

# Environmental Information Disclosure and Financial Performance of Chinese Manufacturing Firms: Evidence from 2020–2024

Yang Zhengfa<sup>1\*</sup>, Mary O' Penetrante<sup>2</sup>

Central Philippine University, Iloilo City, Philippines

\*Corresponding Author

DOI: <https://dx.doi.org/10.47772/IJRISS.2025.910000162>

Received: 15 October 2025; Accepted: 26 October 2025; Published: 06 November 2025

## ABSTRACT

This study examines the relationship between environmental information disclosure (EID) and financial performance among 2,229 listed Chinese manufacturing firms from 2020–2024. Drawing on stakeholder, resource-based, and institutional theories, the analysis explores how firm characteristics—asset size, workforce, and ownership—affect disclosure behavior and financial outcomes. Using descriptive statistics, ANOVA, Pearson correlation, and panel regression, results reveal that while overall disclosure levels remain low (38.9%), larger and government-linked enterprises consistently outperform small and medium-sized firms. EID shows a significant positive association with market capitalization ( $\beta = 0.18$ ,  $p < 0.01$ ), but weaker relationships with short-term profitability (ROA, ROE). Findings suggest that environmental transparency enhances long-term market valuation rather than immediate accounting returns. Policy implications highlight the need for tiered ESG reporting frameworks, capacity-building programs for SMEs, and stronger regulatory incentives to align environmental governance with China's "Dual Carbon" goals.

**Keywords:** environmental disclosure, ESG, financial performance, manufacturing, China, sustainability

## INTRODUCTION

The acceleration of China's industrial modernization has come at a considerable environmental cost, prompting an urgent call for improved environmental accountability and sustainable corporate practices. In alignment with its "Dual Carbon" strategy—achieving carbon peaking by 2030 and carbon neutrality by 2060—China has progressively strengthened its environmental disclosure requirements. The 2022 launch of the China Securities Regulatory Commission's (CSRC) ESG disclosure pilot program marked a milestone in institutionalizing sustainability reporting, particularly within the manufacturing sector, which remains the backbone of the Chinese economy and a major source of greenhouse gas emissions.

Environmental information disclosure (EID) serves as a key mechanism for companies to demonstrate transparency and commitment to sustainable development. Yet, despite significant policy momentum, EID practices among Chinese firms vary widely in both scope and quality. While large and state-owned enterprises tend to disclose more comprehensive information due to regulatory and reputational pressures, small and medium-sized enterprises (SMEs) often provide minimal data, constrained by resource limitations and low technical capacity. This disparity raises critical questions regarding the effectiveness of existing regulatory frameworks and the extent to which EID contributes to actual corporate performance.

Previous research in developed markets has found that environmental disclosure can enhance investor confidence, reduce information asymmetry, and improve firm valuation. However, empirical evidence in emerging economies like China remains inconclusive. Some studies suggest that disclosure improves financial performance through better access to capital and enhanced stakeholder trust, while others argue that its benefits are long-term and indirect, emerging only after firms internalize sustainability practices into their strategic operations. These mixed findings indicate the need for more robust, large-scale empirical analyses in the Chinese context.

This study aims to fill that gap by examining the relationship between EID and the financial performance of Chinese manufacturing enterprises over a five-year period (2020–2024). Specifically, it investigates how firm attributes such as asset size, workforce, and ownership structure influence disclosure behavior and whether higher EID levels are associated with improved profitability and market valuation. By integrating institutional, stakeholder, and resource-based theoretical lenses, this paper contributes to understanding how regulatory pressures, organizational capacity, and stakeholder engagement collectively shape sustainability performance in China’s rapidly evolving ESG landscape.

## THEORETICAL BACKGROUND

The relationship between environmental disclosure and financial performance is best understood through an integration of Institutional Theory, the Resource-Based View (RBV), and Stakeholder Theory, each offering complementary insights into corporate behavior.

Institutional Theory posits that organizations operate within systems of social, legal, and normative pressures that influence their decisions and practices. In China’s case, coercive pressures stem from government mandates such as the “Dual Carbon” targets and the CSRC’s ESG guidelines. Firms may comply to achieve legitimacy, yet the extent of compliance varies depending on the strength of institutional enforcement and the perceived strategic value of environmental disclosure. While initial compliance may be symbolic, sustained disclosure requires deeper organizational adaptation and integration into corporate governance structures.

The Resource-Based View (RBV) emphasizes that firms differ in their ability to respond to institutional pressures based on internal resources and capabilities. Larger enterprises, with stronger financial, technological, and human resources, are better equipped to invest in sustainability systems and formalized reporting mechanisms. Conversely, SMEs often face financial constraints and lack specialized expertise, resulting in inconsistent or superficial disclosures. From this perspective, EID reflects not only regulatory response but also organizational maturity and capacity for strategic innovation.

Stakeholder Theory complements these perspectives by suggesting that firms engage in environmental disclosure to meet the expectations of diverse stakeholders—investors, regulators, employees, and communities—whose trust and cooperation are essential for long-term success. Transparent reporting can reduce information asymmetry, improve corporate reputation, and signal ethical commitment, leading to potential financial advantages. These mechanisms align with *Signaling Theory*, which holds that credible information disclosure serves as a positive signal to the market about a firm’s quality, governance, and sustainability orientation.

Taken together, these theories suggest that EID can function both as a regulatory compliance mechanism and as a strategic tool that enhances competitive advantage. The interplay of institutional pressures, resource capacity, and stakeholder expectations determines the depth and quality of disclosure, and ultimately, its impact on financial outcomes. This theoretical foundation provides the basis for examining whether Chinese manufacturing firms’ disclosure practices translate into measurable economic and market benefits.

## METHODOLOGY

This study employed a quantitative research design using secondary data to examine the relationship between environmental information disclosure (EID) and the financial performance of Chinese manufacturing enterprises. The sample consisted of 2,229 listed manufacturing firms from the Shanghai and Shenzhen Stock Exchanges, covering a five-year period from 2020 to 2024. The selection of this period coincides with the implementation of China’s “Dual Carbon” policy and the 2022 ESG disclosure pilot program by the China Securities Regulatory Commission (CSRC), providing a relevant timeframe to observe the evolution of environmental disclosure practices. The study focused on publicly listed firms because they are required to disclose audited financial data and are more likely to engage in formal ESG reporting.

Data on environmental disclosure performance were collected from the Refinitiv ESG database, specifically using the *Environmental Pillar Disclosure (EnvPillarDisc)* score, which measures the extent of environmental information disclosed by firms on a scale of 0 to 100. Financial performance indicators—including *Return on*

*Assets (ROA), Return on Equity (ROE), and Market Capitalization*—were obtained from the companies' annual reports and financial statements. Firm-specific characteristics, such as asset size, number of employees, and type of financial stakeholder ownership, were also included as control variables to assess how these factors influence both disclosure behavior and financial outcomes.

The study applied descriptive statistics, analysis of variance (ANOVA), and Pearson correlation analysis to evaluate the relationships among variables. Descriptive analysis summarized disclosure and performance trends across the five-year period, while one-way ANOVA tested for significant differences in EID and financial performance among groups categorized by firm size, workforce scale, and stakeholder type. Pearson's correlation coefficient was then used to measure the strength and direction of association between EID and financial indicators, with significance levels set at  $p < 0.05$  and  $p < 0.01$ . This combination of methods enabled a robust examination of whether variations in environmental disclosure are systematically linked to differences in firm performance within China's manufacturing sector.

## RESULTS AND DISCUSSION

### Environmental Disclosure Status

Across 2020–2024, environmental disclosure among Chinese manufacturing firms remained limited, with only 38.9% of the 2,229 firms publishing environmental data. Firms with weak disclosure scores (0–20) accounted for 81.4% in 2024, indicating minimal progress despite policy reforms. Although disclosure improved slightly between 2020 and 2023, a reversal in 2024 suggests regulatory fatigue and uneven enforcement.

### Enterprise Size and Ownership

Descriptive data show that small and medium-sized enterprises (SMEs) with total assets of  $\leq 50$  billion RMB represented 89% of the sample, while large firms ( $> 50$  billion RMB) grew from 8.6% to 10.7% during the period. ANOVA results revealed that EID significantly differed by firm size ( $F = 11.94$ ,  $p < 0.001$ ) and ownership type ( $F = 3.49$ ,  $p = 0.027$ ), with government-linked firms exhibiting higher disclosure quality.

### Financial Performance Trends

Profitability, as measured by ROA and ROE, declined after 2022 due to rising compliance and energy costs, while market capitalization recovered in 2024, reflecting renewed investor confidence in firms demonstrating credible ESG practices.

### Correlation and Regression Analysis

Pearson correlation showed moderate positive relationships between EID and Market Cap ( $r = 0.16$ – $0.19$ ,  $p < 0.01$ ), but weak correlations with ROA and ROE ( $r \approx 0.06$ ). Panel regression results confirmed that EID significantly influences market valuation after controlling for firm characteristics: EID  $\rightarrow$  Market Cap ( $\beta = 0.18$ ,  $p < 0.01$ ); EID  $\rightarrow$  ROA ( $\beta = 0.05$ , n.s.); EID  $\rightarrow$  ROE ( $\beta = 0.03$ , n.s.). These findings indicate that environmental transparency is positively recognized by capital markets but has limited immediate effect on accounting profitability.

## DISCUSSION

The findings underscore the uneven progress of environmental disclosure in China's manufacturing industry and its differential financial implications. The low disclosure rates despite regulatory directives reflect the ongoing challenges of translating policy into practice. While large and state-owned enterprises demonstrate higher EID levels due to stronger compliance mechanisms and reputational concerns, SMEs remain hindered by cost constraints, lack of expertise, and minimal market pressure to disclose.

The positive relationship between EID and market capitalization confirms the signaling role of environmental transparency. Investors increasingly reward firms that demonstrate sustainability commitment, perceiving them as lower-risk and better managed. This supports both Stakeholder and Signaling Theories, suggesting that

disclosure enhances legitimacy and investor trust. However, the weak associations between EID and ROA or ROE imply that while environmental initiatives strengthen market perception, they may not immediately translate into operational profitability. Compliance costs, green technology investments, and transitional inefficiencies may temporarily suppress short-term returns, consistent with the cost–benefit theory of disclosure.

These findings reinforce the view that EID should be understood as a long-term strategic investment rather than a short-term profit driver. Over time, transparency can yield cumulative benefits by improving access to green financing, reducing reputational risks, and fostering stakeholder loyalty. The results also illustrate how resource asymmetry—manifested in differences in capital, technology, and workforce—affects disclosure capacity and the realization of financial gains from sustainability practices.

## CONCLUSIONS AND POLICY IMPLICATIONS

This study concludes that environmental information disclosure within China’s manufacturing sector remains uneven, fragmented, and largely compliance-driven. Larger and government-linked firms consistently demonstrate higher disclosure quality, while smaller enterprises struggle to meet reporting expectations. Although EID has a limited impact on short-term profitability, it significantly enhances market valuation, indicating that capital markets view transparency as a signal of long-term stability and sound governance.

To strengthen the effectiveness of EID, regulatory agencies should adopt tiered disclosure frameworks that match firms’ resource capacities. Larger enterprises should be mandated to publish comprehensive ESG reports, while SMEs could follow simplified, subsidized templates supported by digital reporting systems. Building data management capacity through training and technical assistance would further improve the credibility of disclosures.

Integrating environmental metrics into corporate performance evaluation and executive compensation could encourage firms to internalize sustainability goals. Moreover, linking ESG ratings with stock exchange privileges, tax incentives, or financing access could enhance compliance motivation. Ultimately, fostering a culture of proactive and credible disclosure will not only improve China’s environmental governance but also reinforce investor confidence and sustainable industrial competitiveness.

## REFERENCES (APA 7TH)

1. Aghion, P., et al. (2018). *Industrial Dynamics in China*. Beijing: Economic Press.
2. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
3. Chen, Z., Wang, L., & Tang, Y. (2022). Government ownership and ESG disclosure in Chinese firms. *Corporate Governance*, 22(4), 654–668.
4. Eccles, R. G., Feiner, A., & Viehs, M. (2020). The ESG-performance relationship. *Financial Analysts Journal*, 76(3), 60–78.
5. Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from 2000+ studies. *Journal of Sustainable Finance and Investment*, 5(4), 210–233.
6. Liu, X., & Yang, J. (2021). Financing thresholds for green transition in manufacturing. *Environmental Economics Review*, 8(2), 33–47.
7. Lu, Y., & Yao, Y. (2021). Industrial upgrading and consolidation in Chinese manufacturing. *China Economic Review*, 67, 101–115.
8. Musacchio, A., & Lazzarini, S. G. (2014). *Reinventing State Capitalism*. Cambridge, MA: Harvard University Press.
9. Zhang, W., & Wang, Z. (2022). Ownership structure and ESG disclosure in emerging markets. *Asian Business Review*, 12(2), 112–127.