

# Research on the Impact of Corporate Financial Performance on Corporate ESG Performance

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**Abstract.** Against the backdrop of growing attention to the concepts of sustainable development and green development, a firm's Environmental, Social, and Governance (ESG) performance has increasingly become a critical factor in its development. Based on panel data of domestic Shanghai and Shenzhen A-share listed companies from 2011 to 2022, this paper uses a fixed-effects model to explore the impact of corporate financial performance on ESG performance and its mechanism. The study finds that financial performance significantly influences ESG performance to a certain extent, and mechanism tests reveal that this impact varies across industries and firm sizes. Accordingly, this research puts forward targeted policy recommendations to provide a reference for corporate managers in strategy formulation, investors in decision-making, and regulatory authorities in policy improvement, thereby helping enterprises achieve the synergistic enhancement of financial performance and ESG performance and promoting the sustainable development of capital markets.

**Keywords:** Corporate financial performance; ESG performance; A-share listed companies; Empirical test; Sustainable development.

## 1. Introduction

In the context of sustainable development, profound changes are taking place in the operation and development of enterprises. The guiding opinions jointly issued by multiple departments on April 10, 2024, highlight the crucial position of ESG in China's financial and corporate development, making it an important indicator for measuring a company's comprehensive strength and sustainable development capabilities. The relationship between corporate financial performance and ESG performance has attracted much attention. However, existing research has mostly focused on the impact of ESG on financial performance, with fewer studies exploring the reverse relationship. This study selects A-share listed companies in China as samples to conduct an in-depth exploration of the impact of corporate financial performance on ESG performance. Theoretically, this will enrich the theory of corporate sustainable development and provide new ideas and empirical support for follow-up research. In practice, it can offer decision-making references for corporate managers, investors, and regulatory authorities to help promote the sustainable development of capital markets. The research process overcomes many challenges, such as the reasonable selection of variables and the application of various econometric methods to ensure the accuracy and scientific nature of the results. The paper proceeds with a literature review, data and variable analysis, model construction and testing, empirical impact analysis, and finally summarizes the conclusions and proposes policy recommendations.

## 2. Literature Review

### 2.1 Development of Corporate ESG Performance

ESG has gained increasing attention globally. Qin Ying and Li Shiyu (2024) proposed that under the green economy and China's "double carbon" goals, ESG has become crucial for corporate sustainable development. Li Jinglin and Yang Hongjie (2023) reviewed research on ESG and corporate finance, covering its mechanisms of action on financing costs, which supports the importance of ESG. In 2022, the State-owned Assets Supervision and Administration Commission (SASAC) urged enterprises to implement ESG concepts and guided listed companies to disclose relevant information.

Academic research shows that ESG performance is associated with multiple factors. Internally, Du Yu and Kong Kexuan (2024) found that the shareholding ratio of directors affects ESG performance and can serve as a mediator between ESG and financial performance. Zhao Jixin and Zhou Yongtao (2024) pointed out that the human capital structure of enterprises is related to ESG, and high ESG practices can attract talent. At the management level, Su Ling and He Yuxing (2024) stated that senior executives' green awareness positively moderates the relationship between ESG and financial performance. Zhuang Lei and Li Huang (2025) verified that corporate green innovation has a positive impact on ESG ratings. In terms of industries, Qin Ying and Li Shiyu (2024) showed that ESG efforts in the manufacturing industry affect ratings. Yan Weixiang et al. (2023) studied the impact of ESG ratings in different industries on financial performance. Guo Hengxi and Hao Xiaoyan (2024) proposed that industry competition promotes corporate green innovation, influencing ESG performance. In summary, ESG is affected by factors such as corporate internal structure, management awareness, and industry characteristics, providing multiple perspectives for studying the relationship between ESG and financial performance.

## 2.2 Research on Financial Performance

Financial performance is a key reflection of a company's business results and is influenced by multiple factors. In corporate governance, Wei Wenjun and Shi Huaqian (2017) found a positive correlation between executive shareholding and financial performance. Zhao Jixin and Zhou Yongtao (2024) indicated that alleviating financing constraints is conducive to improving financial performance. Liu Zhen (2014) showed that R&D investment reduces performance in the short term but improves it in the long term, and Yan Weixiang et al. (2023) provided case data to support this. Guo Hengxi and Hao Xiaoyan (2024) found that green innovation has different effects on financial performance improvement for enterprises at different stages of development. In terms of industry environment, Liu Jieyong (2024) pointed out that the relationship between ESG and financial performance varies across industries. Zhuang Lei and Li Huang (2025) found that industry characteristics influence investor decisions, thereby affecting financial performance. In terms of policies and regulations, as Wang Xiaoyan and Qin Yang (2024) stated, environmental protection policies can impact corporate financial performance.

In summary, financial performance is comprehensively influenced by multiple internal and external factors, providing a background for studying the relationship between ESG and financial performance and suggesting that multiple factors need to be comprehensively considered to accurately grasp the relationship between the two.

## 2.3 Literature Review

Numerous studies have conducted extensive research on corporate ESG performance and financial performance, with some focusing on the impact of ESG performance on financial performance. For example, Wang Shuangjin, Tian Yuan, and Dang Lili (2022) studied the relationship in industrial enterprises and provided case support. Sun Hui and Zhu Shusen (2023) used a bilateral stochastic frontier model to find that ESG performance can improve financial performance. Zhang Xianhua and Qin Dongsheng (2024) concluded based on a PVAR model that there is a two-way synergy between ESG fulfillment and financial performance. Zhao Jixin and Zhou Yongtao (2025) supplemented and validated relevant conclusions from a new perspective, enriching the research dimensions.

However, there is a lack of literature studying the impact of financial performance on ESG performance. Existing research mostly focuses on the impact of the former on the latter, with fewer studies exploring the reverse mechanism. Future research should strengthen this aspect, analyze the impact pathways, and improve the theoretical system of the relationship between the two to provide theoretical support for corporate decision-making.

### 3. Data Processing and Descriptive Statistics

#### 3.1 Data Sources and Processing

This paper selects data from listed companies from 2011 to 2022 as the research sample. Part of the corporate characteristic data comes from the CSMAR database, and other data comes from the China Statistical Yearbook. The sample data were processed as follows: (1) Excluding listed companies in the financial and insurance industries; (2) Excluding ST, \*ST, and suspended listing samples during the study period, retaining normally listed samples; (3) Winsorizing the main variables at the 1% level in both tails. Finally, a total of 31,379 valid sample data were obtained.

#### 3.2 Selection and Construction of Main Indicators

##### (1) Dependent Variable

The annual average ESG score (ESGscoremean) is selected as the dependent variable, which is the annual average of the comprehensive scores of a company's ESG three aspects. Theoretically, it can reflect a company's fulfillment of economic, social, and environmental responsibilities and evaluate its long-term value creation capabilities. In practice, it can measure a company's market reputation and competitiveness. The higher the value, the better the company's sustainable development performance and the easier it is to achieve long-term stable development.

##### Independent Variable

The independent variable is selected as the return on total assets (ROA), which is the ratio of a company's net profit to the average total assets. It is an important financial indicator for measuring a company's asset profitability and can directly reflect asset operation efficiency and profitability. A higher ROA indicates a stronger market competitiveness of the company. This study uses it to analyze the impact of a company's profitability on the annual average ESG score and explore the relationship between economic performance and sustainable development performance.

Table 1. Description of Main Variables

Variable Type	Variable Name	Variable Symbol	Variable Definition
Dependent Variable	Annual Average ESG Score	ESG scoremean	Annual average of comprehensive scores in Environmental, Social, and Governance (ESG) over a certain period
Independent Variable	Return on Total Assets	F050203B	Ratio of net profit to average total assets over a certain period
	Firm Age	Firmage2	Calculated as the current year minus the listing year plus 1, starting from the listing year
Control Variables	SA Index	SAindex	$SA = -0.737 \times Size + 0.043 \times Size^2 - 0.04 \times Age$
	Firm Size	size	Natural logarithm of total assets to measure firm size
	Proportion of R&D Personnel	RDSpend SumRatio	Proportion of R&D personnel to total employees
	Number of Independent Directors	Independent DirectorNumber	Number of directors in the board who are independent of company shareholders and do not hold internal positions

#### 3.3 Descriptive Statistics

The descriptive statistics of each variable are shown in Table 2. It can be seen from the table that the maximum annual average ESG score of the dependent variable is 8, and the minimum is 1.

Combined with the standard deviation, it can be seen that due to factors such as industry nature and company development strategies, there are large differences in the annual average ESG scores among different companies. The mean value is 4.0357, indicating there is still significant room for improvement. The mean value of return on total assets is only 0.0332, indicating that the average profitability of the sample enterprises is low, but it is still positive, meaning that enterprises generally have some profitability. The standard deviation is 0.2191, with a minimum value of -16.1124 and a maximum value of 20.7876, showing a large range, which indicates significant differences in ROA among enterprises, from severe losses to high profits. Therefore, there are large differences in ROA among enterprises.

Table 2. Descriptive Statistics

Variable	Sample Size	Mean	Standard Deviation	Minimum	Median	Maximum
ESG Score (Annual Average)	29649	4.0357	1.1118	1.0000	4.0000	8.0000
Return on Total Assets	30954	0.0332	0.2191	-16.1124	0.0329	20.7876
Firm Age	31188	13.2249	7.6535	-9.0000	13.0000	33.0000
SA Index	27881	-3.7932	0.3178	-5.3179	-3.8178	-0.4463
Firm Size	31379	22.4084	1.5554	14.9416	22.2109	31.3101
Proportion of R&D	21371	4.6030	6.8123	0.0000	3.4800	455.3900
Personnel Number of Independent Directors	30422	3.2072	0.6299	0.0000	3.0000	8.0000

#### 4. Econometric Model and Estimation Method

##### 4.1 Benchmark Model

Since this study uses panel data, the following considerations were made in choosing between fixed effects and random effects: The result of the Hausman test for the model shows that the Hausman test value is greater than the critical value at the significance level (5%), so we reject the null hypothesis. Therefore, the fixed-effects model should be selected as the benchmark model for estimation.

$$ESG\_score\_mean_{i,t} = \alpha_0 + \beta_1 F050203B_{i,t} + \sum_{j=2}^6 \beta_j Control_{j,i,t} + \alpha_i + \alpha_t + \dot{\alpha}_{i,t} \tag{0.1}$$

Here,  $ESG\_score\_mean_{i,t}$  is the dependent variable, representing the annual average ESG score of the  $i$ -th company in year  $t$ , which comprehensively reflects the company's performance in the three dimensions of environment, society, and corporate governance. A higher score indicates better performance in sustainable development.  $F050203B_{i,t}$  is the core independent variable, representing the return on total assets of the  $i$ -th company in year  $t$ , measured by the ratio of net profit to average total assets, which reflects the company's ability to generate profits using all assets and is a key indicator of financial performance.  $Control_{j,i,t}$  is a set of control variables,  $\alpha_0$  is the constant term,  $\beta_1 - \beta_6$  are coefficients to be estimated, reflecting the impact of the independent variable and control

variables on the dependent variable, respectively.  $\alpha_i$  is the individual fixed effect, used to control unobservable factors that vary across individuals but not over time, such as a company's unique corporate culture and geographical location.  $\alpha_t$  is the time fixed effect, used to control unobservable factors that vary over time but not across individuals, such as macroeconomic conditions and industry policy changes.  $\delta_{i,t}$  is the random error term, used to capture other random factors not considered in the model that affect the dependent variable.

## 4.2 Potential Issues in the Model and Solutions

In studying the impact of corporate financial performance on ESG performance, the model may face issues such as multicollinearity, robustness, and endogeneity. Multicollinearity may affect the accuracy of the model due to strong linear relationships between variables. Robustness may be affected by limitations in data, variable measurement, or model specification, leading to result fluctuations. Endogeneity, arising from omitted variables and reverse causality, can cause bias in estimated coefficients. To address these, the Variance Inflation Factor (VIF) was used to test for multicollinearity, the indicator replacement method for robustness testing, and the instrumental variable method for endogeneity.

### 4.2.1 Multicollinearity Test

This study tested for multicollinearity in the model by calculating the Variance Inflation Factor (VIF). If the VIF value is not much larger than 10, it indicates that multicollinearity is not severe and the estimation results are reliable; otherwise, methods such as stepwise regression need to be used. The calculation results show that the VIF values of variables such as firm\_age2 and SA\_index are all less than 10 and close to 1, with an average VIF value of 1.35, indicating weak multicollinearity in the model, passing the test, and the estimation results are reliable. The variable coefficients can more accurately reflect their impact on corporate ESG performance.

Table 3. Multicollinearity Test Results

Variable	VIF	1/VIF
firm_age2	1.90	0.525387
SA_index	1.59	0.627237
size	1.41	0.708332
Independent~1	1.11	0.897390
RDSpendSum~o	1.06	0.947468
F050203B	1.01	0.988722
MeanVIF	1.35	

### 4.2.2 Robustness Test

To ensure the reliability of the research results, this study conducted robustness tests by replacing the proxy indicators of the core independent variable and changing the proxy indicators of control variables.

Replacing the proxy indicator of the core independent variable: First, the measurement index of ESG performance was replaced from the mean to the median. As shown in Table 4, the coefficient of F050203B is 0.335, with a t-value of 7.00, significant at the 0.001 level. The significance of other variables is basically consistent with the original model results, indicating that the main conclusions are not affected by changes in the ESG index measurement method.

Table 4. Robustness Test Method 1

(1)	
	ESG_score_median
F050203B	0.335*** (7.00)

firm_age2	0.0167** (3.21)
SA_index	1.795*** (15.56)
size	0.265*** (19.01)
RDSpendSum Ratio	0.00420** (2.61)
IndependentDi rectorNumber 1	0.0776*** (4.26)
_cons	4.491*** (9.76)
N	20466

\*Note: \*, \*\*, \*\*\* represent significance at the 10%, 5%, and 1% levels, respectively.

Changing the proxy indicators of control variables: Control variables were replaced, and results are shown in the table. A new variable green\_patent1 was introduced. The coefficient of F050203B was 0.314 with a t-value of 7.05, still highly significant. Although some variable coefficients and significance levels changed, the positive impact of the core variable F050203B on ESG performance remained robust.

Table 5. Robustness Test Method 2

	(1) ESG_score_mean
F050203B	0.314*** (7.05)
firm_age2	-0.0549*** (-23.33)
green_patent1	0.00175** (2.92)
RDSpendSum	6.31e-11*** (8.05)
size	0.227*** (17.51)
RDSpendSum Ratio	0.00565*** (3.77)
_cons	-0.420 (-1.54)
N	20389

\*Note: \*, \*\*, \*\*\* represent significance at the 10%, 5%, and 1% levels, respectively.

#### 4.2.3 Endogeneity Test

Endogeneity issues can affect the accuracy of model estimation, mainly caused by omitted variables, reverse causality, statistical口径 (statistical caliber), etc. This study addressed endogeneity from omitted variables by selecting control variables such as firm age and using a panel fixed-effects model to control individual heterogeneity. To mitigate biases from reverse causality, the lagged first period of the core independent variable was used as an instrumental variable, leveraging

its correlation and excludability. The endogeneity test showed that the F050203B coefficient was -2.300, significant at the 0.001 level, ensuring the research results accurately reveal the impact of financial performance on ESG performance and enhancing the credibility of conclusions.

Table 6. Endogeneity Test

	(1) ESG_score_mean
F050203B	-2.300*** (-18.47)
firm_age2	-0.0161*** (-4.32)
SA_index	1.061*** (12.83)
size	0.258*** (21.31)
RDSpendSum Ratio	-0.00774*** (-4.70)
IndependentDi rectorNumber 1	0.0707*** (4.06)
_cons	2.401*** (6.31)
N	19807

\*Note: \*, \*\*, \*\*\* represent significance at the 10%, 5%, and 1% levels, respectively.

## 5. Empirical Analysis Results

### 5.1 Benchmark Model Regression Results

This paper explores the impact of corporate financial performance on ESG performance based on a fixed-effects model, with results shown in Table 7. According to the corporate resource-based view, firms with better financial performance have stronger resource reserves. Against the backdrop of increasing "double carbon" and social responsibility requirements, they can increase investments in green R&D, employee benefits, and corporate governance, thereby improving ESG performance. The regression shows that the F050203B coefficient is 0.307, significant at the 0.001 level, confirming a significantly positive correlation between ROA and corporate ESG performance, consistent with theoretical expectations.

Table 7. Benchmark Regression

	(1) ESG_score_mean
F050203B	0.307*** (6.93)
firm_age2	0.0169*** (3.51)
SA_index	1.767*** (16.53)
size	0.254***

	(19.67)
RDSpendSum Ratio	0.00475**
	(3.19)
IndependentDi rectorNumber 1	0.0732***
	(4.34)
_cons	4.641***
	(10.89)
N	20466

\*Note: \*, \*\*, \*\*\* represent significance at the 10%, 5%, and 1% levels, respectively.

## 5.2 Mechanism Analysis

### 5.2.1 Impact Mechanism Analysis Based on Scale Heterogeneity

According to the resource-based view, a firm's resource status is a key factor influencing its ESG practices. Resource endowments and strategic needs differ across firm sizes, affecting the relationship between financial performance and ESG performance. To explore differences in the impact of corporate financial performance on ESG performance across firm sizes, the sample was divided into large and small-scale groups for sub-sample regression. The regression results of the core independent variable F050203B (ROA) show positive effects on ESG performance in both groups, but the promotion effect is stronger in small-scale firms. This phenomenon can be explained by corporate competition strategy: in intense market competition, small-scale firms have relatively limited resources and urgently need to enhance their ESG performance to build a good image and strengthen market competitiveness, making them more motivated to translate financial performance into ESG practices. In contrast, large-scale firms already have a certain market position, and while financial performance can also drive ESG performance, their motivation for improvement is relatively weaker.

Table 8. Results of Scale Heterogeneity Analysis

	Scale	
	Large Scale	Small Scale
	ESG score mean	ESG score mean
F050203B	0.152** (3.26)	1.056*** (7.73)
firm_age2	0.000510 (0.03)	0.0487*** (4.15)
SA_index	2.110*** (4.28)	1.977*** (7.19)
size	0.460*** (7.76)	0.249*** (6.05)
RDSpendSum Ratio	0.00626*** (3.62)	0.00261 (0.83)
IndependentDi rectorNumber 1	0.112*** (4.22)	0.0500* (2.23)
_cons	1.628* (2.37)	5.067** (2.96)
N	10732	9734

\*Note: \*, \*\*, \*\*\* represent significance at the 10%, 5%, and 1% levels, respectively.

### 5.2.2 Impact Mechanism Analysis Based on Regional Heterogeneity

There are significant differences in corporate financial performance and ESG performance across regions in China, and their impacts may exhibit regional heterogeneity. The full sample was divided into eastern, central, and western regions for sub-sample regression. Results show that the F050203B coefficient in the eastern region is 0.607 (significant at the 1% level). Due to developed economies and abundant capital, improved financial performance can significantly promote ESG performance. The coefficient in the central region is 0.696 (significant at the 1% level), also showing a prominent promotion effect. In the western region, the F050203B coefficient is 0.731 (significant at the 1% level), but some indicators have weak effects—for example, the SA\_index coefficient of 0.490 is not significant. This is due to low economic development levels and weak infrastructure, which limit the promotion of financial performance on ESG performance.

Table 9. Results of Regional Heterogeneity Analysis

	Region		
	Eastern	(2) Central	(3) Western
	ESG score mean	ESG score mean	ESG score mean
F050203B	0.607*** (8.41)	0.696*** (4.34)	0.731*** (3.51)
firm_age2	0.0247*** (4.32)	0.00781 (0.65)	0.00406 (0.29)
SA_index	2.168*** (16.89)	1.059*** (4.06)	0.490 (1.59)
size	0.280*** (17.82)	0.211*** (7.01)	0.204*** (5.46)
RDSpendSum Ratio	0.0116*** (5.15)	0.00224 (0.87)	0.000856 (0.26)
IndependentDi rectorNumber 1	0.0525* (2.55)	0.149*** (4.03)	0.120* (2.55)
_cons	5.564*** (11.29)	2.674* (2.43)	0.754 (0.55)
N	14486	3707	2260

\*Note: \*, \*\*, \*\*\* represent significance at the 10%, 5%, and 1% levels, respectively.

## 6. Conclusions and Policy Recommendations

Using a sample of China's A-share listed companies from 2011 to 2022 and constructing a fixed-effects model, this study finds that corporate financial performance has a significantly positive impact on ESG performance. A 1-unit increase in return on total assets leads to an average 0.307-unit increase in ESG performance scores. Additionally, control variables such as firm age and SA index also promote ESG performance. Based on this, to promote the synergistic development of corporate financial performance and ESG performance, the following recommendations are proposed: enterprise managers integrate ESG factors into strategic decision-making to enhance long-term sustainable development capabilities; Investors incorporate ESG factors into investment decisions and strengthen supervision of corporate ESG practices; regulatory authorities strengthen ESG information disclosure requirements, implement reward-punishment mechanisms, and guide standardized ESG practices; industry associations formulate ESG evaluation standards, organize training and exchanges, release industry reports, and promote healthy competition and sustainable development across industries.

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