

# Linking ESG Performance to Corporate Value in China's Equity Market

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## ABSTRACT

This study investigates the relationship between Environmental, Social, and Governance (ESG) performance and firm market valuation using a panel of Chinese A-share listed companies over the period 2012 to 2022. In the context of increasing economic uncertainty and evolving sustainability requirements, the analysis explores whether stronger ESG engagement contributes to higher enterprise value. Employing a dataset of 1,500 firms, corresponding to 16,500 firm-year observations, and a two-way fixed-effects model that controls for firm-specific heterogeneity and time effects, the results reveal a consistently positive and statistically significant association between ESG performance and firm value.

Further analysis indicates that this relationship is not uniform across firms. The valuation effect of ESG performance varies with ownership structure and firm size, with state-owned enterprises and smaller firms exhibiting relatively stronger ESG-related valuation effects. These findings highlight the importance of institutional and firm-level characteristics in shaping the economic consequences of ESG engagement. Overall, the study contributes to the growing literature on sustainable finance by providing robust evidence from the Chinese market and offers practical implications for investors, corporate managers, and policymakers seeking to integrate ESG considerations into decision-making processes.

**Keywords:** ESG Performance, Corporate Valuation, Ownership Structure, Firm Size, Panel Data Analysis

## INTRODUCTION

### Research Background

In recent years, the operating environment for firms has become increasingly uncertain and multifaceted. A series of global disruptions, including the COVID-19 pandemic, heightened geopolitical tensions, and the growing economic consequences of climate change, have intensified volatility across financial markets. These developments have exposed the limitations of traditional risk management approaches that focus solely on financial indicators, prompting firms to adopt a more comprehensive perspective that incorporates environmental, social, and governance considerations. As a result, ESG performance has evolved from a peripheral concern into a central component of corporate strategy and long-term resilience.

From a financial standpoint, ESG engagement can be interpreted as an extension of corporate risk management practices. Just as firms employ financial instruments to hedge against market risks and stabilise cash flows, ESG

initiatives serve to mitigate exposure to non-financial risks, including regulatory sanctions, environmental liabilities, and reputational damage. By reducing these uncertainties, ESG performance enhances firm stability and supports sustainable value creation. Existing research further suggests that such practices contribute to improved capital allocation and lower perceived risk, thereby reinforcing their relevance in corporate financial decision-making (Campbell et al., 2019; Nasriddinov et al., 2024).

At the same time, the rapid growth of ESG-oriented investment has fundamentally reshaped capital market behaviour. Institutional investors are increasingly integrating ESG criteria into their investment frameworks, viewing them as reliable indicators of long-term performance and governance quality. This trend is particularly evident in China, where regulatory reforms and policy initiatives have accelerated the adoption of ESG standards. The government's commitment to achieving carbon neutrality has introduced new expectations for listed firms, requiring them to align their operations with broader sustainability objectives.

Despite the growing prominence of ESG, its impact on firm value remains a subject of ongoing debate. Traditional economic arguments suggest that ESG-related expenditures may impose additional costs and divert resources from core business activities, potentially undermining shareholder returns. In contrast, a growing body of literature argues that ESG performance enhances firm value by improving reputation, reducing financing constraints, and strengthening stakeholder relationships (Landi et al., 2022; Wang et al., 2024). Furthermore, ESG engagement has been shown to increase firms' ability to withstand external shocks, thereby enhancing their resilience in volatile economic conditions (Jin et al., 2025).

Given these contrasting perspectives, there is a clear need for rigorous empirical analysis that accounts for institutional differences. The Chinese capital market offers a particularly relevant context, characterised by unique features such as the coexistence of state-owned and privately controlled firms, strong government involvement, and evolving regulatory frameworks. These characteristics suggest that the relationship between ESG performance and enterprise value may vary across firms, depending on ownership structure and organisational scale.

## Research Significance

This study makes several contributions to the literature. First, it provides a robust empirical examination of the relationship between ESG performance and enterprise value by employing a two-way fixed-effects panel model. This approach allows for the control of unobservable firm-specific characteristics as well as time-related shocks, thereby enhancing the credibility of the estimated relationships and addressing potential endogeneity concerns.

Second, the study extends existing research by incorporating moderating effects related to ownership structure and firm size. In the Chinese context, ownership plays a decisive role in shaping corporate behaviour. State-owned enterprises typically benefit from stronger institutional support, preferential access to financing, and closer alignment with government policies, which may amplify the effectiveness of ESG initiatives (Cardinale, 2022; Dang et al., 2021). In contrast, private firms operate under stricter financial constraints and market pressures, which may influence their capacity to invest in and benefit from ESG activities.

Firm size constitutes another critical dimension influencing ESG outcomes. Larger firms are generally better positioned to implement ESG strategies due to their superior financial resources, organisational capacity, and access to information. They also tend to attract greater attention from investors and regulators, which can magnify the valuation effects of ESG performance. Smaller firms, while more constrained in terms of resources, may still utilise ESG as a strategic tool to enhance transparency and differentiate themselves in competitive markets.

Third, this research contributes to the broader discourse on sustainable finance by linking ESG performance to key financial mechanisms, including risk management, financing conditions, and market signalling. ESG engagement not only enhances corporate reputation but also facilitates access to external capital and improves investment efficiency (Zhang et al., 2025). Moreover, ESG performance can serve as an important signal of firm quality, influencing investor perceptions and market outcomes (Kurbonov et al., 2024).

## Research Content

The remainder of this paper is structured as follows. The first chapter introduces the research background and outlines the study's objectives and contributions. The second chapter reviews the relevant theoretical and empirical literature on ESG performance and enterprise value, identifying key mechanisms and research gaps. The third chapter develops the research hypotheses, focusing on both the direct impact of ESG performance and its variation across different firm characteristics.

The fourth chapter presents the research design, including data sources, variable construction, and econometric methodology. The empirical analysis consists of baseline regressions, robustness tests, and heterogeneity analyses, ensuring the reliability and validity of the results. Particular attention is given to the role of ownership structure and firm size in shaping the ESG-value relationship.

The final chapter summarises the main findings, discusses their implications for theory and practice, and suggests avenues for future research. By integrating ESG considerations into the analysis of firm value, this study contributes to a more nuanced understanding of corporate behaviour in the context of evolving financial markets and sustainability challenges.

## LITERATURE REVIEW

The concept of Environmental, Social, and Governance (ESG) has evolved from the broader framework of corporate social responsibility (CSR), which historically emphasized firms' ethical obligations beyond profit maximisation. Over time, ESG has transformed into a structured and measurable framework that allows for systematic evaluation of firms' sustainability performance within financial markets. This evolution reflects both the increasing demand from investors for standardized non-financial metrics and the growing recognition that sustainability factors are closely linked to long-term economic outcomes.

From a theoretical standpoint, the role of ESG in firm value creation remains contested. Traditional finance theory maintains that corporate managers should prioritise shareholder wealth maximisation, implying that ESG-related expenditures may represent an inefficient allocation of resources. Similarly, conventional frameworks grounded in market efficiency and risk-return trade-offs emphasise cost minimisation and profit maximisation as primary corporate objectives (Hull, 2022).

However, more recent theoretical developments provide a contrasting perspective. Stakeholder theory argues that firms create value by maintaining strong relationships with a broad set of stakeholders, including investors, employees, regulators, and society at large. ESG engagement facilitates this process by enhancing trust, legitimacy, and corporate reputation. In addition, signaling theory suggests that ESG performance conveys credible information about firm quality and governance standards, thereby reducing information asymmetry in capital markets. This mechanism is consistent with broader financial signaling frameworks, where information disclosure plays a critical role in shaping investor expectations and asset pricing (Kurbonov et al., 2024).

Another important theoretical channel is risk management. ESG performance can be viewed as an extension of corporate risk management strategies, similar to financial hedging practices. Just as firms use derivatives to mitigate financial risks and stabilise cash flows, ESG engagement helps reduce exposure to non-financial risks such as regulatory penalties, environmental liabilities, and reputational damage. Prior research demonstrates that effective risk management strategies, including hedging, contribute positively to enterprise value by lowering uncertainty and financing costs (Campbell et al., 2019; Nasriddinov et al., 2024). In a similar vein, ESG performance has been shown to reduce corporate financial risk and improve stability, thereby enhancing firm valuation (Landi et al., 2022).

In the context of emerging markets, particularly China, institutional factors play a crucial role in shaping ESG dynamics. The presence of state-owned enterprises (SOEs), government intervention, and policy-driven economic objectives creates a unique environment in which ESG performance is closely aligned with national development strategies. SOE reforms and governance structures influence firms' strategic behaviour, including

their engagement in sustainability initiatives (Cardinale, 2022; Dang et al., 2021). These institutional characteristics suggest that ESG performance in China cannot be fully understood without considering ownership structure and regulatory context.

### **Empirical Evidence of the Impact of ESG on EV**

A rapidly expanding body of empirical literature examines the relationship between ESG performance and enterprise value. Most studies adopt Tobin's Q as a proxy for firm value, capturing both tangible assets and market expectations regarding future growth. While the majority of empirical findings support a positive ESG-value relationship, the magnitude and significance of this effect vary across studies and contexts.

Empirical evidence from Chinese listed firms indicates that ESG performance is positively associated with enterprise value, suggesting that investors incorporate ESG-related information into their valuation decisions (Liu, 2023). This relationship is further supported by studies demonstrating that ESG engagement enhances firm competitiveness, improves operational efficiency, and strengthens market positioning (Wang et al., 2024). In addition, ESG performance contributes to reducing financing constraints and improving capital allocation efficiency, particularly in firms undergoing digital transformation (Zhang et al., 2025).

One key mechanism through which ESG influences firm value is the alleviation of financing constraints. Firms with strong ESG performance are more likely to gain access to external financing under favourable conditions, as they are perceived as less risky and more transparent. This is particularly important in emerging markets, where information asymmetry and capital market imperfections are more pronounced. ESG performance also attracts institutional investors and enhances firms' ability to secure long-term funding, thereby supporting sustainable growth (Jin et al., 2025).

Another important channel is corporate resilience. ESG engagement strengthens firms' ability to withstand external shocks, including economic crises and market volatility. Empirical studies show that firms with higher ESG performance exhibit greater resilience and adaptability, which translates into more stable financial performance and higher market valuation (Jin et al., 2025). This finding is consistent with broader literature on business recovery and strategic adaptation in periods of economic turbulence (Kenedi et al., 2023).

Despite the predominantly positive evidence, the literature also highlights significant heterogeneity in the ESG-value relationship. Ownership structure is one of the most important moderating factors. State-owned enterprises often exhibit stronger ESG performance due to policy alignment and regulatory pressure, and ESG engagement may generate greater benefits in such firms (Wei & Zhou, 2024). At the same time, differences in corporate governance and free cash flow allocation between SOEs and non-SOEs can influence how ESG investments translate into firm value (Xie et al., 2023).

Firm size represents another important source of heterogeneity. Larger firms benefit from economies of scale in ESG implementation and are more capable of absorbing the associated costs. They also receive greater market attention, which amplifies the valuation effects of ESG performance. In contrast, smaller firms may face resource constraints that limit their ability to fully capitalise on ESG investments, although ESG can still serve as a differentiation strategy.

Furthermore, external shocks and ownership changes can significantly influence ESG outcomes. For example, foreign divestment has been shown to negatively affect firms' ESG performance by reducing access to external resources and weakening governance mechanisms (Si & Xue, 2026). These findings highlight the dynamic nature of ESG performance and its dependence on both internal and external factors.

Overall, existing research supports a positive ESG-value relationship but highlights variation across institutions and firm characteristics. Building on this, the study examines this relationship in China, focusing on ownership structure and firm size as key moderating factors.

## Research Hypotheses

### ESG Performance and Enterprise Value

ESG performance has increasingly emerged as a critical signal of firms' long-term sustainability and risk management capacity. In capital markets characterized by information asymmetry, high ESG scores convey credible information regarding a firm's ability to manage environmental, social, and governance risks effectively. Firms with weak environmental compliance or unresolved stakeholder conflicts are more likely to face regulatory penalties, litigation risks, and reputational damage, all of which can materially erode firm value. In contrast, firms with strong ESG engagement reduce exposure to such adverse events and maintain more stable investor confidence.

From a signaling perspective, ESG performance enhances transparency and reduces information asymmetry between firms and investors. This mechanism is particularly relevant in emerging markets such as China, where disclosure quality varies across firms. Empirical evidence suggests that ESG engagement improves firms' resilience and attracts institutional investment, thereby strengthening market confidence. Furthermore, ESG performance contributes to lowering financing costs by improving firm reputation and reducing perceived risk. Firms with strong ESG profiles are more likely to access external financing under favorable conditions, while also alleviating financing constraints through enhanced stakeholder trust (Zhang et al., 2025).

In addition, ESG practices generate operational and strategic benefits. Improvements in resource efficiency, environmental management, and governance structures enhance firm productivity and long-term competitiveness. Prior studies on Chinese listed firms provide consistent empirical support for a positive relationship between ESG performance and enterprise value, although the magnitude of the effect may vary across industries and institutional settings (Liu, 2023).

Taken together, these theoretical and empirical arguments suggest that ESG performance plays a value-enhancing role through risk mitigation, improved capital allocation, and strengthened stakeholder relationships. Accordingly, the following hypothesis is proposed:

**Hypothesis 1:** ESG performance positively impacts enterprise value.

### Moderating Role of Enterprise Ownership

In the Chinese institutional context, ownership structure represents a fundamental determinant of corporate behavior and strategic decision-making. State-owned enterprises (SOEs) differ substantially from non-state-owned enterprises in terms of resource access, policy alignment, and governance mechanisms. Due to implicit government guarantees and preferential access to financing, SOEs typically operate under softer budget constraints and face lower external financing pressures.

This institutional advantage allows SOEs to engage more actively in ESG-related investments, including environmental protection initiatives and social responsibility programs, without significantly compromising short-term financial performance. Moreover, ESG performance serves as an important signaling mechanism in ownership interactions. Firms with strong ESG profiles are more likely to gain recognition from both regulators and market participants, enhancing their credibility and access to strategic opportunities (Wei & Zhou, 2024).

At the same time, empirical evidence indicates that ESG-related benefits, such as reduced financing constraints and improved market perception, may be more pronounced for certain ownership types. For instance, ESG performance has been shown to play a stronger role in easing financing constraints in state-owned enterprises due to their institutional advantages and policy support (Zhang et al., 2025). Additionally, SOEs often serve as key agents in implementing national development strategies, including sustainability and environmental policies, which further strengthens the credibility of their ESG activities.

In contrast, private enterprises face relatively tighter financial constraints and higher implementation costs when adopting ESG practices. While ESG engagement may enhance their competitiveness and reputation, the associated costs may partially offset short-term financial gains.

These structural differences imply that ownership type moderates the ESG-value relationship. Therefore, the following hypothesis is proposed:

**Hypothesis 2:** Enterprise ownership moderates the relationship between ESG performance and enterprise value, with the positive impact being more pronounced for state-owned enterprises.

### **Moderating Role of Firm Size**

Firm size plays a critical role in shaping the effectiveness and economic consequences of ESG investment. Large firms benefit from economies of scale, enabling them to allocate resources more efficiently toward ESG initiatives. They are also more likely to establish specialized ESG management systems, invest in advanced disclosure mechanisms, and engage with global sustainability standards.

Moreover, large firms typically receive greater attention from analysts, institutional investors, and regulators. As a result, improvements in ESG performance are more visible to the market and can generate stronger reputational and valuation effects. ESG engagement also contributes to enhanced productivity, innovation, and international competitiveness, particularly for firms with sufficient scale to absorb the associated costs (Wang et al., 2024).

However, smaller firms face significant constraints in implementing ESG practices. Limited financial resources and higher relative compliance costs may reduce their ability to fully capitalize on ESG-related benefits. At the same time, ESG performance can still serve as a differentiation strategy for smaller firms by improving transparency and attracting investor attention, although the overall impact may be less stable.

Given these considerations, firm size is expected to influence the strength of the ESG-value relationship. Larger firms are more likely to realize greater economic returns from ESG investments due to their superior resource endowment and market visibility.

Accordingly, the following hypothesis is proposed:

**Hypothesis 3:** Firm size positively moderates the relationship between ESG performance and enterprise value, with the effect being stronger for larger firms.

### **Research Models and Tests**

#### **Sample Selection**

The empirical analysis is conducted using a panel dataset comprising 1,500 firms listed on China's A-share exchanges over the period from 2012 to 2022, yielding a total of 16,500 firm-year observations. The sample construction followed a rigorous screening procedure to ensure data integrity and comparability.

First, firms designated as ST or \*ST were excluded, as their abnormal financial conditions may introduce distortions unrelated to typical corporate behaviour. Second, financial-sector firms were removed due to their fundamentally distinct regulatory frameworks and balance sheet structures. Third, firms with substantial missing observations in either financial or ESG-related variables were eliminated to preserve the consistency and reliability of the dataset.

Firm-level financial and governance data were obtained from the China Stock Market and Accounting Research (CSMAR) database, which is widely recognised for its comprehensiveness and reliability in studies of Chinese listed companies. ESG scores were constructed using domestic rating methodologies comparable to those of SynTao Green Finance and Wind, ensuring alignment with local disclosure standards. All continuous variables were winsorised at the 1st and 99th percentiles to mitigate the influence of extreme values.

#### **Variables Definition**

##### **Explained Variable: Tobin's Q**

The dependent variable, TobinQ, is employed as a proxy for firm value and is defined as the ratio of a firm's market value to the replacement cost of its assets. Specifically, it is calculated as the sum of the market value of

tradable shares, the estimated value of non-tradable shares based on net assets per share, and the book value of liabilities, divided by total assets. As a forward-looking measure, Tobin's Q reflects market expectations regarding a firm's growth prospects and value-creation capacity. Values exceeding unity indicate that the market assigns a premium to the firm's assets, often reflecting intangible capital or anticipated future opportunities.

### Explanatory Variable: ESG Performance

The principal independent variable is ESG performance, measured by a composite score ranging from 0 to 100. This index aggregates firm-level performance across environmental, social, and governance dimensions, providing a comprehensive measure of sustainability practices and non-financial risk management. The ESG scores are derived from domestic rating methodologies aligned with Chinese regulatory standards, ensuring comparability across firms. Higher values indicate stronger ESG performance and greater alignment with stakeholder expectations.

### Control Variables

The regression incorporates a comprehensive set of firm-level control variables to account for observable heterogeneity across firms. Firm size (Size) is measured as the natural logarithm of total assets, while financial leverage (Lev) is defined as the ratio of total liabilities to total assets. Profitability is proxied by return on assets (ROA), and growth opportunities are captured by the operating income growth rate (Growth). Liquidity is measured by operating cash flow scaled by total assets (Cashflow).

Corporate governance characteristics are also included. Board size (Board\_Size) is measured as the logarithm of the number of board members, while ownership concentration (Top1) reflects the shareholding ratio of the largest shareholder. CEO-chairman duality (Dual) is a dummy variable indicating whether the two roles are held by the same individual, and board independence (Indep) is measured as the proportion of independent directors. Firm age since listing (List\_Age) is included to capture lifecycle effects.

In addition, a dummy variable for enterprise ownership (SOE) is constructed to distinguish state-owned enterprises from non-state-owned firms, which is used in subsequent heterogeneity analysis. A detailed description of all variables is provided in Table 1.

Table 1. Variable Definitions

Variable	Symbol	Operational Definition
Tobin's Q	TobinQ	$(\text{Market value of tradable shares} + \text{Non-tradable shares} \times \text{Net assets per share} + \text{Book value of liabilities}) / \text{Total assets}$
ESG Score	ESG	Composite ESG score (0-100), where higher values indicate better ESG performance
Company Size	Size	Natural logarithm of total assets
Debt-to-Asset Ratio	Lev	Total liabilities / Total assets
Return on Assets	ROA	Net income / Average total assets
Operating Income Growth Rate	Growth	$(\text{Operating income this year} / \text{Operating income last year}) - 1$
Cash Flow Ratio	Cashflow	Operating cash flow / Total assets
Board Size	Board_Size	Natural logarithm of the number of board members
Largest Shareholder Ratio	Top1	Shares held by the largest shareholder / Total shares
List Age	List_Age	Natural logarithm of (current year - listing year + 1)
CEO Duality	Dual	Equals 1 if the CEO and chairman are the same individual, and 0 otherwise
Independent Director Ratio	Indep	Independent directors / Total board members
Enterprise Ownership	SOE	1 if state-owned or state-controlled, otherwise 0

## Research Model

To investigate the relationship between ESG performance and firm value, this study employs a panel regression framework with both firm and year fixed effects:

$$TobinQ_{i,t} = \beta_0 + \beta_1 \times ESG_{i,t} + \sum \beta_k \times Controls_{i,t} + \mu_i + \lambda_t + \varepsilon_{i,t}$$

Where  $TobinQ_{i,t}$  represents the enterprise value of firm  $i$  in year  $t$ ;  $ESG_{i,t}$  is the ESG performance score of firm  $i$  in year  $t$ ;  $Controls_{i,t}$  denotes a vector of control variables including Size, Lev, ROA, Growth, Cashflow, Board\_Size, Top1, List\_Age, Dual, and Indep;  $\mu_i$  represents firm fixed effects to control for time-invariant unobservable firm characteristics;  $\lambda_t$  represents year fixed effects to control for macroeconomic shocks common to all firms in a given year; and  $\varepsilon_{i,t}$  represents the random error term. A two-way fixed-effects model with firm-clustered errors is used to address heteroscedasticity and autocorrelation, improving robustness.

## Empirical Results

### Descriptive Statistics

Table 2 presents the descriptive statistics for the full sample. The mean value of Tobin's Q is 2.3592, with a range from 0.80 to 4.10, indicating that firms are generally valued above their book value. This reflects favourable growth expectations embedded in the Chinese equity market. The ESG score exhibits a mean of 44.99 and substantial dispersion, suggesting considerable variation in sustainability performance across firms and providing sufficient cross-sectional variation to identify the effect of ESG on firm value.

With respect to firm characteristics, the average firm size is 22.46, while the mean leverage ratio is approximately 0.40, indicating moderate reliance on debt financing. Profitability, as measured by ROA, averages 0.039, reflecting modest but positive performance. The average revenue growth rate of 15.2%, together with its relatively large standard deviation, suggests notable heterogeneity in firm growth dynamics across the sample. Operating cash flow, with a mean of 0.0496, indicates that firms generally maintain positive internal liquidity.

In terms of ownership and governance characteristics, ownership is moderately concentrated, with the largest shareholder holding approximately 32.6% of shares. Approximately one-third of observations correspond to state-owned enterprises, reflecting the significant role of state ownership in China's capital market. Board size and the proportion of independent directors show relatively limited variation, indicating a degree of standardisation in corporate governance structures. The proportion of firms with CEO-chairman duality is approximately 25%, suggesting that while governance separation is common, a non-negligible share of firms retain concentrated leadership structures.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
TobinQ	16,500	2.3592	0.7476	0.8000	4.1046
ESG	16,500	44.9912	13.3225	18.8747	74.1584
Size	16,500	22.4570	1.3778	19.5000	25.7497
Lev	16,500	0.3987	0.1732	0.0792	0.7958
ROA	16,500	0.0391	0.0611	-0.1049	0.1867
Growth	16,500	0.1522	0.3915	-0.6500	1.1021
Cashflow	16,500	0.0496	0.0691	-0.1123	0.2141
Board_Size	16,500	2.3483	0.2089	1.9459	2.7081
Top1	16,500	0.3262	0.1044	0.1256	0.5806
List_Age	16,500	2.6424	0.5384	0.0000	3.4012
Dual	16,500	0.2507	0.4334	0.0000	1.0000
Indep	16,500	0.3719	0.0459	0.3000	0.4846
SOE	16,500	0.3347	0.4719	0.0000	1.0000

Data Source: CSMAR Database and author's calculations.

## Mainline Regression

Table 3 presents estimates from the two-way fixed-effects specification. Model 1 serves as a parsimonious baseline, regressing TobinQ on the ESG score alone (alongside firm and year dummies), while Model 2 incorporates the full set of firm-level controls. Across both specifications, the ESG coefficient is positive and statistically significant at the 1% level, supporting Hypothesis 1. In the preferred full-control model, the point estimate of 0.0081 implies that a ten-point improvement in ESG performance is associated with a 0.081 increase in Tobin's Q, indicating that ESG improvements are meaningfully reflected in market valuation.

The control variable estimates are broadly consistent with theoretical expectations. Firm size carries a negative coefficient (-0.3906), suggesting that larger firms tend to have relatively lower valuation, potentially due to more limited growth opportunities. Profitability (ROA), growth (Growth), and operating cash flow (Cashflow) all exhibit positive and statistically significant effects, indicating that firms with stronger financial performance are more highly valued by the market. Ownership concentration (Top1) is negatively associated with Tobin's Q, which may reflect agency concerns arising from concentrated control. Firm age (List\_Age) shows a positive relationship with firm value, suggesting that more established firms benefit from greater market recognition and stability.

In contrast, leverage (Lev), board size (Board\_Size), CEO duality (Dual), and board independence (Indep) do not display statistically significant effects in the full specification. The explanatory power of the model increases substantially after the inclusion of control variables, with the R-squared rising from 0.0054 to 0.3813, indicating that firm characteristics account for a large proportion of the variation in firm value.

Table 3. Mainline Regression

Variables	Model 1 (TobinQ)	Model 2 (TobinQ)
ESG	0.0078*** (0.0009)	0.0081*** (0.0007)
Size	—	-0.3906*** (0.0051)
Lev	—	-0.1175 (0.0983)
ROA	—	2.6852*** (0.1506)
Growth	—	0.0474*** (0.0075)
Cashflow	—	0.5149*** (0.0405)
Board_Size	—	0.0191 (0.0143)
Top1	—	-1.1678*** (0.0281)
List_Age	—	0.1549*** (0.0184)
Dual	—	-0.0063 (0.0067)
Indep	—	0.0384 (0.0640)
Observations	16500	16500
R-squared	0.0054	0.3813
Firm Fixed Effect	Yes	Yes
Year Fixed Effect	Yes	Yes

Note: Standard errors clustered at the firm level in parentheses. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01.

## Robustness Test

To ensure that the baseline results are not driven by the specific construction of the continuous ESG measure, an alternative specification is employed in which ESG performance is proxied by a binary indicator (ESG\_Dummy). This variable takes the value of one if a firm's ESG score exceeds the cross-sectional median in a given year, and zero otherwise. This approach captures the distinction between relatively high and low ESG performers, thereby reducing reliance on the cardinal properties of the ESG rating scale.

The estimation results, reported in Table 4, indicate that the coefficient on ESG\_Dummy remains positive and statistically significant at the 1% level. Specifically, firms with above-median ESG performance exhibit higher Tobin's Q, with an estimated coefficient of 0.0667. This finding is consistent in both magnitude and direction with the baseline results, suggesting that the positive association between ESG performance and firm value is not sensitive to the measurement of the ESG variable.

Furthermore, the coefficients on the control variables remain broadly unchanged. Profitability, growth, and cash flow continue to display positive and statistically significant effects, while firm size and ownership concentration retain negative and significant coefficients. Other governance-related variables remain statistically insignificant. The stability of these results across specifications reinforces the robustness of the main findings and supports the conclusion that the ESG premium identified in Hypothesis 1 reflects a persistent empirical relationship rather than a modelling artefact.

Table 4. Robustness Check (Alternative Independent Variable)

Variables	TobinQ
ESG_Dummy	0.0667*** (0.0117)
Size	-0.3903*** (0.0051)
Lev	-0.1192 (0.0987)
ROA	2.6899*** (0.1512)
Growth	0.0472*** (0.0075)
Cashflow	0.5162*** (0.0405)
Board_Size	0.0195 (0.0143)
Top1	-1.1674*** (0.0281)
List_Age	0.1576*** (0.0186)
Dual	-0.0074 (0.0067)
Indep	0.0299 (0.0643)
Observations	16500
R-squared	0.3769
Firm Fixed Effect	Yes
Year Fixed Effect	Yes

Note: Standard errors clustered at the firm level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## Heterogeneity Test

To examine whether the relationship between ESG performance and firm value varies across firm characteristics, the sample is partitioned based on ownership structure and firm size. For the ownership analysis, firms are divided into state-owned enterprises (SOEs, 5,522 firm-year observations) and non-state-owned enterprises (non-SOEs, 10,978 firm-year observations). For the size analysis, firms are classified into large and small groups according to the median level of total assets, with 8,250 observations in each subgroup. The baseline regression model is then re-estimated within each subsample.

The results for ownership heterogeneity, reported in Table 5, indicate that ESG performance remains positively and statistically significant at the 1% level in both subsamples. The estimated coefficients are 0.0085 for SOEs and 0.0080 for non-SOEs, suggesting that ESG engagement enhances firm value regardless of ownership type. The slightly larger coefficient for SOEs provides partial support for Hypothesis 2, implying that ESG activities undertaken by state-affiliated firms may be perceived as more credible by investors, possibly due to stronger policy alignment and implicit government backing.

The size-based results reveal a contrasting pattern. While ESG performance continues to exert a positive and significant effect in both groups, the estimated coefficient is larger for small firms (0.0096) than for large firms (0.0064), both significant at the 1% level. This finding does not support Hypothesis 3. One possible explanation is that ESG engagement serves as a more effective signalling mechanism for smaller firms, which typically face greater information asymmetry and lower market visibility. In contrast, large firms, which are already subject to extensive analyst coverage and investor attention, may experience comparatively smaller marginal valuation gains from improvements in ESG performance.

Overall, the heterogeneity analysis reinforces the robustness of the baseline findings while highlighting that the valuation effect of ESG performance is not uniform across firm types.

Table 5. Heterogeneity Tests: Ownership and Firm Size

Variables	SOE	Non-SOE	Large Firms	Small Firms
ESG	0.0085*** (0.0012)	0.0080*** (0.0009)	0.0064*** (0.0011)	0.0096*** (0.0011)
Size	-0.3875*** (0.0088)	-0.3921*** (0.0062)	-0.3786*** (0.0093)	-0.3944*** (0.0098)
Lev	-0.2627 (0.1620)	-0.0484 (0.1231)	-0.1839 (0.1438)	-0.0028 (0.1517)
ROA	2.9971*** (0.2513)	2.5365*** (0.1873)	2.6707*** (0.2235)	2.8584*** (0.2231)
Growth	0.0683*** (0.0126)	0.0374*** (0.0093)	0.0411*** (0.0111)	0.0568*** (0.0116)
Cashflow	0.4714*** (0.0701)	0.5352*** (0.0495)	0.5644*** (0.0611)	0.4595*** (0.0612)
Control Variables	Yes	Yes	Yes	Yes
Observations	5522	10978	8250	8250
R-squared	0.3925	0.3764	0.3199	0.3078
Firm Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes

Note: Standard errors clustered at the firm level in parentheses. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01.

## CONCLUSION

### Conclusion

This paper investigates whether high ESG scores translate into superior market valuations for Chinese A-share

listed companies over the period 2012-2022. Using a two-way fixed-effects panel model that controls for firm heterogeneity, macroeconomic trends, and a rich set of firm-level covariates, the study reports three main findings.

First, the analysis establishes a positive and statistically robust relationship between ESG performance and Tobin's Q, confirming that capital markets in China reward sustainability commitment. This result holds under an alternative binary operationalisation of the ESG variable, supporting the robustness of the conclusion. The finding implies that non-financial risk management through ESG integration has become a recognised component of financial strategy, with investors increasingly treating ESG scores as signals of long-run management quality and business resilience.

Second, subgroup analysis reveals that the ESG premium is marginally stronger for state-owned enterprises than for privately held firms, consistent with the argument that SOEs' alignment with national policy objectives and their lower default risk amplify the market recognition of their sustainability efforts. Third, contrary to the initial hypothesis regarding firm size, the marginal valuation uplift from ESG improvement is larger for smaller firms—suggesting that ESG adoption confers distinctive competitive advantages on smaller entities by differentiating them in capital markets where they would otherwise attract limited institutional attention.

## Suggestions

Several considerations limit the generalisability of these findings and point to directions for future research. Because the study is confined to China's A-share market, it is unclear how well the results extrapolate to markets with different regulatory architectures, corporate governance traditions, and investor compositions. Comparative international studies could illuminate how the ESG-value relationship is conditioned by these macro-level institutional factors, yielding a more nuanced global picture of corporate sustainability's financial returns.

At the micro level, future work could decompose the composite ESG score into its constituent environmental, social, and governance pillars to determine which dimensions drive the greatest value-creation effects in the Chinese context. Text analytics techniques—including natural language processing applied to sustainability reports and earnings call transcripts—offer a complementary lens for capturing qualitative aspects of ESG disclosure that numerical ratings may inadequately reflect. For corporate managers, the key practical takeaway is that ESG investment should be evaluated as a strategic capital allocation decision with measurable financial payoffs, not merely a compliance obligation. Regulators, in turn, are encouraged to continue strengthening ESG disclosure requirements, as transparent and standardised reporting enhances the quality of the ESG signals that investors use to price sustainability commitment.

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