ISSN: 2710-0723

Study on the Impact of Corporate Performance on ESG Performance from a Sustainability Perspective

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Abstract

Current academia predominantly focuses on "how ESG affects corporate performance," with insufficient exploration of the reverse causality, i.e., the intrinsic logic of how performance impacts ESG. As a crucial lever for enterprises to implement new development concepts and achieve high-quality development, ESG practice relies on corporate performance for its essential resource foundation. Based on a sustainability research perspective, this paper uses A-share main board listed companies on the Shanghai and Shenzhen Stock Exchanges from 2011–2022 as a research sample. It focuses on the impact of corporate financial performance (CFP) on Environmental, Social, and Governance (ESG) performance, providing an important supplement to existing research. The study indicates: (1) An improvement in corporate profitability has a significant positive driving effect on ESG performance. Strong economic benefits are an important material basis for active ESG implementation. (2) Further analysis reveals significant regional heterogeneity in this relationship. It is more pronounced in the economically developed eastern regions, but relatively weak or even insignificant in the central and western regions, reflecting the differential impact of regional development levels on ESG practices. Furthermore, the study verifies the reliability of its conclusions through robustness checks and the instrumental variable (IV) method for addressing endogeneity. Finally, this paper proposes policy recommendations from the corporate, regional, and regulatory levels to guide the transformation of corporate performance resources into ESG investment, promoting the enterprise transition from "short-term profitability" to "synergy between performance and sustainable development."

Keywords

Corporate Performance; ESG Performance; Sustainable Development.

1. Introduction

1.1. Research Background and Significance

1.1.1. Research Background

Against the backdrop of the deep penetration of global sustainable development concepts and the accelerating wave of ESG investment, Environmental, Social, and Governance (ESG) performance has become a core indicator for measuring a company's long-term value and its fulfillment of social responsibilities. The report of the 20th National Congress of the Communist Party of China clearly proposed to "improve the modern enterprise system with Chinese characteristics, promote entrepreneurship, and accelerate the construction of world-class enterprises," emphasizing "promoting green development, fostering harmony between humanity and nature," and "improving the system for exercising full and rigorous self-governance of the Party." This provides a fundamental guideline for Chinese enterprises to deepen their ESG practices. As a crucial lever for enterprises to implement new development concepts and achieve high-quality development, ESG is not only an inevitable requirement for responding to national strategies but also a key path for enterprises to integrate into global

ISSN: 2710-0723

value chains and enhance international competitiveness. From the perspective of domestic practice, with the proposal of the "dual carbon" (carbon peaking and carbon neutrality) goals, the strengthening of ESG information disclosure requirements in the Guidelines for the Management of Investor Relations of Listed Companies, and the rapid growth of ESG investment products in the capital market, ESG has transformed from an "additional responsibility" to a "core competitive element" affecting corporate survival and development. It holds significant meaning for Chinese enterprises in optimizing resource allocation, improving governance structures, and enhancing social trust.

However, a key issue remains controversial in the advancement of ESG practices: how does a company's business performance actually affect its ESG performance? ESG performance is the comprehensive result of a company's efforts in environmental management, social responsibility fulfillment, and internal governance optimization, which can be quantified through scoring systems from authoritative databases (e.g., Wind, CSMAR's ESG composite scores). Some high-performing companies, leveraging sufficient capital reserves, excel in environmental technology R&D, social responsibility investment, and governance structure optimization, turning ESG into a new competitive advantage. However, other companies, under performance pressure, view ESG investment as a "non-core cost" and safeguard short-term profits by compressing environmental expenditures and reducing public welfare contributions, leading to fluctuations in ESG performance. This divergence in practice echoes the theoretical disagreements in academia regarding the relationship. Some studies suggest that performance improvement provides resource support for ESG practices, while other views propose a potential resource competition relationship between performance goals and ESG investment. This dual controversy in theory and practice highlights the necessity and urgency of systematically exploring the "impact mechanism of corporate performance on ESG performance."

1.1.2. Research Significance

From a theoretical perspective, this paper focuses on the "impact of corporate performance on ESG performance," a reverse relationship, which serves as a crucial supplement to existing research. Current academia predominantly focuses on "how ESG affects corporate performance," with insufficient exploration of the reverse causality and its intrinsic logic. The few existing studies on this reverse link show significant divergence in their conclusions. By integrating the Resource-Based View (RBV), Principal-Agent Theory, and Stakeholder Theory, this paper constructs an analytical framework for how performance influences ESG performance. This deepens the understanding of their interactive relationship and enriches the theoretical system in the field of corporate sustainable development.

From a practical perspective, the research conclusions hold tangible value for corporate decision-making, regulatory guidance, and investment practices. For enterprises, it clarifies the matching logic between performance levels and ESG investment, helping firms at different performance levels to formulate rational ESG strategies and avoid blind investment or excessive cutbacks. For regulatory bodies, it facilitates the design of more precise ESG incentive or guidance mechanisms tailored to companies with different performance levels, promoting balanced development of ESG practices. For investors, understanding the drivers of ESG performance allows for a more scientific assessment of the authenticity and sustainability of a company's ESG performance, thereby optimizing investment decisions.

1.2. Research Content

This paper, using A-share listed companies as its sample, revolves around the core question of "how corporate performance affects ESG performance." The specific content includes: [1]Clarifying the core concepts and connotations of corporate performance and ESG performance, and selecting and constructing measurement indicators based on the research

ISSN: 2710-0723

context. Financial performance indicators such as Return on Assets (ROA) are used to measure corporate performance, while the CSMAR database's composite ESG score is used to measure ESG performance. [2] Empirically testing the relationship between corporate performance and ESG performance, focusing on analyzing the differential effects at various performance levels. [3] Conducting heterogeneity analysis by incorporating situational variables such as company ownership structure, regional factors, and life cycle to reveal the differential impact of performance on ESG in various scenarios. [4] Proposing corresponding policy recommendations from the perspectives of enterprises, investors, and the government, based on the empirical analysis.

1.3. Research Method

This paper adopts an empirical research methodology. The research data are primarily sourced from authoritative databases such as GuoTaiAn (CSMAR) and Wind, with the sample period selected from 2011 to 2022 for A-share listed companies. Additionally, a literature review method is employed. Abandoning the traditional narrative literature review, this study uses a systematic literature review (SLR) approach to conduct a comprehensive, objective, quantitative, and visual analysis of existing research on the "performance-ESG" bidirectional relationship. This precisely identifies the core gap in existing research—an emphasis on 'ESG affecting performance' and a neglect of 'performance driving ESG'—providing a solid and novel methodological foundation for establishing this paper's research agenda.

1.4. Innovations and Difficulties

The innovations of this paper are primarily: First, innovation in research perspective, breaking through the existing "ESG affects performance" unidirectional logic to focus on the "reverse impact of performance on ESG performance," filling a research gap in this area. Second, innovation in mechanism analysis, constructing an impact pathway from the dual perspectives of resource constraints and management decision-making, tailored to the realities of Chinese enterprises, and introducing dynamic effect analysis to distinguish between short-term and long-term impacts. Third, innovation in situational analysis, exploring the moderating roles of ownership structure and marketization levels, combined with the Chinese institutional context, making the conclusions more practically relevant.

Compared to existing research, this paper provides the following extensions and refinements: First, based on panel data of Shanghai and Shenzhen A-share listed companies from 2011–2022, it constructs a fixed-effects model to identify the net effect of corporate performance (ROA) on ESG performance, controlling for individual and time effects. Second, it systematically addresses endogeneity issues using multiple methods, including the instrumental variable (IV) method, substitution of variable measures, and adjustment of control variable combinations, enhancing the robustness and causal inference capability of the results. Third, it introduces regional heterogeneity analysis, dividing the full sample into Eastern, Central, and Western regions, revealing that the impact of performance on ESG differs significantly across regions at different developmental stages. The effect is significant in the East but weaker or even insignificant in the Central and Western regions, indicating that the macroeconomic environment and corporate resource constraints moderate the ability to translate performance into ESG outcomes.

The main difficulties of this paper are threefold: First, the issue of uniformity in ESG rating systems. Different databases have varying ESG scoring standards and indicator weights, which may affect the accuracy of variable measurement. This requires mitigation through cross-database comparisons and indicator reconstruction. Second, the difficulty in handling endogeneity. A bidirectional causal relationship may exist between corporate performance and ESG performance (e.g., improved ESG performance may, in turn, affect performance), and there may be interference from omitted variables (such as corporate culture or management

ISSN: 2710-0723

characteristics). Rigorous econometric methods are required to control for these issues to ensure the validity of causal inference.

2. Literature Review

2.1. Related Research on Corporate ESG Performance

With the deepening of sustainable development concepts and the advancement of the "dual carbon" goals, corporate Environmental, Social, and Governance (ESG) performance has increasingly become a focal point for both academia and industry. [5] Existing research has extensively explored the impact of ESG performance on other aspects. Regarding ESG and corporate performance, Li et al. (2022) revealed the mechanism by which ESG enhances corporate performance through the promotion of innovation activities. [6] Wang et al. (2022) and Wang & Yang (2022) respectively verified the positive impact of ESG performance on firm value from different perspectives, indicating that good ESG practices contribute to enhancing a company's market valuation. In terms of financing costs, Qiu & Yin (2019) [Translator's note: The source lists 2022 in the text but 2019 in the reference list (source 110). [7] I have used the reference list date.], studying within the context of ecological civilization construction, found that corporate ESG performance significantly reduces financing costs, suggesting that ESG performance can serve as a signaling mechanism for a company's credit quality. On a theoretical level, Huang (2021) systematically elaborated on the three major theoretical pillars supporting ESG: Sustainable Development Theory, Economic Externality Theory, and Corporate Social Responsibility (CSR) Theory, providing an important foundation for the theoretical deepening of ESG research.[8]

Existing research predominantly concentrates on the impact of ESG on corporate financial performance, financing costs, innovation, and investment behavior, and generally supports the positive role of ESG performance in corporate sustainable development. [9] This provides a rich theoretical basis and empirical reference for the present study.

2.2. Related Research on Corporate Performance

Corporate performance is a comprehensive concept measuring the operational results and achievement of strategic goals of an enterprise over a certain period. Its measurement indicators can be divided into financial and non-financial categories. Among financial indicators, Return on Equity (ROE) and Return on Assets (ROA) are commonly used core indicators. Non-financial indicators include market share, innovation capability, etc. Regarding the factors influencing corporate performance, existing research has identified various drivers such as ownership structure, market competition, and incentive mechanisms (Li, 2000; Chen et al., 2001).

It is noteworthy that performance is widely studied as a dependent variable. For example, Yuan & Xiong (2021), from the moderating perspective of media attention, provided empirical evidence for the impact of ESG on corporate performance. [10] Furthermore, studies have also explored mechanisms for performance improvement from angles like digital transformation (Qi et al., 2020), top management team (TMT) characteristics (Zhang, 2007), and compensation incentives (Liu & Sun, 2010). These studies provide a theoretical foundation for understanding how performance accumulates and transforms into multi-dimensional value outputs, including ESG. Overall, corporate performance is not only a reflection of operational results but also an important resource base driving enterprises to undertake more social responsibilities and improve ESG performance.[11]

2.3. Literature Review Summary

While existing research has formed a certain foundation regarding the relationship between corporate ESG performance and corporate performance, it still has the following limitations:

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First, most studies focus on the impact of ESG on performance, relatively neglecting the reverse mechanism of performance on ESG and its heterogeneity in different contexts. Although some studies suggest performance improvement may lead to ESG improvement, there is a lack of systematic testing on the mechanisms of how performance structure, regional differences, and internal corporate governance moderate this relationship. Second, existing literature suffers from sample selection bias, often focusing on high-pollution, high-energy-consumption industries or large enterprises, with insufficient coverage of SMEs, service industries, and emerging industries, limiting the generalizability of the conclusions. Furthermore, the methodology is still dominated by static panel models, with inadequate treatment of endogeneity issues, such as bidirectional causality and omitted variables, which may interfere with the estimation results.

Compared to existing research, this paper provides the following extensions and refinements: First, based on panel data of Shanghai and Shenzhen A-share listed companies from 2011–2022, it constructs a fixed-effects model to identify the net effect of corporate performance (ROA) on ESG performance, controlling for individual and time effects. Second, it systematically addresses endogeneity issues using multiple methods, including the instrumental variable (IV) method, substitution of variable measures, and adjustment of control variable combinations, enhancing the robustness and causal inference capability of the results. [12] Third, it introduces regional heterogeneity analysis, dividing the full sample into Eastern, Central, and Western regions, revealing that the impact of performance on ESG differs significantly across regions at different developmental stages. The effect is significant in the East but weaker or even insignificant in the Central and Western regions, indicating that the macroeconomic environment and corporate resource constraints moderate the ability to translate performance into ESG outcomes.

The findings of this paper further support the "performance promotion hypothesis" and point out that the driving effect of performance on ESG is not a simple linear relationship but is complexly influenced by multiple factors such as firm size, ownership structure, and regional economic levels. Future research could further introduce dynamic panel models or case-comparison methods, approaching from micro-mechanisms and corporate behavior perspectives, to deepen the understanding of the "performance-to-ESG" transformation pathway. Particular attention should be paid to the unique challenges and strategic choices of SMEs and emerging industries in the sustainable development transition.

3. Data Processing and Descriptive Statistics

3.1. Data Source and Processing

This paper selects A-share listed companies on the Shanghai and Shenzhen stock exchanges from 2011-2022 as the research sample. Some corporate characteristic data for the listed companies are sourced from the CSMAR database, while other data come from the China Statistical Yearbook. A final sample of 32,088 observations is obtained. The original data were processed as follows: (1) Samples of companies in abnormal financial conditions, such as ST, *ST, and those in bankruptcy, were excluded to avoid interference with the research results. (2) To control the influence of extreme values, this paper deletes extreme values and simultaneously winsorizes continuous variables at the upper and lower 1% quantiles. Data processing and model estimation were completed using Stata 16.

3.2. Selection and Construction of Main Variables

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Table 1. Main Variable Definitions

Variable Type	Variable Name	Variable Symbol	Definition
Dependent Variable	Annual Avg. ESG Score	ESG	The annual average of the composite score in Environmental, Social, and Governance aspects. Composite score: Adopts ESG composite ratings from authoritative institutions like MSCI, Wind, and SynTao Green Finance.
Independent Variable	Return on Assets	ROA	The ratio of net profit to average total assets in a given period, expressed as Net Profit÷Average Total Assets×100%, used to reflect the firm's ability to profit from all its assets.
Control Variable	Firm Age	firm_age2	Calculated as (Current Year - Listing Year + 1), used to reflect the firm's duration since listing.
	Ownership Concentration	top1	The shareholding percentage of the largest shareholder, measuring the concentration of equity distribution and the controlling shareholder's influence.
	Firm Size	size	The natural logarithm of total assets, used to measure the scale of the firm. A larger value represents a relatively larger firm scale.
	Net Profit	net_profit	The final profit after deducting all costs, expenses, taxes, and losses from total revenue. Net Profit = Total Profit - Income Tax Expense.
	Chairman's Shareholding Ratio	ChairmanHoldsharesRatio	A quantitative indicator used to control for the potential impact of the "chairman's equity interest alignment" on the dependent variable (ESG).
	Cash Asset Ratio	CAR	The ratio of cash and cash equivalents to current liabilities, used to analyze short-term solvency, liquidity risk, or operational stability. [*Translator's Note: The definition in the table (source 43) "cash...to liquid liabilities" contradicts the definition in the text (source 41) "cash...to total assets". The table's definition is for the "Cash Ratio", while the text's definition is for "Cash to Total Assets". The variable abbreviation CAR (Cash Asset Ratio) strongly implies the text definition (source 41) is correct and the table definition (source 43) is a copy-paste error.*]

Based on the research theme and data availability, this paper defines the specific selection criteria and construction methods for the dependent variable, core independent variable, and control variables as follows:

Dependent Variable: Corporate ESG Performance (ESG)

The composite ESG rating released by Wind and SynTao Green Finance is used as the measurement indicator. This rating comprehensively evaluates a company's sustainable development capabilities from the three dimensions of Environmental, Social, and Governance, covering key elements such as environmental protection investment, social responsibility

ISSN: 2710-0723

fulfillment, and corporate governance structure. A higher score indicates better ESG performance. The data is authoritative and comparable.

Core Independent Variable: Corporate Performance (ROA)

Return on Assets (ROA) is selected to measure corporate performance. The formula is: ROA=Net Profit÷Average Total Assets×100%. Net profit is taken from the income statement, and average total assets is the mean of beginning and ending total assets. ROA reflects the ability of the enterprise to generate net profit per unit of asset, comprehensively measuring asset utilization efficiency and overall profitability. It avoids reliance solely on the scale of profit or distortion from capital structure, making it a classic indicator for evaluating business performance.

Referencing existing research and incorporating firm characteristics, the following control variables are selected to reduce omitted variable bias in the regression results:

Firm Size (size): Measured by the natural logarithm of total assets (ln (Total Assets)). Firm Age (firm_age2): Represented by the number of years from the company's establishment to the end of the sample period. Ownership Concentration (top1): Measured by the shareholding percentage of the largest shareholder. Chairman's Shareholding Ratio (ChairmanHoldsharesRatio): Represented by the chairman's shareholding percentage. Cash Asset Ratio (CAR): Calculated as “Cash and Cash Equivalents÷Total Assets×100%”. Net Profit (net_profit): Measured by net profit to further control for the potential impact of the scale of profitability.

3.3. Descriptive Statistics

Table 2 presents the descriptive statistics for the main variables of the sample companies. As seen, the dependent variable, Corporate ESG Performance (ESG), has a mean and median of 4.0357 and 4.0000, respectively, with a standard deviation of 1.1118, indicating that while there are differences in ESG performance among sample companies, the dispersion is relatively moderate. The minimum value is 1.0000 and the maximum is 8.0000, suggesting most firms' ESG performance is concentrated in the medium range. The core independent variable, Corporate Performance (ROA), has a mean and median of 0.0309 and 0.0318, respectively, with a standard deviation of 0.2163. This indicates that the overall asset utilization efficiency and profitability of the sample firms are in a state of marginal profit and show large variations. The minimum and maximum values are -14.5860 and 20.7876, respectively, showing significant differences in operating performance. Regarding control variables: the distribution of firm age is relatively concentrated; overall differences in firm size are not large; there is some variation in ownership concentration; most chairpersons do not hold shares; and there are significant gaps in the scale of profitability.

Table 2. Descriptive Statistics

VarName	Obs	Mean	SD	Min	Median	Max
ESG	29649	4.0357	1.1118	1.0000	4.0000	8.0000
ROA	30458	0.0309	0.2163	-14.5860	0.0318	20.7876
CAR	31084	0.1571	0.1310	-0.1648	0.1203	1.0000
firm_age2	31188	13.2249	7.6535	-9.0000	13.0000	33.0000
net_profit	31378	1.19e+09	1.06e+10	-6.87e+10	1.22e+08	3.61e+11
top1	30421	33.3478	15.1191	0.2900	30.6700	99.0000
ChairmanHoldsharesRatio	28728	6.8208	55.6009	0.0000	0.0000	9188.6100
size	31379	22.4084	1.5554	14.9416	22.2109	31.3101

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4. Econometric Model and Estimation Methods

4.1. Baseline Model

To test the impact of corporate performance on corporate ESG performance, this paper constructs the following baseline regression model:

$$ESG_{it}=\alpha_0+\alpha_1 ROA_{it}+\sum_{k=2}^{n}\beta_k \text{ Controls}_{\text{kit}} + \mu_i+\lambda_t+\varepsilon_{it}$$

Where the core variables and parameters are defined as follows: The dependent variable ESG_{it} represents the composite ESG performance score of firm i in year t. The independent variable ROA_{it} is the Return on Assets of firm i in year t. $\text{Controls}_{\text{kit}}$ represents a series of control variables, including Firm Size ($size_{it}$), Ownership Concentration ($top1_{it}$), Firm Age ($firm\_age2_{it}$), Net Profit (net_profit_{it}), Chairman's Shareholding Ratio ($ChairmanHoldshareRatio_{it}$), and Cash Asset Ratio (CAR_{it}). μ_i is the individual fixed effect, controlling for time-invariant firm-specific heterogeneity. λ_t is the time fixed effect, controlling for common macroeconomic shocks. ε_{it} represents the random error term.

4.2. Estimation Method

To determine the appropriate form of the panel data model, a Hausman test was conducted to compare the fixed-effects (FE) and random-effects (RE) models. The null hypothesis is that there is no systematic difference between the model coefficients, meaning the assumption of the RE model (that individual effects are uncorrelated with the explanatory variables) holds. The test results show: the Chi-squared statistic is 1818.89, with a corresponding Prob>chi2 of 0.0000. At a 0.05 significance level, the null hypothesis is strongly rejected. This indicates that the individual effects are systematically correlated with the explanatory variables. Therefore, this paper uses the fixed-effects model for estimation to avoid model specification bias and ensure the reliability of the estimation results.

4.3. Potential Model Issues and Solutions

4.3.1. Multicollinearity

To ensure the reliability of the model estimation results, this study uses the Variance Inflation Factor (VIF) to test for multicollinearity. The results (see Table 3) show that the VIF values for all variables are less than 2 (Mean VIF = 1.15), and the 1/VIF values are all close to 1. This indicates that there is no severe multicollinearity interference among the variables.

Table 3. Variable Multicollinearity Test Results

Variable	VIF	1/VIF
size	1.40	0.711932
net_profit	1.19	0.841749
firm_age2	1.14	0.878240
CAR	1.08	0.928304
top1	1.06	0.942869
ChairmanHoldsharesRatio	1.01	0.988712
Mean VIF	1.15	

4.3.2. Robustness Checks

To ensure the reliability and stability of the baseline regression results, this paper conducts robustness checks from two dimensions: full-sample robustness checks and sub-sample checks.

First, two alternative methods are used for the full-sample robustness check.

The first method involves replacing the measurement of the dependent variable (as shown in Table 4 (1)). The ESG score used in the baseline model is replaced with an ESG score

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dichotomized by its median (ESG_score_median), and the model is re-estimated. The results show the coefficient of ESG_score_median is 0.00497 and is significant at the 1% level (t-value = 3.37), which is consistent with the baseline regression conclusion.

The second method involves adjusting the combination of control variables (as shown in Table 4 (2)). While controlling for other variables (like Firm Age and Net Profit), the other 4 control variables are replaced with: Median ESG score, Return on Long-term Capital (ROLC), Debt-to-Assets Ratio (DAR), and Return on Invested Capital (ROIC). The regression is re-estimated. The results show no substantial change in the sign or significance level of the core variable ESG score, again verifying the robustness of the baseline conclusion.

Second is the sub-sample test: A robustness check based on industrial heterogeneity. Considering that firms in different industries may have differences, this paper further conducts a sub-sample robustness check by industry type (as shown in Table 4 (3)). Judging from the sub-sample regression results, in most industry sub-samples, the impact of corporate performance (ROA) on the ESG score is still significantly positive, but the coefficient magnitude and significance level vary. For example, in some construction industry sub-samples, the coefficient of the ESG score is 2.179 and is significant at the 1% level (t-value = 4.20), indicating that the promoting effect of ESG performance on performance is more pronounced in this industry. This result not only verifies the generality of the positive impact of ESG performance on corporate performance but also reveals the influence of industry characteristics on this relationship, further supporting the robustness of the baseline conclusion.

In summary, through full-sample robustness checks and industry heterogeneity sub-sample checks, the core conclusion of this paper-that corporate ESG performance has a significant positive impact on performance-is fully verified, indicating that the research results have high reliability and stability.

(Translator's Note: The robustness check section [4.3.2] of the original document, including its tables, describes the reverse relationship (ESG -> Performance), which contradicts the paper's stated hypothesis, baseline model, and main findings (Performance -> ESG). The translation below accurately reflects the original source text and tables as provided.)

Table 4. (1)Inspection data1

	ROA
ESG_score_median	0.00497***
	(3.37)
firm_age2	-0.00264***
	(-5.94)
net_profit	6.21e-12***
	(14.65)
CAR	0.156***
	(12.66)
top1	0.000476**
	(2.66)
ChairmanHoldsharesRatio	0.0000113
	(0.54)
size	-0.00132
	(-0.56)
_cons	0.0318
	(0.64)
N	27993

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Table 4. (2)Inspection data2

	ROA
ESG_score_median	0.00325***
	(9.20)
firm_age2	-0.00153***
	(-19.04)
net_profit	3.35e-12***
	(26.92)
ROLC	-0.000253
	(-0.91)
DAR	-0.0582***
	(-24.51)
ROIC	0.324***
	(183.33)
_cons	0.0501***
	(23.49)
N	29161

Table 4. (3)Inspection data3

	C Manufacturing	K Real Estate Industry	E Construction Industry
	ESG	ESG	ESG
ROA	0.0155	0.236	2.179***
	(0.57)	(0.68)	(4.20)
top1	0.00609***	0.00432*	-0.00960
	(6.62)	(2.01)	(-1.87)
ChairmanHoldsharesRatio	0.0135***	0.00796	0.00712
	(13.88)	(1.54)	(0.94)
net_profit	5.00e-11***	2.29e-11***	-7.45e-13
	(10.28)	(4.13)	(-0.08)
CAR	0.785***	0.276	1.314**
	(13.01)	(1.31)	(2.83)
firm_age2	-0.0204***	-0.0512***	0.0412**
	(-8.92)	(-7.91)	(2.76)
size	0.226***	0.225***	0.209*
	(17.08)	(6.56)	(2.54)
_cons	-1.202***	0.177	-1.566
	(-4.28)	(0.24)	(-0.87)
N	17576	1316	671

ISSN: 2710-0723

4.3.3. Endogeneity Test

Although this study has mitigated potential endogeneity problems, bidirectional causality (e.g., improved ESG performance may reversely impact corporate performance) and omitted variables (e.g., unobserved managerial traits) may still exist. Therefore, this study uses the instrumental variable (IV) method for further testing, selecting the one-period lagged core explanatory variable (ROA) as the instrumental variable, and re-running the baseline model.

From the results of the IV method test, the relationship between the core explanatory variable, Return on Assets (ROA), and ESG performance remains significantly positive. The coefficient is 0.288, with a t-value of 9.25, significant at the 1% level ($p < 0.001$). This indicates that the driving effect of improved corporate profitability on ESG performance optimization is robust. Among other control variables, Firm Age shows a significant negative impact on ESG performance (coefficient -0.0223, t-value -25.34). Cash Asset Ratio (CAR) and Firm Size (size) both have significant positive impacts on ESG performance (coefficients 1.347 and 0.292; t-values 27.56 and 60.79, respectively). Ownership Concentration (top1) also significantly positively affects ESG performance (coefficient 0.00322, t-value 7.74).

Under the IV method, the relationship of the core variables and the impact trends of the control variables remain consistent with the baseline regression. This indicates that after controlling for endogeneity, the study's conclusions are highly robust, alleviating interference from bidirectional causality and omitted variables, and providing more reliable causal evidence.

Table 5. Inspection data Result

	ESG
ROA	0.288***
	(9.25)
firm_age2	-0.0223***
	(-25.34)
net_profit	-2.68e-12***
	(-3.80)
CAR	1.347***
	(27.56)
ChairmanHoldsharesRatio	0.000106
	(0.98)
size	0.292***
	(60.79)
top1	0.00322***
	(7.74)
_cons	-2.533***
	(-24.23)
N	27993

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

ISSN: 2710-0723

5. Empirical Analysis Results

5.1. Regression Result Analysis

The regression results are shown in the table below. The core explanatory variable, Corporate Performance (ROA), shows a significant positive relationship with corporate ESG performance. As seen in the results, the coefficient of ROA is 0.0682 and is significant at the p<0.01 level (t-value = 2.78). In terms of the coefficient's sign, the positive coefficient clearly indicates a positive correlation; that is, the higher a company's Return on Assets (ROA), the higher its ESG score tends to be.

At the significance level, $p < 0.01$ indicates this positive relationship is statistically highly reliable, strongly supporting the view that "improving corporate performance promotes corporate ESG performance." The results show that a strong profitability foundation is a crucial guarantee for enterprises to advance ESG work. Only when enterprises have good performance do they have greater capability and willingness to exert effort in the environmental, social, and governance dimensions. Although the increase in ESG score (0.0682) from a single unit change in ROA may seem limited, the cumulative effect of its continuous improvement provides stable funding and resource support for ESG investment, which has a profound long-term impact.

Table 6. Regression Result Analysis

	ESG
ROA	0.0682**
	(2.78)
firm_age2	-0.0335***
	(-19.31)
net_profit	1.09e-11***
	(6.54)
CAR	0.759***
	(15.73)
ChairmanHoldsharesRatio	0.000195*
	(2.39)
top1	0.00775***
	(11.09)
size	0.244***
	(26.54)
_cons	-1.375***
	(-7.06)
N	27993

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

ISSN: 2710-0723

5.2. Heterogeneity Analysis

A company's ESG practices are deeply influenced by its external macroeconomic environment. The uncoordinated regional development in China leads to significant differences between the Eastern, Central, and Western regions. Based on the theory of uncoordinated regional development, this paper conducts a heterogeneity analysis. The full sample is divided into three sub-samples: Eastern, Central, and Western.

The results in Tables 7(1)-7(3) show that the coefficient of ROA is significantly positive in the Eastern region, positive but not significant in the Central region ($p = 0.0453, t = 0.56$), and negative but not significant in the Western region ($p = -0.0721, t = -0.64$). This implies that the promoting effect of corporate performance on ESG performance is most significant in the Eastern region, weak in the Central region, and even shows an inhibitory tendency in the Western region.

The Eastern region is economically developed, with mature ESG regulatory policies. High-ROA firms possess more abundant cash flow and proactively make strategic investments in ESG, forming a virtuous cycle. The Central region is in a period of industrial transformation. Its profit model may be mismatched with the long-term return characteristics of ESG. However, the chairman's shareholding ratio is significantly positive in this group, indicating that corporate governance mechanisms (equity incentives) become a key "compensatory" factor driving ESG practices. The Western region has a fragile ecological environment. High performance in some enterprises relies on resource extraction, which may conflict with environmental (E) protection goals. Concurrently, firms generally face severe financing constraints.

The results indicate that enterprises must recognize the constraints of the regional macroeconomic environment. Eastern firms should leverage their first-mover advantage. Central firms need to improve internal governance. Western firms must balance resource development and ecological protection. The government should implement differentiated regional ESG policies.

Table 7. (1) Eastern Region

	ESG
ROA	0.101**
	(3.11)
firm_age2	-0.0360***
	(-16.76)
net_profit	6.82e-12***
	(3.89)
CAR	0.714***
	(12.58)
ChairmanHoldsharesRatio	0.000170*
	(2.09)
top1	0.00984***
	(11.53)
size	0.262***
	(22.59)
_cons	-1.769***
	(-7.14)
N	19568

ISSN: 2710-0723

Table 7. (2) Central Region

	ESG
ROA	0.0453
	(0.56)
firm_age2	-0.0277***
	(-6.83)
net_profit	3.56e-11***
	(3.65)
CAR	0.580***
	(4.56)
ChairmanHoldsharesRatio	0.0144***
	(6.00)
top1	0.00267
	(1.60)
size	0.223***
	(9.96)
_cons	-0.918*
	(-1.97)
N	4970

Table 7. (3) Western Region

	ESG
ROA	-0.0721
	(-0.64)
firm_age2	-0.0163***
	(-3.58)
net_profit	5.00e-11***
	(7.43)
CAR	0.833***
	(6.05)
ChairmanHoldsharesRatio	0.0135***
	(4.48)
top1	0.00113
	(0.59)
size	0.186***
	(7.83)
_cons	-0.266
	(-0.53)
N	3440

ISSN: 2710-0723

6. Policy Recommendations

Based on the empirical conclusion that corporate performance significantly promotes ESG performance, and integrating theoretical frameworks such as Sustainable Development Theory, Stakeholder Theory, and the Resource-Based View, this paper proposes the following policy recommendations:

(1) From the corporate level, firms should be guided by the Resource-Based View to transform financial performance into a sustainable competitive advantage. Enterprises should establish strategic plans based on sustainable development concepts, clearly allocating a certain proportion of marginal profit increases to projects for environmental improvement, social responsibility, and governance optimization. High-performing enterprises should act as role models, achieving synergistic development of economic performance, social value, and environmental benefits by establishing special ESG funds, implementing green technology innovation, and employee development plans.

(2) From the investor level, adhering to Responsible Investment Theory, ESG factors should be integrated into the entire investment decision-making process. Institutional investors should practice Stakeholder Theory, guiding more enterprises to prioritize sustainable development by providing financing convenience and equity incentives to firms with outstanding ESG performance. Investors need to establish an ESG-integrated investment framework, balancing financial returns with social value, and promoting the flow of capital market funds toward enterprises aligned with sustainable development.

(3) From the government level, based on Institutional Theory and Signaling Theory, a comprehensive ESG policy system should be constructed. The government needs to establish and improve ESG information disclosure systems and enhance corporate ESG evaluation systems. For enterprises with outstanding ESG performance, incentive measures such as tax preferences and green credit should be implemented. For those with poor ESG implementation, punitive measures such as regulatory constraints and market access restrictions should be adopted. At the same time, the government should also strengthen the construction of ESG infrastructure by improving standard systems and cultivating third-party evaluation agencies.

References

[1] Li Jinglin, Yang Zhen, Chen Jin, et al. Research on the Mechanism of ESG Promoting Corporate Performance: From the Perspective of Corporate Innovation [J]. Studies in Science of Science, 2021, 42(09): 71-89.

[2] Wang Linlin, Lian Yonghui, Dong Jie. Research on the Influence Mechanism of ESG Performance on Enterprise Value [J]. Securities Market Herald, 2022, (05): 23-34.

[3] Wang Bo, Yang Maojia. Research on the Influence Mechanism of ESG Performance on Enterprise Value: Empirical Evidence from China's A-share Listed Companies [J]. Soft Science, 2022, 36(06): 78-84.

[4] Qiu Muyuan, Yin Hong. Corporate ESG Performance and Financing Costs under the Background of Ecological Civilization Construction [J]. The Journal of Quantitative & Technical Economics, 2019, 36(03): 108-123.

[5] Huang Shizhong. The Three Theoretical Pillars Supporting ESG [J]. Friends of Accounting, 2021, (19): 3-10.

[6] Li Zengquan. Incentive Mechanism and Enterprise Performance: An Empirical Study Based on Listed Companies [J]. Accounting Research, 2000, (01): 24-30.

[7] Chen Xiaoyue, Xu Xiaodong. Ownership Structure, Corporate Performance, and Investor Protection [J]. Economic Research Journal, 2001, (11): 3-11+94.

ISSN: 2710-0723

[8] Yuan Yehu, Xiong Xiaohan. Research on the Relationship between ESG Performance and Corporate Performance of Listed Companies: Based on the Moderating Role of Media Attention [J]. Jiangxi Social Sciences, 2021, 41(10): 68-77.

[9] Qi Yudong, Cai Chengwei. Multiple Impacts and Mechanisms of Digitalization on Manufacturing Enterprise Performance [J]. Learning & Exploration, 2020, (07): 108-119.

[10] Liu Chun, Sun Liang. Pay Gap and Corporate Performance: Empirical Evidence from State-owned Listed Companies [J]. Nankai Business Review, 2010, 13(02): 30-39+51.

[11] Zhang Zhengtang. TMT's Need for Collaboration, Pay Gap, and Corporate Performance: A Perspective of Tournament Theory [J]. Nankai Business Review, 2007, (02): 4-11.

[12] Sun Churen, Zhao Ruili. The Impact of Agglomeration Economies on Intra-regional Wage Inequality in Industries: Based on Matched Data from China's Industrial Enterprise Database and Urban Statistical Yearbook Database 1998-2007 [J]. Industrial Economic Review, 2015(05): 40-51.