsibility fulfillment mitigate agency conflicts? How does ESG alleviate agency conflicts through the dual embedding of internal and external governance mechanisms? How do firms' internal and external environments moderate these mechanisms? Exploring these questions extends the theoretical understanding of ESG's impact on agency conflicts, constructs an analytical framework integrating internal and external governance mechanisms, and enriches ESG governance theory. Furthermore, it provides empirical evidence and strategic insights for emerging-market firms to enhance the effectiveness of managerial compensation contracts through ESG practices.

The marginal contributions of this study are as follows: First, expanding the theoretical boundaries of how corporate ESG responsibility fulfillment affects agency conflicts, enriching research on the economic consequences of ESG practices. By explaining ESG's inhibitory effect on managers' excess compensation from a governance perspective, the study provides micro-level empirical support for comprehensively understanding ESG's impact on agency conflicts and its transmission mechanisms.

Second, clarifying the pathways through which ESG responsibility fulfillment mitigates agency conflicts. From dual internal and external perspectives, the study examines internal mechanisms (information transparency and managerial power constraints) and

external mechanisms (media attention and analyst focus), offering insights into strengthening internal-external synergies to enhance ESG effectiveness.

Third, investigating contextual variations in ESG's role in alleviating agency conflicts. By incorporating four moderating variables—operational performance, industry competition intensity, environmental attributes, and regional economic development levels－the study deepens the understanding of ESG's inhibitory effect on excess compensation under diverse conditions, aiding regulators and firms in tailoring ESG policies.

Fourth, enriching research on the economic consequences of excessive executive compensation. From a sustainability perspective, the study explores the interplay among ESG responsibility fulfillment, excessive executive compensation, and executive pay-performance sensitivity, contributing to the optimization of corporate compensation systems and the enhancement of contract effectiveness.

The remainder of this article is organized as follows: the second part is theoretical analysis and hypothesis, the third part is research design, the fourth part is empirical analysis, the fifth part is mechanism analysis, the sixth part is heterogeneity and further analysis, and the seventh part is conclusions and policy recommendations.

2   Theoretical analysis and research hypotheses

ESG is critical for firms to achieve sustainable development goals. As companies integrate ESG principles into strategic decision-making and operational processes during ESG responsibility fulfillment, their internal governance mechanisms are progressively refined. Concurrently, with the deepening adoption of ESG principles, capital market participants and the public have increasingly focused on corporate ESG practices, leading to shifts in firms' external governance environments. Can ESG responsibility fulfillment suppress managers' excess compensation by enhancing internal and external governance capabilities?

2.1 ESG responsibility fulfillment and executive excess compensation

The inherent demands of stakeholder theory compel corporations to regulate excessive executive compensation during ESG responsibility fulfillment (Freeman, 1984). First, widening pay disparity significantly impacts employees' perceptions of organizational fairness (D'Mello et al., 2024). When executives obtain excessive compensation, imbalanced remuneration distribution within organizations triggers relative deprivation among employees. Such negative emotions reduce work engagement and increase turnover intentions, ultimately impairing operational efficiency (Green and Zhou, 2019). Firms with superior ESG ratings typically prioritize employee rights protection (Dube and Zhu, 2021), with their human resource policies emphasizing internal equity, which institutionally imposes rigid constraints on managerial compensation.

Second, ESG responsibility fulfillment facilitates corporate reputation capital accumulation (Fombrun, 2005). As corporations cultivate a "socially responsible" image through ESG implementation, their conduct faces heightened ethical constraints (Godfrey, 2005). Excessive executive compensation is perceived as unfair and unjust, provoking public outrage (Gabaix and Landier, 2008; Li and Shen, 2013). In the digital era, excessive executive compensation may trigger ethical scrutiny, leading rapid depreciation of reputational capital (Aguilera et al., 2015). Consequently, firms with superior ESG performance demonstrate stronger motivation to maintain social image through compensation self-discipline, thereby avoiding stakeholder trust crises induced by pay-related scandals (Devers et al., 2007).

The effectiveness of internal and external oversight mechanisms fundamentally constrains executives' ability to appropriate excessive compensation. ESG responsibility

fulfillment significantly improves corporate information environments and governance quality, thereby enhancing the monitoring capacity of internal and external oversight mechanisms over managerial opportunism. In internal oversight, ESG disclosure and assurance enhance corporate information transparency (Clarkson et al., 2019), diminishing executives' informational advantages, while boards leverage sufficient and accurate information to strengthen supervision and rectify unreasonable compensation schemes (Cheng et al., 2015). Through ESG implementation, firms continuously optimize internal governance mechanisms such as improved internal controls (Li et al., 2024), which constrain rent-seeking opportunities. Externally, ESG commitment attracts scrutiny from media, ESG rating agencies, and regulators, generating institutional pressures through public opinion, ESG benchmarking, and regulatory accountability to compel firms and executives to reduce opportunistic behaviors (Chen et al., 2021; Core et al., 2008). Based on the arguments presented above, we propose the following hypothesis:

H1: *ESG responsibility fulfillment effectively curbs excessive executive compensation.*

2.2 ESG responsibility fulfillment, information transparency and excessive executive compensation

In corporate governance theory, information asymmetry is a key factor contributing to managers' excess compensation. The effectiveness of designing and executing managerial compensation contracts relies on the adequacy and reliability of information available to the board. However, compared to shareholders, boards, and other stakeholders, managers inherently possess informational advantages regarding corporate operations, making it difficult for boards to accurately assess earnings quality or the alignment between managerial effort and compensation. Under information asymmetry, managers may exploit earnings management or exaggerate their contributions to extract excess compensation. In terms of information transmission, ESG responsibility fulfillment enhances corporate information transparency, mitigates information asymmetry between compensation committees and managers, and enables boards to evaluate managerial contributions more objectively. This reduces "noise" in compensation contracts, thereby curbing excess compensation.

First, during ESG responsibility fulfillment, firms disclose ESG-related information voluntarily or due to regulatory requirements. The increased disclosure of non-financial information improves stakeholders' understanding of corporate activities and provides additional data sources for boards to assess managerial effort and performance. Second, external oversight pressures drive firms to improve both the quantity and quality of ESG disclosures. While ESG reports are often voluntary, their credibility has been questioned (Wang, 2023). Regulatory bodies are strengthening ESG disclosure requirements, and ESG rating agencies verify corporate ESG data, creating external pressure for firms to adhere to reporting standards and enhance disclosure reliability. In most cases, firms with higher ESG responsibility fulfillment levels follow ESG reporting guidelines more rigorously (Darnall et al., 2022). Third, ESG responsibility fulfillment improves the quality of financial disclosures. Consistency between ESG and financial reporting enhances credibility: firms adhering to ESG disclosure standards are more likely to comply with financial reporting rules, reducing opportunistic behaviors such as earnings management (Kim and Park et al., 2012; Rezaee and Tuo, 2019), thereby boosting the reliability of financial information.

With more comprehensive and reliable information, boards and compensation committees can better evaluate managerial effort and performance, reducing "noise" unrelated to effort in compensation contracts (Holmström, 1979), which suppresses

excess compensation. Based on the arguments presented above, we propose the following hypothesis:

H2: *ESG responsibility fulfillment curbs excessive executive compensation by enhancing information transparency.*

2.3 ESG responsibility fulfillment, managerial power and excessive executive compensation

In corporate governance theory, managerial power is another critical factor driving excess compensation. The managerial power theory posits that excess compensation arises when managers exploit their authority and influence to manipulate compensation contracts, extracting rewards beyond fair negotiation at the expense of investors (Bebchuk et al., 2002; Bebchuk and Fried, 2003). Excess compensation thus reflects managerial power. However, during ESG responsibility fulfillment, firms refine governance structures and internal mechanisms to restrict managers' influence beyond contractual control rights, thereby curbing excess compensation.

First, shareholders intensify oversight of managerial short-termism during ESG implementation. To prevent managers from prioritizing short-term profits over ESG investments (Meng and Wang, 2019), shareholders proactively monitor opportunistic behavior (Jin et al., 2015). Second, firms with strong ESG performance attract long-term-oriented institutional investors (Dimson et al., 2015; Ye and Wang, 2024). Leveraging their informational advantages and expertise, institutional investors constrain managerial self-interest (Hartzell and Starks, 2003) and dilute executive control (Chen and Liu, 2019). Third, robust internal control systems—a cornerstone of ESG development (Li and Yang et al., 2024)—establish checks and balances to limit managerial power (Chen and Liu, 2019). Finally, as ESG practices deepen and information transparency improves, broader stakeholder participation in oversight further restricts managers' ability to exploit power for rent-seeking. Thus, ESG responsibility fulfillment suppresses managers' excess compensation by constraining managerial power. Based on the arguments presented above, we propose the following hypothesis:

H3: *ESG responsibility fulfillment curbs excessive executive compensation by constraining managerial power.*

2.4 ESG responsibility fulfillment, media attention and excessive executive compensation

As a critical information channel in modern society, media has become a primary source for stakeholders to access corporate information. When ESG responsibility fulfillment emerges as a governance issue of broad societal concern, the media increases its focus on corporate ESG practices, creating a magnifying effect for exemplary ESG behaviors by highlighting "benchmark cases," thereby responding to societal expectations for corporate ESG responsibility fulfillment. Zhou and Yuan (2023) find that firms with stronger ESG performance attract greater media attention and positive coverage, indicating a positive correlation between ESG responsibility fulfillment and media attention.

Moreover, media acts as an external monitor by investigating and disseminating information (Zhao et al., 2023), reducing financial restatements, earnings manipulation, excessive executive compensation, and perks consumption (Luo, 2018), while increasing the likelihood of rectifying misconduct (Liu and McConnell, 2013). For instance, Vergne et al. (2018) demonstrate that media criticism of CEO excess compensation leads to subsequent pay adjustments. Media exposure also prompts regulatory bodies, such as the Ministry of Ecology and Environment and the China Securities Regulatory Commission, to investigate and impose sanctions (Chen et al., 2021), further constraining managerial rent-seeking and curbing excess compensation (Liu and Bai, 2021; Deng and Chen, 2023). Based on the arguments presented above, we propose the following hypothesis:

H4: *ESG responsibility fulfillment curbs excessive executive compensation by attracting media attention.*

2.5 ESG responsibility fulfillment, analyst focus and excessive executive compensation

ESG reports provide investors with a non-financial evaluation framework for assessing listed companies, reflecting their future performance (Lys et al., 2015; Qiu et al., 2016). Interpreting ESG reports and analyzing corporate ESG performance help analysts understand firms' current profitability and future sustainability, improving forecast accuracy. Firms with higher ESG responsibility fulfillment, due to stronger environmental and social commitments, robust governance mechanisms, and sustainable development capabilities, attract greater analyst attention.

Analysts, as vital information intermediaries in capital markets, play a role in standardizing corporate disclosures, reducing information manipulation (e.g., earnings management (Yu, 2008) and withholding negative information (Kim et al., 2019), enhancing disclosure quality, and alleviating information asymmetry between stakeholders and managers (Jensen and Meckling., 1976). Through information mining and interpretation, analysts are more likely to detect managerial misconduct (Dyck et al., 2010), pressuring managers while strengthening corporate constraints on managerial self-serving behaviors, thereby limiting excess compensation (Chen et al., 2015). Based on the arguments presented above, we propose the following hypothesis:

H5: *ESG responsibility fulfillment curbs excessive executive compensation by increasing analyst focus.*

Based on the above hypotheses and analysis, a theoretical model of all hypotheses is presented in Figure 1.
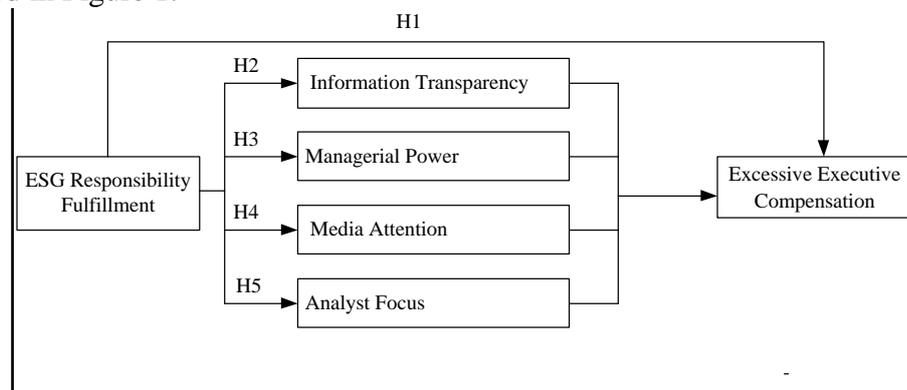

Figure 1: The theoretical model

3　　　Research Design

3.1 Sample selection and data sources

Our initial sample includes Chinese A-share listed firms from 2009 to 2022. We obtain ESG data from the WIND database, and financial and corporate governance data from the China Securities Markets and Accounting Research (CSMAR) database. To ensure the reliability of the study, we delete: i) financial and insurance companies; ii) insolvent companies; iii) ST, ST* and PT firms; iv) firm-year observations with missing key Variables or control Variables. To avoid the impact of extreme values on the primary findings, we winsorize all continuous variables at the 1st and 99th percentiles. Ultimately, we have a total of 27,671 firm-year observations from 3,975 firms.

3.2 Key Variables

3.2.1 Independent variable

ESG Responsibility Fulfillment (*ESG*): We measure ESG responsibility fulfillment using the ESG index developed by Sino-Securities Index Information

Service (Shanghai) Co. Ltd. for all listed firms in China (Lin et al., 2021; Xie and Lv, 2022). The ESG ratings consist of nine tiers: C, CC, CCC, B, BB, BBB, A, AA, and AAA, where AAA represents the highest level of ESG responsibility fulfillment and C the lowest. Listed companies' ESG ratings are assigned numerical values from 1 to 9, with 1 corresponding to the lowest (C) and 9 to the highest (AAA).

3.2.2 Dependent variable

Excessive executive Compensation (*Excess*): We measure managers' excess compensation as the difference between their actual compensation and expected compensation. Drawing on Xin et al. (2007), Core et al. (2008), Cai et al. (2018), we develop Model (1) and Model (2). Model (1) was regressed with sample data to obtain the expected pay of managers (*expectedpay*)，while Model (2) derives non-predicted compensation (i.e., Excessive executive compensation) by subtracting expected compensation from actual compensation.

$$Lnpay_{i,t} = \alpha_0 + \alpha_1 Lnpay_{i,t-1} + \alpha_2 Roa_{i,t} + \alpha_3 Roa_{i,t-1} + \alpha_4 LnSize_{i,t} + \alpha_5 LnSale_{i,t} + \alpha_6 Lev_{i,t} + \alpha_7 Intan_{i,t} + \alpha_8 TobinQ_{i,t} + \alpha_9 District_{i,t} + \sum Year + \sum Industry + \varepsilon_{i,t}$$

$$Lnpay_{i,t} = \alpha_0 + \alpha_1 Lnpay_{i,t-1} + \alpha_2 Roa_{i,t} + \alpha_3 Roa_{i,t-1} + \alpha_4 LnSize_{i,t} + \alpha_5 LnSale_{i,t} + \alpha_6 Lev_{i,t} + \alpha_7 Intan_{i,t} + \alpha_8 TobinQ_{i,t} + \alpha_9 District_{i,t} + \sum Year + \sum Industry + \varepsilon_{i,t} \quad (1)$$

$$Excess_{i,t} = Lnpay_{i,t} - Lnexpectedpay_{i,t} \quad (2)$$

where *Lnpay* is the natural logarithm of the total compensation of the top three executives, *Lnexpectedpay* is calculated through model (1), Roa is the return on assets, *LnSize* is the natural logarithm of total assets, *Lnsale* is the natural logarithm of sales revenue, *Lev* is leverage ratio , *Intan* is the ratio of intangible assets to total assets, *TobinQ* is market-to-book ratio, *District* is regional dummy variable, coded as 1 if the company is registered in central or western China, otherwise 0. Additionally, to assess the impact of ESG responsibility fulfillment on the likelihood of managers obtaining excess compensation, we define a dummy variable *Excess_dum*, coded as 1 if *Excess* > 0 (indicating excess compensation) and 0 otherwise. A more significant inhibitory effect of ESG responsibility fulfillment on excess compensation corresponds to a lower likelihood of managers obtaining excess compensation.

3.2.3 Mechanism variables

This study includes four mechanism variables: Information Transparency (*Trans*), Managerial Power (*Power*), Media Attention (*Media*) and Analyst Focus (*AF*).

Information Transparency (*Trans*): Following Xin et al. (2014), we construct a composite index based on five indicators: earnings quality, disclosure evaluation scores, analyst coverage, analyst forecast accuracy, and whether a Big Four auditor is hired. Higher values of Trans indicate greater information transparency.

Managerial Power (*Power*): Following Liu et al. (2019), we measure Power using a composite index derived via principal component analysis (PCA) from five indicators: CEO tenure, CEO duality, board size, proportion of inside directors, and managerial shareholding. Higher values of Power reflect stronger managerial authority.

Media Attention (*Media*): Following Dai et al. (2011), Media is measured as the natural logarithm of the number of news media reports plus 1.

Analyst Focus (*AF*): Following Chen et al. (2024), AF is measured by the natural logarithm of the number of analysts following plus 1.

3.2.4 Control variables

Following prior studies (Vergne et al., 2018; Liu et al., 2019; Hu et al., 2022), we include a series of control variables: return on assets (*Roa*), firm size (*LnSize*), Leverage ratio (*Lev*), growth opportunity (*Growth*), CEO duality (*Dual*), ownership concentration (*Top1*), board size (Board), proportion of independent directors (Independ), managerial shareholding (*MShare*), firm ownership (*Soe*), and *TobinsQ*. Table 1 describes the variables.

Table 1: Variable definitions

Variables	Variable name	Description of variables
Excess	Excessive Executive Compensation	Calculated with Model (1) and (2)
Excess_dum	Whether Executives Obtain Excess Compensation	Coded as 1 if Excess > 0, and 0 otherwise
ESG	ESG Responsibility Fulfillment	Assign values 1-9 to C, CC, CCC, B, BB, BBB, A, AA, and AAA in ascending order
Roa	Profitability	Return on assets
LnSize	Firm Size	The natural logarithm of total assets
Lev	Leverage Ratio	Total liabilities divided by total assets
Growth	Growth Opportunity	The growth rate of the company's operating income
Dual	CEO Duality	The chairman who concurrently serves as general manager is assigned a value of 1, otherwise 0
Top1	Ownership Concentration	The shareholding ratio of the largest shareholder
Board	Board Size	Total number of members of the Board of Directors
Independ	Proportion of Independent Directors	The percentage of independent directors on the board
Mshare	Managerial Shareholding	Number of shares held by the manager/total number of shares
Soe	Firm Ownership	State-owned enterprises are assigned 1, otherwise assigned 0
TobinsQ	Firm Market Value	Market value/total assets
Trans	Information Transparency	Composite index constructed from five indicators, including earnings quality, disclosure evaluation scores, and others.
Power	Managerial Power	Composite index constructed from five indicators, including CEO tenure, board size, and others.
Media	Media Attention	The natural logarithm of the number of media report plus 1
AF	Analyst Focus	The natural logarithm of the number of analysts following plus 1

3.3 Model construction

To examine the relationship between ESG responsibility fulfillment and excessive executive compensation, we employ panel fixed-effect regression, controlling firm and year fixed effects, and the model is constructed as follows:

$$Excess_{i,t+1}/Excess\_dum_{i,t+1} = \alpha_0 + \alpha_1 ESG_{i,t} + \sum Controls + \gamma_i + \delta_t + \varepsilon_{i,t} \qquad (3)$$

In the model, to account for the lagged effects of ESG on excessive executive compensation, *Excess* and *Excess_dum* are measured at period t+1. i denotes firm and t denotes year, γi and δt represent the firm and year fixed effects, respectively. The focus of this analysis is on the sign and significance of the estimated coefficient $\alpha 1$, which reflects the impact of ESG responsibility fulfillment on excessive executive compensation.

In addition to the baseline regression, this study specifies Model (4) to test the mechanisms:

$$Mechanism_{i,t+1} = \alpha_0 + \alpha_1 ESG_{i,t} + \sum Controls + \gamma_i + \delta_t + \varepsilon_{i,t} \qquad (4)$$

3.4 Descriptive statistics

Table 2 presents the descriptive statistics of the main variables. The excessive executive compensation (*Excess*) ranges from a minimum of -0.745 to a maximum of 0.911, with a mean value of 0.001, median value of -0.019, and standard deviation of 0.265. While some firms exhibit actual compensation below expected levels, nearly half of the sample shows positive excess compensation (mean of *Excess_dum* = 0.466), indicating a wide and heterogeneous distribution.

The mean value of ESG is 4.151, ranging from 1 (minimum) to 8 (maximum), with a median of 4 and standard deviation of 1.074. Most firms in the sample fall within the B-tier ESG ratings (B, BB, or BBB), while A-tier ratings (A, AA, or AAA) are less common, and no firms received an AAA ESG rating during the sample period. The distributions of other control variables align with mainstream literature.

Table 2: Descriptive statistics

Variables	N	Mean	SD	Min	p25	p50	p75	Max
Excess	27671	0.001	0.265	-0.745	-0.155	-0.019	0.137	0.911
Excess_dum	27671	0.466	0.499	0	0	0	1	1
ESG	27671	4.151	1.074	1	4	4	5	8
Roa	27671	0.046	0.068	-1.859	0.0170	0.041	0.074	0.969
LnSize	27671	22.21	1.265	19.12	21.30	22.03	22.93	25.96
Lev	27671	0.422	0.200	0.053	0.262	0.417	0.574	0.884
Growth	27671	0.181	0.384	-0.597	-0.006	0.120	0.284	2.499
Dual	27671	0.277	0.448	0	0	0	1	1
Top1	27671	34.27	14.79	8.750	22.77	32.07	44.20	75.25
Board	27671	10.07	2.518	5	9	9	11	18
Independ	27671	0.382	0.073	0.167	0.333	0.364	0.429	0.600
Mshare	27671	0.074	0.139	0	0	0.002	0.075	0.602
Soe	27671	0.358	0.479	0	0	0	1	1
TobinsQ	27671	2.042	1.246	0.867	1.256	1.640	2.348	7.913

4 Empirical Results and Analysis

4.1 Baseline Regressions

Table 3 presents the regression results examining the relationship between ESG responsibility fulfillment and excessive executive compensation. Columns (1) and (2) report results without control variables, while Columns (3) and (4) include control variables. Across all columns (1) – (4), the coefficient of *ESG* is significantly negative at

the 1% level, indicating that corporate ESG responsibility fulfillment suppresses managers' excess compensation, thereby supporting Hypothesis H1. This empirical finding demonstrates that ESG responsibility fulfillment helps mitigate agency conflicts. The results in Columns (3) and (4) reveal that higher financial performance, greater financial leverage, higher shareholding ratios of major shareholders, and increased managerial shareholding are associated with lower levels of excess compensation, consistent with prior studies (Quan et al., 2010; Luo et al., 2014; Liu et al., 2019; Hu et al., 2022).

Table 3: Baseline Regressions: ESG responsibility fulfillment and excessive executive compensation

Variables	(1) Excess	(2) Excess_dum	(3) Excess	(4) Excess_dum
ESG	-0.010***	-0.014***	-0.009***	-0.011***
	(-4.761)	(-3.706)	(-4.196)	(-2.924)
Roa			-0.103***	-0.239***
			(-3.113)	(-3.917)
LnSize			-0.002	-0.011
			(-0.428)	(-1.255)
Lev			-0.044**	-0.029
			(-2.357)	(-0.828)
Growth			0.033***	0.039***
			(7.103)	(4.610)
Dual			0.005	0.012
			(0.751)	(1.075)
Top1			-0.001**	-0.001**
			(-2.106)	(-2.340)
Board			0.002**	0.002
			(2.225)	(1.441)
Independ			-0.047*	-0.078
			(-1.672)	(-1.522)
Mshare			-0.126***	-0.201***
			(-4.500)	(-3.925)
Soe			-0.019	-0.051**
			(-1.515)	(-2.235)
TobinsQ			0.001	-0.005
			(0.663)	(-1.291)
_cons	0.051***	0.525***	0.144	0.864***
	(4.289)	(24.244)	(1.445)	(4.717)
N	27671	27671	27671	27671
r2	0.251	0.285	0.254	0.287
code	Yes	Yes	Yes	Yes
year	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.

4.2 Robustness Tests

4.2.1 Endogeneity

(1) Instrumental Variable Approach

Our findings suggest that ESG responsibility fulfillment suppresses managers' excess compensation. However, it is important to note that ESG investment increases short-term

costs and reduces corporate performance (Meng and Wang, 2019). Therefore, under the higher pay-performance sensitivity, executives are likely to engage in no or less ESG responsibility fulfilment to prevent declines in compensation due to reduced performance. Conversely, if managers receive sufficient compensation or incentives from ESG responsibility fulfillment, they are more likely to prioritize ESG initiatives. This implies potential reverse causality between ESG responsibility fulfillment and excessive executive compensation. Existing studies predominantly employ industry- or region-average ESG Responsibility Fulfillment levels as instrumental variables for firm-specific ESG performance (Breuer et al., 2018), as focal firms' ESG practices are significantly influenced by peers within the same region or industry (Wu et al., 2023; Yang et al., 2023). When regional or industry peers exhibit superior ESG Responsibility Fulfillment, focal firms tend to enhance their own ESG efforts due to peer effects. However, peers' ESG responsibility fulfilment levels do not directly affect focal firms' managerial excess compensation. Following Breuer et al. (2018), we adopt the annual city-average ESG rating (*ESGmean*) as the IV, which satisfies the relevance and exogeneity assumptions.

Columns (1) and (2) in Table 4 present the 2SLS regression results. Column (1) reports the first-stage regression results, where the coefficient of *ESGmean* is significantly positive at the 1% level, confirming the relevance of the instrumental variable. The F-statistic of the weak instrument test exceeds the critical value of 16.380, indicating no weak instrument problem exists. Column (2) reports the second-stage regression results. The coefficient of *ESG* is significantly negative at the 1% level, indicating that the regression results are still robust after addressing endogeneity concerns arising from reverse causality.

(2) Heckman Two-Stage Approach

Prior to conducting the empirical tests, we conduct a series of sample exclusions. The exclusion of certain firms from the empirical tests may result in sample selection bias, and we employ the Heckman two-stage approach to address potential sample selection bias. In the first stage, we construct a dummy variable (*ESG_dum*) based on the annual industry-average ESG Responsibility Fulfillment. *ESG_dum* equals 1 if a firm's ESG Responsibility Fulfillment exceeds the annual industry average, and 0 otherwise. A Probit regression is then estimated with *ESG_dum* as the dependent variable and all control variables from Model (3) as explanatory variables to calculate the inverse Mills ratio (*Imr*). In the second stage, the estimated *Imr* from the first stage is incorporated as an additional explanatory variable in Model (3) for regression analysis. As shown in Column (3) (first-stage) and Column (4) (second-stage) of Table 4, the coefficient of *Imr* is insignificant, while the coefficient of *ESG* remains significantly negative at the 1% level, consistent with the baseline regression results.

(3) Propensity Score Matching Test

Table 4: Endogeneity

	IV		Heckman		PSM
	(1)	(2)	(3)	(4)	(5)
Variables	ESG	Excess	ESG_dum	Excess	Excess
ESGmean	0.865***		0.125**		
	(54.256)		(2.051)		
ESG		-0.020***		-0.009***	-0.009***
		(-3.072)		(-4.168)	(-3.356)
Roa	0.458***	-0.098***	-0.685***	-0.106**	-0.061
	(4.787)	(-2.925)	(-3.018)	(-2.491)	(-1.339)
LnSize	0.246***	0.001	0.315***	-0.001	0.001
	(18.366)	(0.167)	(14.661)	(-0.054)	(0.186)

Lev	-0.831***	-0.054***	-0.336***	-0.046*	-0.075***
	(-15.406)	(-2.761)	(-2.774)	(-1.929)	(-2.983)
Growth	-0.022	0.032***	-0.033	0.033***	0.032***
	(-1.638)	(7.044)	(-1.011)	(6.774)	(5.290)
Dual	-0.102***	0.003	-0.008	0.005	0.012
	(-5.789)	(0.565)	(-0.190)	(0.742)	(1.565)
Top1	0.005***	-0.001*	-0.006***	-0.001*	-0.000
	(6.362)	(-1.882)	(-2.855)	(-1.782)	(-1.301)
Board	-0.019***	0.002*	-0.003	0.002**	0.002*
	(-7.528)	(1.947)	(-0.509)	(2.186)	(1.754)
Independ	0.436***	-0.041	-0.546***	-0.049	-0.047
	(5.421)	(-1.473)	(-2.967)	(-1.373)	(-1.383)
Mshare	0.613***	-0.119***	-0.442**	-0.128***	-0.120***
	(7.637)	(-4.227)	(-2.313)	(-3.831)	(-3.172)
Soe	0.082**	-0.018	0.176**	-0.018	-0.032**
	(2.270)	(-1.440)	(2.143)	(-1.275)	(-2.026)
TobinsQ	0.003	0.001	-0.014	0.001	-0.000
	(0.544)	(0.659)	(-1.064)	(0.601)	(-0.149)
Imr				0.017	
				(0.108)	
_cons	-4.594***	0.130	1.693***	0.116	0.097
	(-15.669)	(1.299)	(27.000)	(0.421)	(0.722)
N	27671	27671	27671	27671	18584
r^2/Pseudo r^2	0.692	0.253	0.0418	0.254	0.297
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.

Some firms may withhold ESG-related information due to firm-specific motives or market competition (Falchi et al., 2022), preventing ESG rating agencies from accurate assessments and potentially introducing self-selection bias. To mitigate endogeneity from sample self-selection, this study employs the Propensity Score Matching (PSM) test for robustness checks. Using *ESG_dum* as the dependent variable and all control variables from Model (3) as explanatory variables, we estimate a Logit model to calculate propensity scores. A 1:1 nearest-neighbor matching with a caliper of 0.05 is applied to match treated and control groups, yielding 18,584 matched observations. Regression results based on the matched sample (Column (5) of Table 4) show the coefficient of *ESG* remains significantly negative at the 1% level, consistent with baseline findings.

4.2.2 Other Robustness Test

(1) Alternative the measurement of the dependent variable

This study recalculates excessive executive compensation by replacing the natural logarithm of the total compensation of the top three executives with two alternative measures: the natural logarithm of the sum of all executives' compensation (*Excess_sum*) and the natural logarithm of the highest executive compensation (*Excess_top1*). Columns (1) and (2) of Table 5 show that the coefficient of *ESG* remains significantly negative at the 1% level when using *Excess_sum* and *Excess_top1*, consistent with the baseline results.

(2) Alternative the measurement of independent variable

Following the methodology of Gao et al. (2021), this study constructs an alternative explanatory variable ESG_2 using a different coding scheme. ESG_2 is assigned a value of 1 when the Sino-Securities ESG rating falls within C to CCC, 2 for B to BBB, and 3 for A to AAA. Re-estimating the regression with ESG_2 yields results shown in Column (3) of Table 5: the coefficient of ESG_2 remains significantly negative at the 1% level, consistent with prior findings.

Table 5: Other Robustness Test

Variables	(1)	(2)	(3)	(4)	(5)
	Alternative the measurement of the dependent variable		Alternative the measurement of the independent variable	Excluding COVID-19 impact	Excluding pay cap effects
	Excess_sum	Excess_top1	Excess	Excess	Excess
ESG	-0.009***	-0.011***		-0.011***	-0.009***
	(-3.684)	(-4.584)		(-4.596)	(-3.951)
ESG$_2$			-0.019***		
			(-4.110)		
Roa	-0.109***	-0.117***	-0.104***	-0.039	-0.099***
	(-2.914)	(-3.044)	(-3.131)	(-0.981)	(-2.838)
LnSize	-0.008	-0.001	-0.003	-0.000	-0.004
	(-1.442)	(-0.106)	(-0.546)	(-0.056)	(-0.761)
Lev	-0.056***	-0.051**	-0.042**	-0.049**	-0.045**
	(-2.627)	(-2.337)	(-2.260)	(-2.200)	(-2.238)
Growth	0.037***	0.036***	0.033***	0.026***	0.037***
	(7.088)	(6.773)	(7.094)	(5.057)	(7.301)
Dual	0.009	0.001	0.005	0.002	0.008
	(1.243)	(0.142)	(0.808)	(0.230)	(1.223)
Top1	-0.001*	-0.001**	-0.001**	-0.000	-0.001**
	(-1.690)	(-2.089)	(-2.181)	(-0.918)	(-2.074)
Board	-0.006***	0.002**	0.002**	0.003***	0.002*
	(-6.357)	(2.148)	(2.294)	(2.595)	(1.931)
Independ	0.018	-0.056*	-0.049*	-0.040	-0.048
	(0.559)	(-1.724)	(-1.759)	(-1.233)	(-1.609)
Mshare	-0.165***	-0.142***	-0.126***	-0.118***	-0.123***
	(-5.226)	(-4.396)	(-4.522)	(-3.573)	(-4.160)
Soe	0.003	-0.024*	-0.019	-0.012	-0.018
	(0.208)	(-1.667)	(-1.518)	(-0.766)	(-1.359)
TobinsQ	0.000	0.002	0.001	-0.001	0.002
	(0.171)	(0.945)	(0.625)	(-0.543)	(0.788)
_cons	0.314***	0.136	0.154	0.098	0.183*
	(2.789)	(1.186)	(1.540)	(0.804)	(1.729)
N	27671	27671	27671	21488	24535
r2	0.235	0.230	0.254	0.272	0.268
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.

(3) Excluding the impact of the COVID-19 pandemic

The sample period of this study spans 2009-2022. The COVID-19 pandemic outbreak in early 2020 substantially impacted corporate economic activities for an extended period, causing significant fluctuations in firm performance. Given the strong linkage between executive compensation and performance, the pandemic likely distorted excessive executive compensation. To mitigate potential bias from these abnormal compensation fluctuations, we exclude observations from 2020-2022 and re-estimate Model (3) using the 2009-2019 subsample. As shown in Column (4) of Table 5, the coefficient of *ESG* remains significantly negative at the 1% level, aligning with prior results.

(4) Excluding the impact of the compensation restriction policy

In response to frequent incidents of "sky-high pay" in Chinese state-owned enterprises (SOEs), the Chinese government introduced pay restriction policies for central SOE executives in 2009 and 2014, which took effect in 2010 and 2015, respectively. These "pay caps" generated substantial spillover effects on private firms (Wei et al., 2022). The implementation of these policies significantly curbed executive rent extraction (Yang et al., 2018). Given that the pay restrictions differentially impacted both SOEs and private enterprises' executive compensation, potentially biasing our findings, we exclude observations in 2010 and 2015 and re-estimate Model (3). As shown in Column (5) of Table 5, the coefficient of *ESG* remains significantly negative at the 1% level, consistent with baseline results.

5 Mechanism Analysis

Although this study has theoretically and empirically verified the inhibitory effect of corporate ESG Responsibility Fulfillment on excessive executive compensation, the intrinsic causal mechanisms between ESG Responsibility Fulfillment and excessive executive compensation untested through rigorous empirical methods. We therefore conduct mechanism tests to disentangle these underlying pathways.

5.1 Information Transparency

In the process of ESG Responsibility Fulfillment, firms disclose ESG-related information voluntarily or under regulatory mandates, which enhances both the quantity and quality of financial and non-financial disclosures, thereby improving corporate information transparency. Column (1) of Table 6 shows that the coefficient of *ESG* is significantly positive at the 1% level, indicating that higher ESG Responsibility Fulfillment corresponds to greater information transparency. As transparency increases, boards and compensation committees can more accurately assess managerial effort and performance outcomes using more comprehensive and reliable information, thereby reducing "noise" unrelated to managerial effort in compensation contracting (Holmstrom, 1979). This mechanism effectively curbs excessive executive compensation, thus validating Hypothesis H2.

5.2 Managerial Power

The ESG framework emphasizes constraints on managerial power to prevent excessive power concentration. As shown in Column (2) of Table 6, the coefficient of *ESG* is significantly negative at the 1% level, indicating that higher ESG Responsibility Fulfillment strengthens constraints on managerial power. With constrained power, executives face reduced opportunities to manipulate compensation contracting and

engage in earnings management for rent extraction, thereby curbing excessive executive compensation (Chen and Liu, 2019b). Hypothesis H3 is thus validated.

5.3 Media Attention

Firms with higher ESG Responsibility Fulfillment typically possess stronger reputational capital, attracting greater media attention. Column (3) of Table 6 reveals that superior ESG performance significantly increases media attention at the 1% level. By serving as external monitors through information discovery and dissemination, media outlets prompt firms to strengthen oversight of executive rent extraction to safeguard corporate reputation, thereby curbing excessive executive compensation (Zhao et al., 2023). Hypothesis H4 is thus validated.

5.4 Analyst Focus

Firms with higher ESG Responsibility Fulfillment levels, due to their enhanced environmental stewardship, social accountability, robust governance mechanisms, and stronger sustainable development capabilities, attract greater analyst focus. As shown in Column (4) of Table 6, superior ESG performance significantly increases analyst focus. By reducing information asymmetry between stakeholders and executives and amplifying external monitoring pressures, analyst focus constrains excessive executive compensation (Chen et al., 2015). Hypothesis H5 is thus validated.

Table 6: Mechanism Test

Variables	(1) Trans	(2) Power	(3) Media	(4) AF
ESG	0.009***	-0.012***	0.035***	0.040***
	(10.417)	(-3.149)	(5.826)	(6.949)
Roa	0.331***	0.004	0.450***	2.350***
	(23.719)	(0.067)	(4.864)	(26.321)
LnSize	0.053***	0.070***	0.180***	0.395***
	(27.136)	(8.245)	(13.770)	(31.352)
Lev	-0.021***	0.058*	-0.001	-0.405***
	(-2.649)	(1.684)	(-0.021)	(-8.008)
Growth	0.014***	-0.006	0.021	0.159***
	(7.077)	(-0.683)	(1.634)	(12.845)
Dual	0.004	-0.351***	-0.065***	0.029*
	(1.415)	(-31.624)	(-3.828)	(1.767)
Top1	-0.000	-0.003***	0.000	0.003***
	(-0.628)	(-5.428)	(0.340)	(3.248)
Board	-0.002***	0.047***	-0.003	-0.005**
	(-4.351)	(29.271)	(-1.098)	(-2.031)
Independ	0.029**	-1.387***	-0.051	0.074
	(2.500)	(-27.373)	(-0.651)	(0.983)
Mshare	0.030***	-0.894***	0.383***	0.619***
	(2.583)	(-17.650)	(4.919)	(8.254)
Soe	-0.010*	0.223***	-0.148***	-0.260***
	(-1.833)	(9.832)	(-4.263)	(-7.745)
TobinsQ	0.020***	0.012***	0.075***	0.174***
	(22.898)	(3.153)	(12.711)	(30.757)
_cons	-0.889***	-1.176***	-0.540*	-7.084***
	(-21.218)	(-6.499)	(-1.944)	(-26.460)
N	27671	27671	27671	27671
r2	0.752	0.817	0.815	0.737

| code | Yes | Yes | Yes | Yes |
| year | 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 Heterogeneity Analysis and Further Analyses

6.1 Heterogeneity Analysis

6.1.1 Heterogeneity Analysis Based on Firm Operational Performance

Disparities in operational performance may influence firms' capacity to assume ESG responsibilities, particularly regarding voluntary ESG commitments (Jiang, 2024). High-performing firms can allocate more resources to ESG Responsibility Fulfillment, yielding more pronounced governance effects.

Accordingly, this study categorizes firms into high versus low operational performance groups based on the year-over-year change in Return on Assets (ROA)—calculated as current-period ROA minus prior-period ROA. Grouped regressions are estimated using Model (3).

Columns (1) and (2) of Table 7 reveal that ESG's governance effect on excessive executive compensation is statistically significant only in the profit-increasing subsample. This indicates that firms with superior operational performance exhibit stronger ESG implementation capacity, resulting in more significant ESG governance efficacy.

6.1.2 Heterogeneity Analysis Based on the Degree of Industry Competition

The external business environment may influence corporate operations and financing decisions, thereby affecting the relationship between ESG responsibility fulfillment and managers' excess compensation. In highly competitive industries, enterprises face stronger market pressure and resource constraints. To survive in such environments, companies are incentivized to actively implement ESG concepts and substantively advance ESG development. The effectiveness of ESG responsibility fulfillment becomes more pronounced in these contexts, thereby effectively inhibiting managers' excess compensation.

Following the approach of Li et al. (2024), this study uses the Herfindahl Index to measure industry competition intensity. The sample is divided into high-competition and low-competition groups based on the annual median Herfindahl Index, followed by grouped regression analysis using Model (3).

As shown in Columns (3) and (4) of Table 7, the inhibitory effect of ESG on managers' excess compensation is significant only in high-competition industries. This indicates that intense industry competition promotes corporate ESG development, enhances the governance role of ESG responsibility fulfillment, and consequently curbs managers' excess compensation.

6.1.3 Heterogeneity Analysis Based on Corporate Environmental Attributes

Under China's regulatory requirements, listed companies currently adopt a combination of mandatory and voluntary approaches for social responsibility information disclosure. Heavily polluting industries face stricter disclosure regulations and environmental governance constraints. Due to regulatory pressures, firms in these industries are compelled to prioritize environmental conduct and proactively fulfill ESG responsibilities, leading to more pronounced outcomes in ESG responsibility fulfillment.

Table 7: Heterogeneity analysis based on operational performance and industry characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
	Financial performance		**Industry competition**		**Environmental attributes**	
	High	**Low**	**High**	**Low**	**Pollute**	**Non-Pollute**
Variables	**Excess**	**Excess**	**Excess**	**Excess**	**Excess**	**Excess**
ESG	-0.013***	-0.001	-0.013***	-0.002	-0.006	-0.010***
	(-4.073)	(-0.234)	(-4.370)	(-0.705)	(-1.332)	(-3.994)
Roa	-0.205***	-0.171***	-0.184***	-0.028	-0.071	-0.110***
	(-3.199)	(-3.491)	(-3.674)	(-0.538)	(-0.880)	(-2.979)
LnSize	-0.007	0.010	0.007	-0.009	-0.014	0.000
	(-0.988)	(1.408)	(1.093)	(-1.226)	(-1.259)	(0.061)
Lev	-0.060**	-0.051*	-0.089***	-0.013	-0.003	-0.051**
	(-2.181)	(-1.717)	(-3.273)	(-0.440)	(-0.068)	(-2.353)
Growth	0.035***	0.028***	0.029***	0.038***	0.034***	0.034***
	(5.536)	(3.128)	(4.304)	(5.301)	(3.093)	(6.579)
Dual	0.004	0.006	-0.003	0.009	-0.014	0.008
	(0.447)	(0.670)	(-0.304)	(0.949)	(-0.987)	(1.126)
Top1	-0.001	-0.001**	-0.000	-0.001***	-0.001**	-0.000
	(-1.184)	(-2.183)	(-0.195)	(-2.655)	(-2.029)	(-1.235)
Board	0.002	0.002	0.003**	0.001	0.003	0.002*
	(1.432)	(1.331)	(2.164)	(0.558)	(1.447)	(1.729)
Independ	-0.021	-0.026	-0.033	-0.034	0.035	-0.073**
	(-0.501)	(-0.611)	(-0.818)	(-0.758)	(0.574)	(-2.294)
Mshare	-0.111***	-0.120***	-0.107***	-0.098**	-0.070	-0.143***
	(-2.704)	(-2.705)	(-2.593)	(-2.185)	(-1.076)	(-4.573)
Soe	-0.003	-0.038**	-0.018	-0.007	-0.071**	-0.004
	(-0.149)	(-1.997)	(-1.001)	(-0.365)	(-2.232)	(-0.263)
TobinsQ	-0.001	0.004	0.000	0.000	-0.010*	0.003
	(-0.343)	(1.264)	(0.054)	(0.043)	(-1.765)	(1.510)
_cons	0.276*	-0.155	-0.058	0.267*	0.407*	0.092
	(1.844)	(-0.988)	(-0.400)	(1.705)	(1.747)	(0.796)
N	14184	13487	14477	13194	6330	21338
r2	0.374	0.353	0.350	0.363	0.279	0.257
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.

Following the methodologies of Li and Li (2023) and Li et al. (2024), this study categorizes industries such as coal, mining, and textiles as heavily polluting industries, while others are classified as non-polluting industries. The sample is divided accordingly, and grouped regression analysis is conducted using Model (3).

As shown in Columns (5) and (6) of Table 7, the governance effect of ESG on managers' excess compensation is significant only in non-polluting industries. A possible explanation is that stricter external regulations in polluting industries inherently curb the emergence of excess compensation for managers. This finding underscores the importance and necessity of policy constraints, highlighting the effectiveness of external supervision. Meanwhile, ESG responsibility fulfillment can be viewed as an informal environmental supervision mechanism by stakeholders, playing a more substantial role in industries with weaker external regulatory oversight (Hu et al., 2023).

6.1.4 Heterogeneity Analysis Based on Economic Regions

The level of regional economic development serves as a critical external environment for corporate production, operation, and growth. This study therefore categorizes the sample into firms located in eastern, central, western, and northeastern regions based on their economic regions and conducts grouped regression analysis using Model (3).

According to the results in Columns (1)-(4) of Table 8, the inhibitory effect of ESG responsibility fulfillment on managers' excess compensation weakens or even disappears as regional economic development levels decline. A plausible explanation is that in regions with higher economic development, sustainability concepts are more deeply ingrained, firms exhibit stronger motivation to advance ESG responsibility fulfillment, and the effectiveness of ESG responsibility fulfillment becomes more pronounced.

6.2 Further Analyses

Executive pay-performance sensitivity is a critical indicator for assessing the effectiveness of executive compensation contracts (Jensen and Meckling., 1976; Holmström, 1979). Managers may exploit their power and influence to intervene in compensation contracts, extracting excess rewards that exceed their contributions, resulting in a mismatch between their gains and corporate performance and a decline in pay-performance sensitivity. As evidenced by the preceding theoretical analysis and empirical tests, corporate ESG responsibility fulfillment helps curb managers' excess compensation. This raises the question: Does corporate ESG responsibility fulfillment enhance executive pay-performance sensitivity, thereby improving the effectiveness of compensation contracts? This study examines the impact of ESG responsibility fulfillment on executive pay-performance sensitivity based on Model (5).

$$Lnpay_{i,t+1} = \alpha_0 + \alpha_1 Roa_{i,t} + \alpha_2 ESG_{i,t} + \alpha_3 ESG_{i,t} \times Roa_{i,t} + \sum Controls + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (5)$$

The regression results in Column (5) of Table 8 show that the coefficient of $ESG_{i,t} \times Roa_{i,t}$ is significantly positive at the 1% level. Combined with the preceding analysis and empirical findings, this indicates that ESG responsibility fulfillment curbs managers' excess compensation, ensuring that executive compensation aligns with their efforts and corporate performance, thereby enhancing executive pay-performance sensitivity and improving the effectiveness of executive compensation contracts.

Table 8: Heterogeneity analysis based on the economic environment and further analyses

	(1)	(2)	(3)	(4)	(5)
	Regional economic environment				**Pay-for-Performance**
	East	**Central**	**West**	**Northeast**	
Variables	**Excess**	**Excess**	**Excess**	**Excess**	**LnPay**
ESG	-0.007***	-0.013**	-0.011*	-0.020	-0.008***
	(-2.797)	(-2.261)	(-1.739)	(-1.575)	(-2.927)
Roa	-0.152***	-0.129	0.098	0.084	0.724***
	(-3.888)	(-1.213)	(1.094)	(0.425)	(16.193)
ESG*Roa					0.183***
					(6.454)
LnSize	-0.003	0.004	0.002	-0.016	0.240***

	(-0.584)	(0.330)	(0.179)	(-0.711)	(39.572)
Lev	-0.070***	-0.012	-0.020	0.218*	-0.121***
	(-3.134)	(-0.228)	(-0.391)	(1.939)	(-4.983)
Growth	0.032***	0.050***	-0.001	0.075***	0.032***
	(5.651)	(3.916)	(-0.081)	(3.449)	(5.426)
Dual	-0.003	0.051***	-0.012	0.021	0.040***
	(-0.362)	(2.823)	(-0.624)	(0.597)	(5.113)
Top1	-0.001*	0.000	-0.002**	-0.001	-0.001***
	(-1.791)	(0.629)	(-2.056)	(-0.365)	(-2.696)
Board	0.002*	0.000	0.003	0.002	0.005***
	(1.701)	(0.172)	(1.385)	(0.457)	(4.537)
Independ	-0.040	-0.047	-0.043	-0.210	-0.036
	(-1.224)	(-0.588)	(-0.536)	(-1.386)	(-0.991)
Mshare	-0.101***	-0.248***	-0.004	-0.672***	-0.140***
	(-3.248)	(-2.911)	(-0.035)	(-3.331)	(-3.867)
Soe	-0.012	-0.014	-0.065*	-0.037	-0.014
	(-0.796)	(-0.453)	(-1.806)	(-0.625)	(-0.864)
TobinsQ	-0.000	0.001	0.010	-0.002	0.033***
	(-0.014)	(0.142)	(1.551)	(-0.198)	(12.033)
_cons	0.165	0.023	0.066	0.488	8.778***
	(1.354)	(0.083)	(0.231)	(0.986)	(68.093)
N	19078	3780	3632	1180	27671
r2	0.261	0.268	0.253	0.214	0.837
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.

7 Conclusions and Policy Recommendations

7.1 Research Conclusions

As China's economy transitions to a high-quality development stage, actively implementing ESG principles to drive sustainable socio-economic development has become crucial. Through empirical analysis of data from Chinese A-share listed companies from 2009 to 2022, the following conclusions are drawn: Firstly, ESG responsibility fulfillment suppresses excessive executive compensation and mitigates agency conflicts. The conclusions remain robust after a series of robustness tests. Secondly, mechanism analysis reveals that ESG responsibility fulfillment inhibits managers' excess compensation through four channels: improving information transparency, restricting managerial power, attracting media attention, and increasing analyst focus. Thirdly, heterogeneity analysis indicates that the inhibitory effect of ESG on managers' excess compensation is more pronounced in firms with better operational performance, higher market competition intensity, non-heavily polluting industries, and those located in regions with advanced economic development. Fourth, further analysis demonstrates that ESG enhances executive pay-performance sensitivity, thereby strengthening the effectiveness of executive compensation contracts.

7.2 Policy Recommendations

Based on the above findings, this study proposes the following policy implications and recommendations:

At the government level: Firstly, the government should accelerate the establishment of a sustainable disclosure standard system, deepen alignment with international sustainability disclosure frameworks, and enhance the comparability of corporate sustainability information, and provide a reliable informational foundation for ESG assurance, rating, and regulatory activities. Secondly, the government should promote mandatory ESG disclosure requirements, gradually expand the scope of compulsory ESG reporting to improve transparency across capital markets, and fully leverage sustainability information in supporting investment decisions and economic development. Thirdly, the government should address the impact of corporate performance disparities and regional economic imbalances on ESG responsibility fulfillment, adopt region-specific policies, such as providing financing and tax incentives to support ESG practices. Fourth, the government should further enhance industry competition by reducing market barriers, encouraging market entry for SMEs and innovative firms, and fostering competitive dynamics that motivate companies to actively adopt ESG principles.

At the ESG rating agency level: Rating agencies should establish a unified ESG evaluation standard system to enhance the scientific rigor and reliability of ESG ratings.

At the corporate level: Firstly, firms should strengthen awareness of ESG responsibility fulfillment, integrate ESG principles into corporate strategies and operations, and transform them into an internal drivers of long-term value creation. Secondly, firms should strictly comply with sustainability information disclosure standards to enhance the transparency and authenticity of ESG information, and reduce information asymmetry between internal and external stakeholders. Thirdly, firms should incorporate ESG performance into executive evaluation systems, link managerial compensation to long-term ESG goals, and incentivize managers to actively promote ESG responsibility fulfillment from top to bottom.

7.3 Limitations and Future Directions

Many studies focusing on U.S. firms measure executive compensation using equity and stock options. However, unlike U.S. executives, whose compensation structures are heavily weighted toward equity, managers in emerging capital markets predominantly receive monetary compensation, with minimal equity or stock options. Consequently, existing literature on emerging-market listed firms primarily focuses on managerial monetary compensation. Constrained by the compensation structure in emerging capital markets, this study calculates managers' excess compensation solely based on monetary pay, excluding equity and stock options from total compensation, resulting in limitations in the measurement of excess compensation.

With ongoing reforms in executive compensation systems in emerging capital markets, the shareholding ratios of executives in non-state-owned enterprises have gradually increased (Xu et al., 2023; Zhu and Liu, 2024). Future research could focus on non-state-owned enterprises, incorporate equity-based compensation into total pay, and further examine the impact of ESG responsibility fulfillment on managers' excess compensation.

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