

ESG Performance and Firm Performance: Evidence from Chinese A-Share Listed Companies

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Abstract

This study aims to investigate the impact of corporate Environmental, Social and Governance (ESG) performance on financial performance (measured by return on total assets, ROA). This paper constructs a research framework based on stakeholder theory and sustainable development theory, selects Chinese A-share listed companies as samples, and employs a panel regression model for empirical analysis. The results of hypothesis testing show that good ESG performance significantly enhances corporate ROA. The findings suggest that corporate fulfilment of ESG responsibilities can enhance economic efficiency, confirming the expectations of sustainable development and stakeholder theory, and providing empirical evidence for corporate sustainability strategies and government green policies.

Keywords: *ESG, Firm Performance, Return on Assets (ROA).*

Introduction

General Introduction

Currently, the world is undergoing an unprecedented transformation of magnitude unseen in the past century. The new round of technological and industrial revolutions have greatly changed the economic development and political patterns worldwide, and the accelerated process of global sustainable development has put forward higher requirements for corporate responsibility and business practices (Zheng & Wang, 2023). As social civilization advances, the operational objectives of companies worldwide have gradually shifted from pursuing short-term profit maximization to long-term sustainable development goals (Derqui, 2020). People are increasingly aware of the importance of non-financial information such as firm environmental governance, social responsibility, and internal organizational management. Hence, the concept of ESG (Environmental, Social and Governance) has emerged (Dimes & Molinari, 2023).

ESG is a new investment concept that focuses on firm environmental responsibility, social responsibility, and firm governance (Fandella et al., 2023). Unlike traditional financial indicators analysis, as a significant component of socially responsible investment and green investment, ESG investment emphasizes non-financial analysis (Saini et al., 2022). Through analysis of the three dimensions of firm environment, society, and firm governance, it makes judgments on a company's sustainability and potential investment risks, providing relevant support for investors to make investment decisions (Santamaria et al., 2021).

In 2015, the United Nations adopted the 2030 Agenda for Sustainable Development, which placed sustainable development at the center of the global political agenda and aimed to help countries address the growing challenges in economic, social, and environmental dimensions, and advance the achievement of the Sustainable Development Goals (SDGs) (Liu & Gu, 2023). The Agenda called on governments and the international community to transform business practices, one of which is: rethinking the purpose and impact of corporate activities and empowering enterprises to adopt sustainable business models for a sustainable future (Bian et al., 2022).

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Therefore, in the current society, the goal of corporate development has gradually shifted from short-term profit maximization to long-term sustainable value creation. The most important core competencies of enterprises in the new era should include environmental stewardship, social responsibility, governance transparency, and long-term value creation ability (Lei, 2020). As a result, in the era of sustainable development, the goal of corporate strategy should include the cultivation of environmental awareness, social accountability, governance excellence, and innovation capabilities (Yang et al., 2018). That is, the ability to create sustainable value.

China presents a particularly important setting for examining ESG practices. The country's commitment to achieving carbon peaking by 2030 and carbon neutrality by 2060 has created unprecedented institutional pressure, compelling firms to integrate sustainability considerations into their core operations (Huang et al., 2024; Jia et al., 2022). Stock exchanges have progressively strengthened ESG-related disclosure requirements, while green finance initiatives have expanded rapidly (Pu et al., 2023). The China Securities Regulatory Commission has issued guidelines encouraging listed companies to disclose environmental, social responsibility, and corporate governance information (Shen et al., 2023). These developments have accelerated corporate engagement with ESG practices, making China a compelling context for understanding whether and how sustainability efforts translate into financial outcomes.

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Problem Statement

Despite growing scholarly interest, the relationship between ESG performance and firm performance remains inconclusive (Doni & Fiameni, 2023; Elamer & Boulhaga, 2024). Some studies report positive effects through risk reduction, stakeholder trust, and operational efficiency (Khalil et al., 2024; Zhou et al., 2022), while others find non-significant or even negative associations due to implementation costs and short-term financial pressures (Duque Grisales & Aguilera Caracuel, 2019; Veeravel et al., 2024). These mixed findings suggest that the ESG–performance relationship is context-dependent and may be influenced by institutional factors, measurement approaches, and firm-level characteristics (Lee et al., 2023).

A core reason for the inconsistency of prior evidence is that ESG engagement may produce both benefits and costs, and these effects may occur at different time horizons (Yeoh, 2022). On the one hand, ESG performance may contribute positively to firm performance through risk reduction and improved operational stability (N. Wang et al., 2024). Environmental initiatives can reduce the probability of regulatory penalties and production interruptions; social responsibility practices may enhance employee motivation and strengthen labour stability; governance improvements may reduce agency problems and strengthen internal controls (Yu et al., 2022). On the other hand, ESG engagement often requires substantial investments in compliance systems, reporting capacity, operational upgrading, and governance reform, which can increase operating costs in the short term and may reduce profitability if financial returns are delayed (Schwoy et al., 2025; Steigenberger, 2025).

Furthermore, existing studies have confirmed that when analysing the relationship between ESG and firm performance, treating ESG as a single aggregate indicator may obscure the differential effects of its underlying dimensions (Zheng et al., 2022). The environmental, social, and governance pillars may exert heterogeneous effects on firm outcomes due to their distinct mechanisms and time horizons (N. Wang et al., 2024). Therefore, it is of great theoretical and practical significance to explore the relationship between each ESG dimension and firm performance separately.

In China, understanding this relationship is particularly important given the country's dual-carbon targets and evolving regulatory landscape (Liu et al., 2024). Recent official statistics indicate that China's gross domestic product grew by 5.0 percent in 2024 and continued to expand by 5.0 percent in 2025, reflecting resilience while also highlighting the need for firms to maintain competitiveness under complex economic conditions (Brühl, 2024). At the same time, financial sustainability concerns remain salient: the International Monetary Fund reports that combined debt of non-financial firms and local government financing vehicles amounted to 172 percent of GDP as of end-2024Q1, suggesting continued vulnerability in corporate balance sheets (Kunath, 2025; Weisman, 2025). These conditions

collectively emphasise the importance of identifying strategic factors—such as ESG performance—that can strengthen firm performance while supporting sustainable development (Shu et al., 2024).

In this context, this paper adopts an empirical research method to analyze and study the relationship between ESG performance and financial performance of Chinese listed companies. It explores the influence of ESG performance and its three dimensions on firms' return on assets, providing theoretical references and practical basis for enterprises to carry out sustainable business practices.

Specifically, the following issues are mainly studied:

RQ1. Does environmental performance (E) have a positive and significant effect on firm financial performance (ROA) among Chinese A-share listed companies?

RQ2. Does social performance (S) have a positive and significant effect on firm financial performance (ROA) among Chinese A-share listed companies?

RQ3. Does governance performance (G) have a positive and significant effect on firm financial performance (ROA) among Chinese A-share listed companies?

RQ4. Does aggregate ESG performance have a positive and significant effect on firm financial performance (ROA) among Chinese A-share listed companies?

Theoretical Background

ESG and Its Connections with Firm Performance

“ESG” is a concept that integrates environmental protection, social responsibility, and corporate governance. ESG consists of three interrelated dimensions: environmental performance, social responsibility, and governance structure (Lv & Gong, 2018). It requires both depth in sustainable practices, emphasizing complex stakeholder management, and depth in value creation outcomes, emphasizing corporate higher-order capabilities in environmental, social, and governance aspects (Zhu & Peng, 2017). Therefore, ESG is both a business model and a value creation outcome. As a business model, ESG emphasizes enterprises' active, positive, and deep sustainable practice and value construction; as a value creation outcome, ESG emphasizes positive business outcomes such as sustainable motivation, higher stakeholder engagement, and the cultivation of higher-order competencies such as environmental protection capability, social accountability, governance transparency, and innovation ability (Chen, 2018).

Stakeholder Theory

Stakeholder theory provides a clear rationale for why firms engage in ESG practices and how such engagement may influence firm performance (Habib et al., 2025). In particular, ESG performance reflects the extent to which firms address the expectations and demands of key stakeholders, thereby shaping legitimacy, trust, and access to critical resources (Zhang & Wu, 2025). The origins of stakeholder theory can be traced to the early 1960s, when the Stanford Research Institute introduced the concept of stakeholders to emphasize that businesses depend on a broader network of actors for survival beyond shareholders alone (Alahdal et al., 2024). A significant refinement came from Freeman's influential work in the 1980s, which conceptualized stakeholders as any group or individual that can affect or is affected by the achievement of the firm's objectives (Dmytryev & Freeman, 2023).

Stakeholder theory asserts that the interests of multiple groups must be balanced for sustainable performance (Ombai et al., 2024). Empirical research has increasingly confirmed that variables such as innovation capability, environmental stewardship, and corporate reputation can enhance risk management, market positioning, and profitability (Husted et al., 2023). In the era of information transparency, reputational risks, regulatory penalties, and consumer activism can erode market value as quickly as financial underperformance, which underscores the importance of incorporating non-financial dimensions into performance evaluation (Alodat et al., 2022). ESG operationalizes stakeholder theory by embedding stakeholder-oriented concerns into strategic and operational decisions. The environmental dimension reflects accountability to regulators, communities, and future generations; the social dimension embodies commitments to employees, customers, and marginalized groups; and the governance dimension ensures fair, transparent, and responsible management structures (Widyawati, 2022).

Sustainable Development Theory

Sustainable development theory situates stakeholder-oriented ESG practices within the broader context of intergenerational equity and long-term environmental and social resilience (Carroll et al., 2022). While stakeholder theory is relational, sustainable development theory is temporal—it extends responsibility to future stakeholders who may not yet possess power or urgency but whose claims are increasingly recognized in areas such as climate change and biodiversity preservation. ESG-driven sustainable practices can be understood simultaneously as a stakeholder response to regulatory and community pressure, and as a sustainability commitment to future generations (Lozano, 2023). ESG is not only about present-day legitimacy but also about safeguarding enduring value creation (Tan & Peng, 2003).

Empirical studies have increasingly demonstrated that high ESG performance functions as a mechanism for aligning and balancing stakeholder interests (Dong et al., 2021). For example, firms with robust ESG initiatives develop stronger relationships with employees and customers, leading to improved retention and consumer loyalty (Feyisetan et al., 2025). Similarly, companies with transparent ESG disclosures are more likely to attract institutional investors, who increasingly view stakeholder alignment as a proxy for long-term risk management (Lee et al., 2022). This aligns with stakeholder theory's prediction that firms engaging stakeholders effectively secure preferential access to critical resources, from financial capital to human talent (Bhuiyan, 2025).

Research Framework and Research Hypothesis

Based on the above analysis, this study extracts the most representative variables and dimensions to form the following conceptual framework:

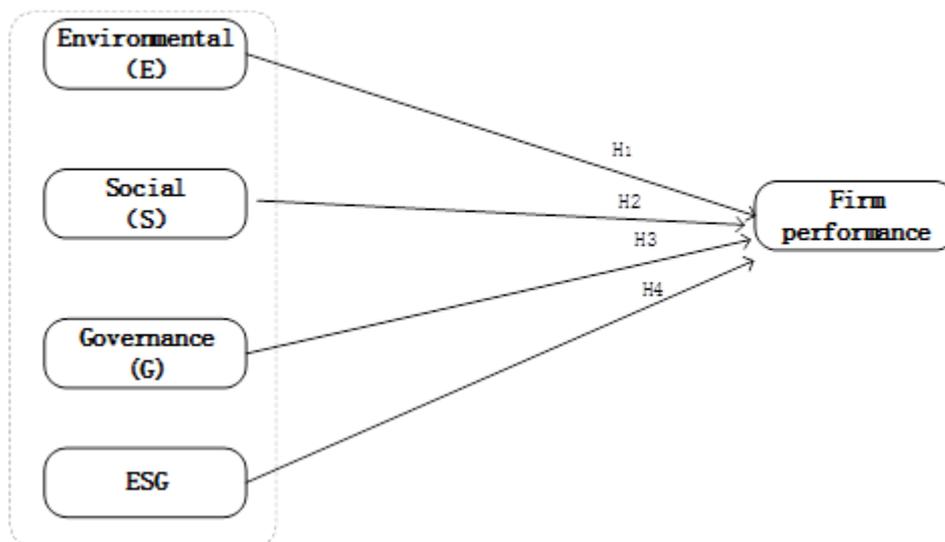


Figure 1: Conceptual Framework

To achieve the research objectives of the current study, four hypotheses are developed based on the proposed conceptual framework. These hypotheses are to be tested to explore the direct effects of Environmental Performance, Social Performance, Governance Performance, and Aggregate ESG Performance on Firm Performance. The research hypotheses are given below.

H1: There is significant positive influence of environmental performance (E) on firm performance (ROA).

H2: There is significant positive influence of social performance (S) on firm performance (ROA).

H3: There is significant positive influence of governance performance (G) on firm performance (ROA).

H4: There is significant positive influence of aggregate ESG performance on firm performance (ROA).

Research Methodology

This study adopted the quantitative research method of secondary data analysis. Quantitative analysis especially emphasizes theory-based logical reasoning, that is, putting forward research hypotheses based on one or some theoretical perspectives, and operationalizing the research hypotheses into the relationship between variables (Walls, 2018).

Sample and Data Sources

For this study, Chinese A-share listed companies are the research subjects. Therefore, from the perspective of corporate financial data, it is reasonable and feasible to collect ESG and financial information as a basic approach and channel to understand the actual implementation effect and economic function of ESG practices in Chinese listed companies.

Given that ESG disclosure in some companies started relatively late and are not yet representative, to enhance the representativeness of the sample and the accuracy of the estimation, this study selected Chinese A-share listed companies covered by Bloomberg ESG database during 2014–2023. The target population for the analysis was then narrowed down to non-financial listed companies with complete ESG and financial data. Finally, data were collected from Bloomberg (ESG scores) and CSMAR (financial indicators), and it was ensured that all variables had complete observations.

The sample selection adhered to the following criteria: (1) excluding ST companies, which have abnormal operating conditions and lower credibility of financial indicators; (2) excluding companies with missing financial data; (3) eliminating samples from the financial industry. Ultimately, the sample scope of this research includes unbalanced panel data from 2014–2023, totaling 7,897 firm-year observations.

Variable Measurement

Based on the existing mature measurement approaches, this study selected appropriate proxies for each variable. The variables are defined as follows:

The composition and specific introduction of each part of the questionnaire are shown in Table 1.

Table 1: Summary of Variables Table

Type of variable	Name of variable	Symbol of variable	Variable calculation method
Dependent variable	Firm performance	ROA	Net profit after tax/total assets (Rubilar-Torrealba <i>et al.</i> , 2022)
Independent variable	Firm ESG performance	ESG	Bloomberg database disclosed ESG score data
		ENV	Bloomberg database disclosed E score data
		SOC	Bloomberg database disclosed S score data
		GOV	Bloomberg database disclosed G score data
Control variable	Size of Company	Size	The natural log of the firms total assets at the end of the year (Veeravel <i>et al.</i> , 2024)
	Number of staffs	Staffs	The natural logarithm of the number of employees in a company (Liu <i>et al.</i> , 2023)

	Sales growth	Sales growth	(Current main business income lag one period of main business income)/lag one phase of main business income (Luo <i>et al.</i> , 2023)
	Age of firm	Age	The natural logarithm of the difference between t years and the year the firm was founded (Lulaj, 2021)
	Tangible assets ratio	Tangible	The ratio of the companys total tangible assets to its total assets at the end of the year (Kurniawan, 2021)

Model Specification

Based on the panel data of Chinese listed companies from 2014–2023, this study analyzes the mechanism of the impact of ESG performance on firms' financial performance (ROA) through systematic econometric tests. The Fixed Effects Model (FEM) can effectively control individual heterogeneity and time trend, so it is used as the benchmark model. To test the relationship between ESG dimensions and firm performance (Hypotheses H1-H4), the model system is designed as follows.

Model 1 (Environmental Performance)

$$ROA_{it} = \alpha_0 + \alpha_1 ENV_{i,t} + \alpha_i Control_{i,t} + \lambda_t + \mu_t + \varepsilon_{it}$$

Model 2 (Social Performance)

$$ROA_{it} = \alpha_0 + \alpha_1 SOC_{i,t} + \alpha_i Control_{i,t} + \lambda_t + \mu_t + \varepsilon_{it}$$

Model 3 (Governance Performance)

$$ROA_{it} = \alpha_0 + \alpha_1 GOV_{i,t} + \alpha_i Control_{i,t} + \lambda_t + \mu_t + \varepsilon_{it}$$

Model 4 (Aggregate ESG Performance)

$$ROA_{it} = \alpha_0 + \alpha_1 ESG_{i,t} + \alpha_i Control_{i,t} + \lambda_t + \mu_t + \varepsilon_{it}$$

Data Analysis and Results

Data Screening

According to the research purpose, data were collected from Bloomberg and CSMAR databases, which can ensure the integrity and reliability of data.

A total of 7,897 firm-year observations were collected in this study for the period 2014–2023. After that, the data were cleaned, and observations with missing values for key variables were excluded. Finally, after eliminating unreasonable or inconsistent data, a total of 7,897 valid firm-year observations were retained.

Sample Characteristics

In this study, a total of 7,897 valid firm-year observations were collected from Chinese A-share listed companies during 2014–2023. In order to understand the distribution characteristics of the sample, the descriptive statistics function of Stata 17 was used to analyze the main variables. The sample includes firms from various industries, with the exclusion of financial sector firms to ensure comparability.

Descriptive Statistics

Descriptive statistical analysis is a fundamental step in empirical research, laying the groundwork for all subsequent inferential procedures. It serves not only to present a concise summary of the dataset's core characteristics but also to assess its quality through a structured methodological review.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	7897	0.044	0.121	-2.071	7.445
ESG	7897	0.003	0.001	0.001	0.008
ENV	7897	0.001	0.002	0	0.009
SOC	7897	0.002	0.001	0	0.007
GOV	7897	0.007	0.001	0.003	0.009
Size	7897	23.375	1.272	19.198	28.644
Staffs	7897	6.688	1.988	0	13.14
Age	7897	20.611	5.938	4	54
Tangible	7897	0.949	0.063	0.339	1
Salesgrowth	7897	0.248	2.779	-0.875	171.745

Note. ROA = Return on Assets, ESG = environmental, social and governance composite score, ENV = environmental pillar score, SOC = social pillar score, GOV = governance pillar score, Size = firm size (log assets), Staffs = number of employees (log), Age = firm age, Tangible = tangible assets ratio.

The mean ROA is 0.044 with a standard deviation of 0.121, suggesting that, on average, sample firms operate at a modest but positive level of profitability. However, the minimum value of -2.071 and the maximum of 7.445 indicate substantial variation, with certain firms experiencing severe financial distress while others achieve exceptional profitability.

The ESG scores in the sample show relatively low mean values (ESG composite mean = 0.003), reflecting the nascent stage of ESG adoption among Chinese listed companies. Among the three pillars, governance (GOV) shows the highest mean score (0.007), followed by social (SOC) (0.002) and environmental (ENV) (0.001). This pattern suggests that Chinese firms have made relatively more progress in governance disclosure compared to environmental and social dimensions, consistent with observations that environmental and social reporting in China is still developing (Chen et al., 2023; Liu et al., 2024).

Firm size averages 23.375 with a standard deviation of 1.272, implying a moderately concentrated size distribution but with a notable gap between smaller enterprises (minimum = 19.198) and large-scale conglomerates (maximum = 28.644). The tangible assets ratio shows a high mean of 0.949 with a relatively small standard deviation (0.063), indicating that the majority of firms maintain asset-heavy operational models, reflecting the industrial composition of China's A-share market.

Correlation Analysis

Correlation analysis is an essential preliminary diagnostic step in empirical research, serving two primary purposes: (1) to identify the direction and magnitude of pairwise relationships among variables of interest, and (2) to provide an early indication of potential multicollinearity risks before moving on to regression modelling.

Table 3: Matrix of Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) ROA	1.000								
(2) ESG	0.038	1.000							
(3) Size	-0.046	0.453	1.000						
(4) Staffs	0.054	0.082	0.191	1.000					

(5) Age	-0.050	0.224	0.112	-0.106	1.000		
(6) Tangible	0.046	-0.013	-0.064	0.000	-0.003	1.000	
(7) Sales growth	0.035	0.011	0.015	-0.032	-0.027	-0.001	1.000
Note, ***, **, and * represent the significance levels of 1%, 5%, and 10% respectively							

ESG performance shows a small but statistically significant positive correlation with firm profitability (ROA) ($r = 0.038, p < 0.05$). Although the magnitude is modest, this finding is directionally consistent with Hypothesis H4, suggesting that firms with higher ESG scores tend to achieve better financial performance. This aligns with the argument that proactive ESG engagement can enhance reputation, reduce operational risk, and foster stakeholder trust, thereby contributing to profitability (Li et al., 2023; Zhou et al., 2022).

Firm size is strongly and positively correlated with ESG performance ($r = 0.453, p < 0.01$), suggesting that larger firms are more likely to invest in ESG-related activities. This is consistent with the resource-based view, where larger firms have greater capacity to implement ESG strategies and face stronger external pressure from stakeholders and regulators (Alkaraan et al., 2024). Firm size is also positively associated with staff numbers ($r = 0.191$), indicating that larger firms employ more personnel.

Firm age (Age) correlates positively with ESG ($r = 0.224, p < 0.01$), implying that older firms tend to have more established systems for ESG disclosure and compliance. This may be attributable to accumulated institutional knowledge and established stakeholder relationships. Tangible assets ratio (Tangible) shows a very weak negative correlation with ESG ($r = -0.013$), suggesting that asset-heavy firms may face structural constraints when shifting toward ESG-oriented strategies.

Multicollinearity Test

In regression analysis, particularly within the framework of multiple regression models, multicollinearity refers to the occurrence of high linear intercorrelations among two or more explanatory variables (Greene, 2018). To evaluate the extent of multicollinearity in this study, the Variance Inflation Factor (VIF) was employed.

Table 4: Results of VIF Test

Variable	VIF	1/VIF
ESG	1.31	0.764168
Size	1.30	0.766558
Age	1.07	0.931961
Staffs	1.06	0.944820
Tangible	1.00	0.99396
Salesgrowth	1.00	0.997217
Mean VIF	1.13	

Note. Variance inflation factor (VIF) and tolerance diagnostics for multicollinearity assessment. Tolerance = 1/VIF, representing the proportion of variance in a predictor not explained by other predictors.

The results reveal that the maximum VIF value observed is 1.31, with a mean VIF of 1.13. These values are far below the conservative cut-off of 5, indicating that collinearity among the explanatory variables is minimal. Correspondingly, the tolerance values (1/VIF) for all variables are well above the 0.1 threshold, further supporting the absence of severe multicollinearity.

Model Selection Test

The exploratory factor analysis was conducted using SPSS. The KMO and Bartlett's test of Sphericity were performed, and the results are shown in the following table.

Table 5: Model Selection Test Results

TEST	P	Test result
F test	Prob > F = 0.0000	Fixed effects Model
Breusch and Pagan LM test	Prob > chibar2 = 0.0000	Radom Effects Model
Hausman test	Prob > chi2 = 0.0016	Fixed effects Model

The results of the F test (Prob > F = 0.0000) indicate that the fixed effects model is significantly better than the pooled OLS model, confirming that the existence of individual fixed effects is statistically significant. The Breusch-Pagan LM test (Prob > chibar2 = 0.0000) shows that the random effects model also significantly outperforms the pooled OLS model. However, the key Hausman test (Prob > chi2 = 0.0016) rejects the hypothesis that the individual effects are not correlated with the explanatory variables, indicating that the fixed effects model provides more consistent and valid estimates.

Combining the results of the three tests, this study finally adopts the Fixed Effects Model (FEM) as the baseline estimation method. This choice controls for individual heterogeneity characteristics that do not vary over time and effectively avoids endogenous bias caused by omitted variables.

Benchmark Regression

Table 6 reports the results of the benchmark regression on the impact of ESG performance and its three dimensions on firms' financial performance (ROA). Based on panel data of 7,897 firm-year observations from 2014 to 2023, the study uses a fixed effects model to control for individual firm heterogeneity and time trends.

Table 6: Benchmark Regression Results

	(1)	(2)	(3)	(4)	(5)
	ROA	ROA ESG	ROA ENV	ROA SOC	ROA GOV
ESG	4.935*	6.812**			
	(1.67)	(2.28)			
Size		0.015***	0.014***	0.014***	0.013***
		(3.43)	(3.42)	(3.41)	(3.07)
Staffs		0.002	0.001	0.002	0.002
		(1.04)	(1.01)	(1.06)	(1.06)
Age		0.002	0.001	0.001	0.000
		(1.64)	(1.22)	(0.98)	(0.12)
Tangible		0.309***	0.310***	0.309***	0.308***
		(5.69)	(5.70)	(5.68)	(5.66)
Salesgrowth		0.003***	0.003***	0.003***	0.003***
		(4.61)	(4.62)	(4.61)	(4.58)
ENV			3.636**		
			(2.39)		
SOC				5.705**	
				(2.12)	
GOV					0.641
					(0.24)
_cons	0.035***	0.088	0.090	0.081	0.041
	(4.51)	(0.83)	(0.86)	(0.77)	(0.40)
N	7897	7897	7897	7897	7897
r2_a	0.006	0.015	0.015	0.015	0.014

F	3.784	7.238	7.276	7.189	6.866
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Note. Dependent variable = Return on Assets (ROA). Independent variable coefficients are reported as unstandardised estimates with t statistics in parentheses. Year dummies included in all specifications. Significance levels: ***p < 0.01, **p < 0.05, *p < 0.1 (two-tailed tests). Sample size (N) = 7,897 firm-year observations.

The composite ESG index is positively associated with operating profitability. In column 1, the coefficient on ESG is 4.935 (t = 1.67), significant at the 10% level. When the full set of time-varying controls is included in column 2, the ESG coefficient rises to 6.812 (t = 2.28; 5% level). This indicates that improvements in ESG align positively with gains in ROA. The increase in magnitude and precision after conditioning on firm fundamentals indicates that simpler specifications tend to understate the within-firm ESG and ROA relation.

Pillar-level estimates reveal clear dimensional heterogeneity. Column 3 shows a positive and statistically significant environmental effect (ENV, $\beta = 3.636$, $p < 0.05$). Column 4 shows a similarly positive and significant social effect (SOC, $\beta = 5.705$, $p < 0.05$). By contrast, the governance pillar in column 5 is positive but statistically indistinguishable from zero (GOV, $\beta = 0.641$). In other words, the composite ESG signal in column 2 appears to be driven primarily by the environmental and social dimensions over the sample period, while governance adjustments either materialize more slowly or operate through channels not fully captured by contemporaneous operating returns.

Control coefficients behave in line with expectations. Size enters negatively and is precisely estimated across columns (approximately -0.014 to -0.015, $p < 0.01$), suggesting mild diseconomies of scale once time-invariant advantages are differenced out by firm effects. Tangible assets are positive and highly significant (≈ 0.309 , $p < 0.01$), consistent with collateralizable assets easing financing constraints and supporting capacity utilization. Sales growth is strongly positive (≈ 0.003 , $p < 0.01$), consistent with the direct pass-through from market expansion to profitability.

Hypothesis Testing

Based on the research questions and conceptual framework, this study proposed four research hypotheses H1-H4, corresponding to the paths in the conceptual framework. According to the analysis results obtained from the fixed effects model, the coefficients and significance levels are shown in Table 7.

Table 7: Hypothesis Testing Results

Hypothesis	Path	Coefficient	t-value	p-value	Result
H1	ENV → ROA	3.636	2.39	0.017	Supported
H2	SOC → ROA	5.705	2.12	0.034	Supported
H3	GOV → ROA	0.641	0.24	0.810	Not Supported
H4	ESG → ROA	6.812	2.28	0.023	Supported

From the above table, it can be seen that at the 5% significance level, environmental performance, social performance, and aggregate ESG performance have significant positive impacts on firm performance. Hypotheses H1, H2, and H4 have been verified and are established. However, governance performance does not show a statistically significant relationship with ROA, thus Hypothesis H3 is not supported.

The non-significant result for governance does not necessarily imply that governance is irrelevant. Rather, it highlights the distinctive transmission channel of the governance dimension. First, governance reforms often operate with longer time lags, as mechanisms such as board restructuring, transparency, and shareholder protection typically influence financing costs and risk exposure rather than contemporaneous operating returns. Second, ROA as an accounting-based indicator mainly captures short-term efficiency, while governance effects are more likely to manifest in market-based outcomes such as Tobin's Q or in reduced earnings volatility. Third, in the Chinese institutional context, governance standards are partly mandated by regulation, yielding relatively low cross-sectional heterogeneity across listed firms and attenuating the explanatory power of governance variables in firm

fixed effects designs. These findings are consistent with studies that have questioned the effectiveness of traditional governance metrics in emerging markets (Shi & Yao, 2025; Zajac & Goranova, 2024).

Robustness Tests

Conducting robustness tests in empirical research is an important step in ensuring that model conclusions are reliable. The robustness test aims to verify the sensitivity of the model to different treatments such as measurement methods and variable settings. Tobin's Q is adopted as an alternative dependent variable to examine the robustness of the impact of ESG performance on firm value. Tobin's Q is the ratio of a firm's market value to the replacement cost of its assets, which reflects investors' expectations regarding a firm's future growth potential and valuation (Butt et al., 2023; Chancharat & Kumpamool, 2022).

Table 8: Robustness Tests Results

	(1)	(2)	(3)	(4)
	ROA (t=0)	ROA (t=1)	ROA (t=2)	TOBINQ
ESG	6.366*** (6.53)			147.030*** (4.61)
Size	0.006*** (4.36)	0.004** (2.55)	0.002 (0.96)	0.282*** (6.28)
Staffs	0.000 (0.65)	0.001 (1.40)	0.001 (1.21)	0.050*** (3.04)
Age	0.002*** (2.76)	0.002** (2.07)	0.002* (1.71)	0.006 (0.12)
Tangible	0.198*** (8.27)	0.183*** (6.45)	0.150*** (4.46)	0.307 (0.46)
Salesgrowth	0.051*** (28.38)	0.051*** (24.81)	0.049*** (21.23)	0.356*** (7.42)
L.ESG		3.901*** (3.30)		
L2.ESG			2.904** (2.06)	
cons	0.061 (1.63)	0.086* (1.90)	0.106* (1.96)	7.788*** (5.52)
N	7897	6631	5448	7897
r ² _a	0.141	0.129	0.113	0.109
F	72.578	57.505	43.174	53.527

Note. Dependent variable = ROA in models 1–3 and Tobin's Q in model 4. Independent variables = ESG (contemporaneous, one-year lag, two-year lag) with firm-level controls. Control variables = Size, Staffs, Age, Tangible, and Salesgrowth; year dummies are included in all regressions. Coefficients are unstandardised estimates with t statistics in parentheses. Significance levels: ***p < 0.01, **p < 0.05, *p < 0.1.

The systematic robustness test in Table 8 confirms the cross-model robustness of the core findings. In the first column of the base regression model, the ESG coefficient is 6.366 and highly significant, confirming the base stability of the positive effect of ESG performance on firms' return on assets. The dynamic time lag test further reveals the decay pattern of ESG impact. The ESG coefficient in the lagged one-period model is 3.901 and remains highly significant, with a decline of 38.7% compared to the current period. The coefficient in the lagged two-period model drops to 2.904 and still passes the significance test at the 5% level, with a cumulative decay rate of more than 54%. This changing pattern suggests that the economic value of ESG is concentrated in the two years after implementation, consistent with findings from studies examining the temporal effects of ESG (N. Wang et al., 2024).

The fourth column of the dependent variable substitution test presents a breakthrough finding. When Tobin's Q is used as a proxy for market valuation, the ESG coefficient is 147.030 and highly significant, indicating a significant market valuation premium. This result establishes the universality of ESG's value creation function across measurement dimensions and eliminates the interference of accounting metrics idiosyncrasies. It is worth noting the structural variation in the control variables: the firm size effect strengthens to -0.282 and is highly significant in the Tobin's Q model, while tangible assets lose statistical significance, reflecting the capital market's preference for asset-light logic.

Lag Effects

The lag effect analysis further explores the time series characteristics of the ESG effect. Model 1 examines the immediate effect of ESG on return on assets in the current period. Model 2 introduces one-period lagged ESG to assess medium-term effects, and Model 3 incorporates two-period lagged ESG to evaluate longer-term persistence.

Table 9: Regression Table for Lag Effect

	(1)	(2)	(3)
	ROA (t=0)	ROA (t=1)	ROA (t=2)
ESG	6.366***		
	(6.53)		
Size	0.006***	0.004**	0.002
	(4.36)	(2.55)	(0.96)
Staffs	0.000	0.001	0.001
	(0.65)	(1.40)	(1.21)
Age	0.002***	0.002**	0.002*
	(2.76)	(2.07)	(1.71)
Tangible	0.198***	0.183***	0.150***
	(8.27)	(6.45)	(4.46)
Salesgrowth	0.051***	0.051***	0.049***
	(28.38)	(24.81)	(21.23)
L1.ESG		3.901***	
		(3.30)	
L2.ESG			2.904**
			(2.06)
_cons	0.061	0.086*	0.106*
	(1.63)	(1.90)	(1.96)
N	7897	6631	5448
r2_a	0.141	0.129	0.113
F	72.578	57.505	43.174

Note. Dependent variable = ROA at t = 0 (current year), t = 1 (one period lag), and t = 2 (two period lag). Independent variable = ESG (contemporaneous, lagged once, and lagged twice). Control variables = Size, Staffs, Age, Tangible, and Salesgrowth; year dummies are included in all regressions. Coefficients are unstandardised estimates with t statistics in parentheses. Significance levels: ***p < 0.01, **p < 0.05, *p < 0.1.

The empirical results reveal significant time continuity in the coefficients of the ESG variables. In the current period model, the ESG coefficient is 6.366 with a t-value of 6.53, significant at the one percent level. In the one-period lag model, the coefficient of lagged ESG is 3.901 with a t-value of 3.30, also significant at the one percent level. In the two-period lag model, the coefficient of twice-lagged ESG is 2.904 with a t-value of 2.06, significant at the five percent level. Although the magnitude of the coefficient decays with the length of the lag (by approximately 54.4% across the two lag periods), the statistical significance is consistently maintained. This pattern is consistent with the theoretical cycle of ESG value transformation, in which immediate management practice adjustments generate effects in the current period, these effects are progressively transmitted through market perception updates in the medium term, and ultimately manifest in observable financial performance outcomes over longer horizons (N. Wang et al., 2024).

The tangible assets ratio is significantly positive in all three models, with coefficients declining from 0.198 in the current period to 0.183 in the one-period lag and 0.150 in the two-period lag, confirming significance at the one percent level throughout. Sales growth also remains stable, with coefficients around 0.05 and strong significance at the one percent level.

Implications and Discussion

The present study examined the relationships among environmental performance, social performance, governance performance, aggregate ESG performance, and firm financial performance among Chinese listed companies. Through the research, the previously raised research questions were well answered.

Regarding RQ1, research has shown that environmental performance has a significant positive impact on firms' financial performance. That is to say, good environmental practices help firms achieve better profitability. This finding strongly supports the argument that environmental investments can stimulate innovation and create competitive advantage (Alkaraan et al., 2024). Empirical evidence shows that firms' investments in cleaner technologies to meet mandatory targets for carbon and energy consumption not only avoid regulatory penalties but also create competitive differentiation through production process innovation. This innovation compensation effect is particularly significant in the Chinese manufacturing sample, demonstrating that environmental management can be a catalyst for technological upgrading rather than a cost burden (Zhao et al., 2023).

Regarding RQ2, research has shown that social performance has a significant positive impact on firms' financial performance. The positive social dimension highlights the strategic value of human capital building. Improved employee stability and stakeholder engagement directly optimise knowledge accumulation and decision-making quality. The fulfilment of stakeholders' expectations effectively translates into the enhancement of human capital efficiency, the consolidation of supply chain relationships, and the appreciation of brand reputation, which ultimately leads to substantial improvement in financial performance. In particular, measures to protect employees' rights and interests significantly reduce the cost of brain drain and stimulate innovation, reflecting the inherent logic of transforming social capital into economic value (Feyisetan et al., 2025; Le et al., 2024).

Regarding RQ3, research has shown that governance performance does not have a significant positive impact on firms' financial performance in the short term. The decoupling of governance dimension performance from financial performance reveals the particular challenges of agency theory in the Chinese context. Traditional governance indicators, such as formal requirements for board meetings, may not effectively mitigate the conflict of interest between controlling shareholders and minority shareholders, and may instead crowd out strategic innovation resources by overemphasising procedural compliance (Shi & Yao, 2025; Zajac & Goranova, 2024). This phenomenon highlights the urgency of reforming governance effectiveness assessment systems, shifting governance practice from compliance-oriented to value creation-oriented. The non-significant result may also reflect that governance improvements take longer to materialize into financial performance, as suggested by the lag effect analysis where ESG effects persist over two years.

Regarding RQ4, research has shown that aggregate ESG performance has a significant positive impact on firms' financial performance. This finding confirms the core idea of stakeholder theory. Through the practice of environmental and social responsibility, enterprises systematically respond to the demands of multiple stakeholders such as employees, communities, and consumers (Dmytriiev & Freeman, 2023). Signalling theory provides a key perspective for understanding capital market responses. Investors view ESG performance as a credible signal of a company's sustainability capability, and particularly value the long-term risk management and green innovation potential it reveals (Connelly et al., 2025). When forward-looking valuation metrics are used in place of traditional financial metrics, the phenomenon of ESG-leading firms receiving extraordinary market premiums explains the mechanism by which high-quality firms build market trust through non-financial disclosure in an asymmetric information environment (Shahid et al., 2024).

These findings have important implications for corporate managers, investors, and policymakers. For managers, the results suggest that ESG should be treated as a strategic investment rather than a compliance cost, as it can generate tangible financial returns. The significant positive effects of environmental and social dimensions indicate that focusing on these areas can yield relatively quicker profitability gains. For investors, ESG performance can serve as a useful indicator of corporate quality and long-term value creation potential, as evidenced by the strong market premium reflected in Tobin's Q. For policymakers, the findings support continued efforts to strengthen ESG disclosure requirements

and provide incentives for corporate sustainability practices, as these can contribute to both corporate competitiveness and broader sustainable development goals (Ding & Wang, 2025).

In the context of China's dual-carbon targets and evolving regulatory landscape, these results are particularly relevant. As Chinese firms face increasing pressure to improve environmental performance, enhance social responsibility, and strengthen governance structures, understanding the financial implications of these efforts becomes crucial. This study provides evidence that such sustainability efforts—particularly in the environmental and social dimensions—are not only socially beneficial but also economically rewarding.

Conclusion

This thesis provides a comprehensive empirical study of the relationship between ESG performance and corporate financial performance for the period from 2014 to 2023 using Chinese A-share listed companies. The study employs a dataset containing 7,897 firm-year observations analysed through robust panel fixed effects models. The findings reveal several important insights that contribute to our understanding of sustainable value creation mechanisms in emerging economies.

The analysis ultimately shows that ESG performance has a significant positive impact on firms' financial performance. After controlling for firm size, number of employees, firm age, tangible asset ratio, sales growth, and time volatility, each unit increase in the Bloomberg ESG composite score corresponds to an average increase of 6.812 percentage points in ROA. Most importantly, the relationship exhibits dimensional heterogeneity. The environmental and social performance dimensions emerge as the main drivers of financial returns, with coefficients of 3.636 and 5.705 respectively, both statistically significant at conventional levels. Environmental investments pay off through reduced pollution, improved energy efficiency, and lower compliance costs, consistent with the innovation compensation hypothesis (Alkaraan et al., 2024). Social performance improves the stability of human capital, strengthens stakeholder relationships, and promotes reputational capital, leading to improved operational efficiency and market positioning. The governance dimension, which shows no statistically significant positive correlation with financial performance, suggests that traditional governance indicators may be formal or less effective in China's institutional environment, at least in the short term, and that their benefits may materialize over longer horizons or through indirect channels such as risk reduction.

Robustness tests using alternative performance metrics such as Tobin's Q confirm the core findings, revealing a substantial market valuation premium for ESG leaders. Lagged models illustrate the time trajectory of ESG benefits, showing peak financial impacts in the year of implementation, followed by a gradual decline over the subsequent two years. This time pattern accurately quantifies the temporal boundaries of ESG returns, suggesting that the economic value of ESG is concentrated in the two years after implementation, but with persistent effects.

This thesis provides strong empirical evidence that ESG performance, especially that achieved through environmental and social channels, is a strategic lever for enhancing firm value in China. The findings highlight the important influence of the institutional environment in shaping the effectiveness of sustainability investments. These insights provide an important contribution to stakeholder theory and the resource-based perspective, as well as specific guidance for business managers, investors seeking sustainability, and policymakers aiming to design effective environmental, social, and governance ecosystems.

In conclusion, this study affirms that ESG, when integrated into corporate strategy, functions as a visible driver of sustainable financial value creation in China. The findings confirm that corporate fulfilment of ESG responsibilities can enhance economic efficiency, supporting the expectations of sustainable development and stakeholder theory, and providing empirical evidence for corporate sustainability strategies and government green policies.

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