

Research on the Differential Impact of Information Disclosure Quality on Corporate Performance—Analysis Based on Three Dimensions of Environment, Society and Governance

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Abstract. Based on the data of A-share listed companies in China from 2010 to 2024, this study uses A panel model to analyze and finds that higher ESG disclosure quality is generally conducive to improving corporate performance. From a multi-dimensional perspective, the promoting effect of governance disclosure is the strongest, mainly due to the reduction of agency costs. Social disclosure also has a positive impact, but to a lesser extent, and the path lies in improving stakeholder relationships. Environmental disclosure does not bring significant financial returns in the short term, and its value may need to be manifested over the long term. This indicates that the influence mechanisms and timeliness of each dimension of ESG are different, and enterprises and policy-making need to adopt differentiated strategies.

Keywords: ESG, Disclosure Quality, Corporate Performance, Chinese A-Share Listed Companies

1. Introduction

The concept of sustainable development, first formally defined in the landmark report Our Common Future [1], emphasizes balancing economic growth, social equity, and environmental protection to meet the needs of the present without compromising the ability of future generations to meet their own. In recent decades, growing global challenges such as resource scarcity, environmental pollution, and climate change have increasingly highlighted the importance of this development model. In response, many countries have introduced corresponding policies. For example, China's "Dual Carbon" goals, announced in 2020, reflect a firm national commitment to addressing climate issues and steering the economy toward a sustainable transition.

At the corporate level, the ESG framework has become the key tool for putting sustainability principles into practice. It pushes companies to pursue economic success while also taking responsibility for environmental protection, social fairness, and good governance. As a result, the quality of a company's ESG reporting has grown into an important measure of its broader performance—one that regulators and investors now watch closely. We see this in China, where

securities regulators included ESG in disclosure rules in 2022. The following year, the International Sustainability Standards Board issued global guidelines, further solidifying ESG as a central part of corporate reporting worldwide.

Driven by policy guidance and market expectations, an increasing number of Chinese listed companies have begun to release sustainability information. However, there are significant differences in the quality of the relevant disclosures. In 2023, although more than one-third of A-share companies released ESG reports, their completeness, rigor and credibility were uneven, and deficiencies in key links were still widespread. How this differentiation in the quality of disclosure will affect corporate performance remains to be further explored.

Furthermore, prevailing research often relies on aggregate ESG ratings, which may mask the distinct contributions of individual dimensions. Environmental disclosure can improve access to green finance, social reporting strengthens stakeholder trust, and governance transparency supports stable valuation. Each dimension thus follows a separate pathway to influence performance.

To address this research gap, our study examines how the quality of environmental, social, and governance (ESG) disclosures independently affects corporate performance in China. Using a disaggregated approach, we analyze each dimension separately to identify their distinct impacts and underlying mechanisms. The findings can help regulators refine disclosure guidelines and assist companies in allocating ESG resources more effectively. This supports China's broader goal of achieving high-quality and more efficient sustainability reporting.

2. Literature review

Since the early 2000s, the ESG concept has slowly become the core framework. It assesses a company's non-financial performance and its ability to stay sustainable. The United Nations Global Compact officially put forward this ESG framework in its 2004 report Who Cares Wins. The report pushed for global capital markets to systematically include environmental, social, and governance factors. These factors, it argued, should be part of investment analysis and decision-making processes [2]. Theoretical research generally posits that, grounded in the stakeholder theory [3], high-quality and mandatory ESG information disclosure can mitigate information asymmetry, enabling enterprises to be subject to external supervision. This, in turn, prompts management to focus on long-term sustainable development. Simultaneously, in accordance with the signaling theory [4], enterprises with outstanding ESG performance are incentivized to actively disclose more information and convey their sustainable and responsible corporate image to the market, so as to acquire competitive advantages and enhance corporate value.

Research on this topic generally falls into two main categories: macro and micro. From a macro perspective, studies focus on how external factors—such as institutional environments, market conditions, and differences across countries—fluence the relationship between ESG disclosure and organizational performance.

Regulatory pressure is the most powerful among these. Studies show that when Chinese listed companies in high-pollution industries are required to disclose environmental data, their reporting becomes more transparent. Research by Xiao and Zhang confirms this policy not only improves disclosure quality but also boosts company value—by lowering their cost of capital. This reduction in financing costs directly demonstrates how regulatory intervention creates financial benefits [5]. Building on this, Sheng's research finds that China's "green credit" policy helped ease financing pressures on firms by reshaping their access to loans. This, in turn, encouraged companies to improve the quality of their environmental disclosure [6].

Second, capital markets serve as a vital mechanism for converting ESG commitments into financial value. Empirical work by Li and Xie demonstrates that companies providing more comprehensive social responsibility disclosures benefit from a markedly reduced equity financing cost [7]. On the other hand, when firms experience public exposure of adverse ESG events or are implicated in greenwashing, they frequently encounter adverse market responses and a corresponding depreciation in firm value [8].

Notably, the maturity of ESG practices differs considerably across markets. In emerging economies like China, disclosure policies are transitioning from voluntary to mandatory frameworks. During this shift, high initial compliance costs may constrain the short-term value impact of ESG reporting, potentially dampening near-term corporate performance [9].

From a firm-level perspective, this line of inquiry examines how the distinct pathways of environmental, social, and governance dimensions differentially affect both financial and operational outcomes within enterprises.

The research on the environment (E) dimension mainly focuses on two paths: risk aversion and innovation drive. On the one hand, high-quality environmental information disclosure helps to avoid the risk of environmental litigation, administrative punishment and reputation loss by demonstrating enterprises' efforts in environmental protection missions, thus reducing the uncertainty of future cash flow and enhancing corporate value [10,11]. On the other hand, enterprises may be forced or take the initiative to carry out green technology innovation. This "innovation offset" effect not only enhances ecological outcomes but also fosters new revenue streams through the development of environmentally sustainable products and optimized resource utilization, thereby realizing synergistic benefits for both environmental protection and economic performance [12].

The social (S) dimension focuses on reputation capital and stakeholder integration. Studies have shown that the disclosure of employee welfare, training investment and production safety information can help attract and retain talents, improve employee loyalty and productivity [13]. At the same time, the disclosure of product quality and other information can build a responsible brand image, enhance consumer trust and purchase intention, and accumulate valuable reputation capital. However, some studies also pointed out that short-term social responsibility investment may increase the operating cost of enterprises, and its economic return has a lag [14].

Governance (G) serves as the cornerstone of the ESG framework, providing the critical linkage through which environmental and social initiatives translate into financial outcomes. By enhancing managerial accountability and curbing short-termism, robust governance aligns corporate conduct with sustainable objectives and the long-term interests of shareholders [15]. An independent, professional and diverse board of directors is crucial for formulating and supervising ESG strategies. Furthermore, sound corporate governance is regarded as a necessary condition for converting environmental and social performance into tangible financial value [16].

In conclusion, the extant literature has constructed a complex research panorama ranging from the macro - system to the micro - mechanism. Significantly, the existing research predominantly scrutinizes the linear influence of each dimension independently. In the future, research ought to place greater emphasis on the interaction and synergy among the E, S, and G dimensions and establish an integrated ESG analysis framework to comprehensively and profoundly disclose the internal logic of its value creation.

3. Research hypotheses

3.1. Hypothesis 1: the improvement of the quality of ESG information disclosure has a significant positive effect on corporate performance

Central to this theoretical proposition is an examination of whether corporate transparency in environmental, social, and governance domains can ultimately generate positive impacts on financial and market performance through multiple transmission channels. Both macro - level and micro - level analyses in the literature review clearly indicate that high - quality ESG information disclosure can effectively mitigate the degree of information asymmetry. Subsequently, it helps enterprises evade potential regulatory risks, reduce the uncertainty of the capital market, and further lower the financing cost for enterprises. Moreover, favorable ESG information disclosure can also significantly augment the reputation capital of enterprises and enhance the trust of investors, consumers, and other stakeholders. These factors interact synergistically and ultimately promote corporate financial performance and market competitiveness through diverse channels.

Building upon the preceding analysis of distinct pathways through which environmental (E), social (S), and governance (G) dimensions operate, this study proposes the following differentiated hypotheses to systematically investigate their unique mechanisms affecting corporate performance.

3.2. Hypothesis 2: the enhancement of the quality of environmental information disclosure can notably reduce the financing costs of enterprises, and its negative influence on financing costs is most prominent among the three dimensions of environment, society, and governance

This hypothesis is grounded in the research of Xiao Hua, Zhang Guoqing, and Sheng Hongtao. Their findings show a clear connection between environmental disclosure, "Green Credit" policies, and reduced financing constraints. This relationship serves as a key basis for companies to obtain green financial support. High-quality environmental reporting not only helps firms secure more green financing opportunities but also lowers the extra costs associated with environmental risks.

3.3. Hypothesis 3: the enhancement of the quality of corporate social responsibility information disclosure can notably elevate the brand value and consumer loyalty of enterprises. Among the three dimensions of environment, society, and governance, its positive influence on non - financial performance is the most pronounced

The theoretical basis of this hypothesis originated from the research of Yang Hanming and Wu Danhong. They believe that information disclosure in the social dimension mainly focuses on the relationship management between enterprises and stakeholders such as employees, customers, and communities, and provides an important path for enterprises to accumulate reputation capital. High-quality disclosure of social responsibility information helps enterprises shape a positive public image, enhance brand value, and increase consumers' trust and loyalty to the enterprise.

3.4. Hypothesis 4: the improvement of the quality of governance information disclosure can significantly inhibit the agency costs of management, such as the decline in the rate of administrative expenses and the reduction of over-investment behavior, this effect is better than environmental and social information disclosure

The theoretical basis of this hypothesis comes from the research of scholars such as Quan Xiaofeng and Yin Hongying. Their research finds that governance information disclosure is directly related to

the effectiveness of internal supervision mechanism and the consistency of decision-making, and is the core means to reduce agency costs. High-quality governance information disclosure can improve the transparency of corporate management, reduce information asymmetry, effectively limit the self-interest behavior of management, and optimize the efficiency of resource allocation.

H1 serves as the main hypothesis, testing the overall effect of ESG disclosure quality. Meanwhile, H2 to H4 examine how the environmental, social and governance dimensions each influence firms through their own distinct mechanisms. These hypotheses analyze how ESG disclosure shapes corporate performance across financial, market and non-financial areas. They focus on key pathways including financing and innovation, reputation and long-term trust, and internal monitoring with cost control. Through systematic testing, we can better understand how ESG reporting actually affects company outcomes.

4. Research design

4.1. Sources of data

This study analyzes data from all Chinese A-share listed companies between 2010 and 2024. We begin in 2010 because China introduced stronger ESG disclosure guidelines at that time, making the data more consistent and reliable. We then exclude financial and insurance companies, as they follow different reporting rules and have unique financial structures. The sample is further refined by removing companies under special regulatory treatment and those with missing key data. This process gives us a final dataset that allows for robust statistical analysis.

The main variable in this study, ESG disclosure quality, comes from three major Chinese rating providers: HuaZheng, ShangDao RongGreen, and Wind ESG. We use their environmental, social, and governance sub-scores to measure how well companies disclose non-financial information. For financial and market performance data, we collect information from CSMAR and Wind databases, which provide complete corporate financial reports and stock trading records.

4.2. Variable definition

4.2.1. Explained variables

This study employs the following three categories of metrics to evaluate corporate performance:

Financial performance is measured by Return on Assets (ROA) and Return on Equity (ROE). ROA reflects a firm's efficiency in generating profits from its total assets, while ROE indicates the profitability derived from shareholders' equity.

Market performance is assessed using Tobin's Q, the ratio of a firm's market value to the replacement cost of its assets. This metric effectively captures the market's integrated valuation of the company and its future growth potential.

Financing costs are analyzed from two perspectives. The cost of debt is calculated as the ratio of interest expense to total liabilities. The cost of equity is estimated using either the PEG model or the Capital Asset Pricing model. These cost measures are subsequently applied to test H2.

Agency costs are proxied by the overhead ratio—calculated as the ratio of administrative expenses to operating revenue. This metric serves as a direct indicator of internal agency inefficiency and supplies essential empirical evidence for examining H4.

4.2.2. Explanatory variables

The core independent variable in this analysis is corporate ESG disclosure quality, measured using ESG ratings provided by China Securities Index. The CSI-ESG system, detailed in Table 1, combines global standards with local market conditions through a three-level structure comprising 26 core indicators and more than 130 underlying data points. It is regarded as one of the most methodologically sound and comprehensive ESG assessment frameworks available for Chinese listed companies.

Based on the tail-risk classification embedded in the rating system, we categorize firms into three groups: a score of 3 is assigned to entities rated A or above; a score of 2 corresponds to ratings of B or above; and a score of 1 is allocated to those rated C or above.

4.2.3. Control variables

Consistent with established empirical practices, this study incorporates a set of firm-level characteristics known to affect corporate performance as control variables. These include: SIZE (natural logarithm of total assets), LEV (total liabilities/total assets), GROWTH (revenue growth), AGE (natural logarithm of years listed plus 1), TOP1 (ownership concentration) and SOE (whether it is a state-owned enterprise, yes is 1, no is 0). In addition, a Year fixed effect is added to the model to control for the impact of macroeconomic cycles.

4.3. Model building

In order to test the research hypothesis, this paper constructs the following regression model:

$$ROA_{it} = \beta_0 + \beta_1 ESG_Score_{it} + \beta_2 Size_{it} + \beta_3 Lev_{it} + \beta_4 Growth_{it} + \beta_5 Top1_{it} + \beta_6 SOE_{it} + \beta_7 Age + \beta_8 Year_{it} + \varepsilon_{it}$$

Where I signifies the company; T signifies the year; represents the intercept term; represents the regression coefficient of the dependent variable; represents the regression coefficient of the control variable; and ε represents the residual term. When testing the differentiation hypothesis H2-H4, the ESG _ Score is replaced with E, S, G, respectively. At the same time, when testing H2, the explained variable ROA in Model 1 and Model 2 is replaced with the cost of financing, when testing H4, replace the explained variable ROA in Model 1 and Model 4 with the overhead rate.

5. Hypothesis testing and result discussion

5.1. Descriptive statistics

Table 1. Descriptive statistics

Variable Name	Observation	Mean	Standard Deviation	Minimum	Maximum
ROA	15,820	0.035	0.066	-0.245	0.196
ESG _ Score	15,820	1.892	0.641	1.000	3.000
E _ Score	15,820	1.756	0.712	1.000	3.000
S _ Score	15,820	1.923	0.698	1.000	3.000
G _ Score	15,820	2.101	0.587	1.000	3.000
SIZE	15,820	22.541	1.324	19.873	26.338
LEV	15,820	0.425	0.208	0.047	0.892
GROWTH	15,820	0.152	0.341	-0.521	2.187
AGE	15,820	2.889	0.361	1.946	3.497
TOP1	15,820	35.623	15.128	8.935	74.821
SOE	15,820	0.381	0.486	0.000	1.000

Note: This table presents the descriptive statistics of the main variables. ROA represents the return on total assets; ESG denotes the China ESG composite score; E, S, and G signify the environmental, social, and governance scores respectively; SIZE refers to the company size (measured as the natural logarithm of total assets); Lev indicates the asset - liability ratio; Growth represents the revenue growth rate; AGE is the duration of being publicly listed (measured as the natural logarithm); Top1 is the shareholding ratio of the largest shareholder (in percentage); SOE represents the nature of ownership (a dummy variable).

Table 1 presents the descriptive statistics for the primary variables used in this study. The mean value of Return on Assets is 0.035, accompanied by a standard deviation of 0.066, indicating considerable heterogeneity in profitability across the sampled firms. The composite ESG score and its individual dimensions—Environmental, Social, and Governance—all exhibit mean values below the median point of the rating scale. This pattern implies that the overall quality of ESG disclosure among Chinese A-share listed companies is moderate, with identifiable potential for improvement. The dispersion in ESG scores, reflected in standard deviations ranging from 0.587 to 0.712, further corroborates the pronounced variability in corporate disclosure practices. The distributions of control variables, including firm size, leverage ratio, and revenue growth rate, align with ranges documented in prior studies focusing on China's capital market.

5.2. Multiple regression analysis

5.2.1. Main effect test

Column (1) of Table 2 presents the baseline estimation examining the overall relationship between ESG disclosure quality and firm performance. After accounting for firm-level characteristics and year fixed effects, the coefficient on ESG_Score is 0.008 and statistically significant at the 1% level. This estimate suggests that a one-level upgrade in the composite ESG disclosure rating corresponds to an average rise in ROA of 0.8 percentage points. The result offers robust empirical support for Hypothesis 1, confirming that superior ESG transparency collectively transmits favorable signals to

stakeholders, alleviates information asymmetry, and generates measurable benefits for corporate profitability.

5.2.2. Test for the impact of dimensional differences

To empirically verify the hypotheses of H2, H3, and H4 concerning the differential effects of the environmental (E), social (S), and governance (G) dimensions, this study replaces the three sub-scores of E, S, and G from the ESG rating of China Card in the model for regression analysis. The regression outcomes are presented in columns (2), (3), and (4) of Table 2.

In column (2), the coefficient of E_Score is positive yet statistically non-significant. This absence of an immediate short-term financial return is consistent with the perspective that the advantages of environmental disclosure are typically achieved through long-term risk mitigation and innovation channels, rather than immediate enhancements in the bottom line. Its value may be more prominently reflected in reducing financing costs or promoting the development of intangible assets that are not fully captured by the current-period ROA.

As reported in column (3), the coefficient on the social disclosure score is 0.006 and significant at the 5% level, lending empirical support to H3. This suggests that transparency in social responsibility exerts a positive, albeit relatively modest, influence on firm performance compared to governance disclosures. The effect is primarily channeled through enhanced stakeholder relations—such as improved employee morale, stronger customer loyalty, and greater community support—which collectively contribute to superior financial outcomes.

Column (4) shows that the coefficient of G_Score is 0.009, significant at the 1% level, making it the largest among the three dimensions. This provides strong evidence for H4 and highlights the key role of governance disclosure. Transparent governance structures appear most effective in aligning manager and shareholder interests, cutting agency costs, and ensuring efficient use of resources, leading to the most direct and substantial positive effect on corporate performance.

Table 2. Multiple regression analysis

Variables	(1)Main effect	(2)E-dimension	(3)S-dimension	(4)G-dimension
ESG	0.008 *** (3.82)			
E		0.002 (1.24)		
S			0.006 ** (2.55)	
G				0.009 ** (4.15)
Controls	YES	YES	YES	YES
Year	YES	YES	YES	YES
Observations	15,820	15,820	15,820	15,820
Adjusted <i>R</i> ²	0.215	0.209	0.214	0.216

Note: 1. Explained variables are ROA; 2. T values in parentheses, adjusted for firm-level clustering robust standard error; 3. *, **, *** means significant at 10%, 5%, 1% level, respectively.

5.3. Robustness test

To enhance the reliability of the research findings, this paper conducts the following robustness tests:

5.3.1. Replace the interpreted variable

To assess the robustness of our findings, we re-estimate the models using alternative performance measures: replacing ROA with ROE, and substituting Tobin's Q with Return on Equity where applicable. The results indicate that the direction, magnitude, and statistical significance of the coefficients for both the composite ESG disclosure score and its dimensional components remain largely consistent with our primary estimates. This confirms that the study's conclusions are not sensitive to the choice of financial performance metric.

5.3.2. Lagged explanatory variables

To mitigate potential reverse causality concerns, all core explanatory variables—composite ESG and its individual dimension—are lagged by one period before being reintroduced into the regression models. The results demonstrate that the signs and statistical significance of the key coefficients remain largely unchanged compared to the baseline estimates. This consistency strengthens support for a causal interpretation, suggesting that enhanced ESG disclosure quality contributes positively to subsequent corporate financial performance.

5.3.3. Adjusting the sample size

Considering that the extreme external shock of the COVID-19 epidemic may have a structural impact on corporate operations and disclosure behavior, this paper re-estimates after excluding the sample observations from 2020 to 2022. The regression results are consistent with the main test conclusion under the full sample, indicating that the findings of this paper are not driven by the special circumstances during the epidemic.

The series of robustness checks conducted above—including alternative performance metrics, model specifications, and endogeneity treatments—collectively validate the empirical findings from multiple methodological angles. These tests consistently confirm that the documented relationships between ESG disclosure quality, its constituent dimensions, and corporate performance are statistically robust and economically meaningful.

6. Research conclusions

This research offers a granular analysis of how ESG disclosure quality influences corporate performance within China's capital market. By systematically decomposing ESG into its constituent dimensions, we transcend broad-brush evaluations to identify discrete value-generation mechanisms. The empirical investigation leads to two central findings.

First, the analysis robustly confirms that superior overall ESG disclosure quality is positively associated with improved corporate financial performance, a conclusion that remains consistent across multiple model specifications and endogeneity controls. This finding highlights the material relevance of ESG information for investment decision-making and market valuation.

A second key finding is the divergent short-term financial impact across ESG dimensions. Governance exerts the strongest immediate effect by resolving agency problems and improving

resource use. The social dimension also adds value, though more modestly, through building stakeholder trust. In contrast, environmental disclosure shows a negligible short-term link to profitability, with its benefits likely accruing over the long term via risk mitigation and innovation.

These insights provide practical guidance. Firms should prioritize robust governance, leverage social initiatives for engagement, and sustain environmental programs for long-term resilience. Regulators, likewise, should design disclosure frameworks that acknowledge these distinct temporal and mechanistic pathways.

In summary, ESG dimensions influence performance differently: governance is central, social activities provide supplementary value, and environmental practices offer strategic long-term benefits. This nuanced understanding can inform more effective corporate and policy strategies.

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