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Do Institutional Investor Networks Enhance ESG Performance in China's Listed Firms? Examining the Mediating Role of Financing Constraints and the Moderating Effect of Green Finance Policy

By Xianing Tang

1. Introduction

1.1 Research Background and Rationale

Given China's rapid economic expansion, environmental and social issues, and revolutionary legislative measures to promote sustainability, this tendency is particularly strong (Deng et al., 2023; Gao & Liu, 2023). While China's economy is growing, industrialization's environmental damage and social inequality make ESG strategies crucial for enterprises (Zhang, Meng, & Zhang, 2023; Deng, Li, & Ren, 2023). Institutional investors including mutual funds, pension funds, insurance companies, and sovereign wealth funds drive ESG improvements (Crane, Koch, & Michenaud, 2019). Institutional investors impact company decisions with large share holdings, sophisticated engagement methods, and voting power (Velte, 2023; Cohen, Kadach, & Ormazabal, 2023). Institutional investors are very important in China due to state-driven reforms, transparency requirements, and rising international investor participation (Yang et al., 2024). Chen, Li, Cui, & Hu (2023) and Cohen, Kadach, & Ormazabal (2023) found increased institutional investor engagement in Chinese enterprises on ESG disclosure and sustainable governance. Importantly, institutional investors often develop networks to share investing objectives, coordinate governance, and spread ESG rules across their portfolios (Bajo, Croci, & Marinelli, 2020). Institutional investor networks are active coalitions that encourage business management to adopt strong ESG norms (Gong & Liu, 2023). These networks' strength and density increase ESG-related expectations and investors' ability to influence business conduct (Fan, Ly, & Jiang, 2023; Gong & Liu, 2023). The impact of institutional investor networks on ESG outcomes is complicated. Finance restrictions often prevent firms from investing in long-term sustainability projects (Zhang & Lucey, 2022). Many emerging economies like China have market flaws such information asymmetry, high external finance costs, and little collateral (Mizen & Tsoukas, 2012; Guo et al., 2023). ESG efforts have high upfront costs and uncertain short-term returns, therefore enterprises in financial distress may underinvest in sustainability unless external financing improves (Chan, Chou, & Lo, 2017). Institutional investor networks can ease financing constraints. Resource Dependence Theory states that strong investor networks indicate market confidence and reduce external financial frictions for enterprises (Hillman, Withers, & Collins, 2009; Crane et al., 2019). Reputable investor backing lowers borrowing costs, capital access, and investment risks, making ESG-related investments easier (Zhang & Lucey, 2022). Investor influence depends on regulatory and institutional factors, including green finance policy intensity (Akomea-Frimpong et al., 2022). Green finance regulations including preferential interest rates for sustainable projects, ESG disclosure mandates, and incentives for issuing green bonds greatly influence corporate sustainability practices by changing ESG investment cost-benefit analyses (Gao & Liu, 2023; Li & Wang, 2023). Institutional investor networks have more leverage in countries or industries with

strong green finance policies because firms have clearer incentives and smaller hurdles to implementing higher ESG standards (Ma, He, & Zeng, 2024).

However, inadequately implemented or inconsistent green finance policies reduce investor networks' influence, demonstrating ESG uncertainty and insufficient market incentives for long-term sustainability investments (Li, Hu, & Hong, 2024). Thus, institutional investor networks, financing constraints, and green finance policy reveal the circumstances that enable ESG integration in Chinese listed enterprises (Qian & Yu, 2023). This study fills major literature gaps. Other studies have examined institutional ownership, but they have neglected the network component, missing investors' dynamic interaction and coordination (Bajo, Croci, & Marinelli, 2020; Crane et al., 2019). In China's emerging market, financing limitations' mediation role in institutional investors' influence on ESG outcomes is rarely addressed (Guo et al., 2023; Chan et al., 2017). Green finance policies have direct effects, but their moderation role in the investor-ESG nexus is understudied (Li & Wang, 2023; Qian & Yu, 2023). Thus, this study seeks to determine if institutional investor networks improve ESG performance in China's listed enterprises, with a focus on funding limitations and green finance policies. Clarifying these relationships helps governments, investors, and business decision-makers navigate China's complicated sustainable finance landscape.

1.2 Research Aim, and Objectives, and Questions

Aim:

This study examines Institutional Investor Networks, ESG, financing constraints, and Green Finance Policy in China's Listed Firms.

Objective :

Objective1: Determine how Institutional Investor Networks aids ESG performance.

Objective2: Examine how financing constraints mediates Institutional Investor Networks-ESG success. Objective 3: Examine how Green Finance Policy moderates Institutional Investor Networks-ESG performance.

Research Questions:

Question1:How does Institutional Investor Networks improve ESG performance?

Question2:Does financing constraints mediate the Institutional Investor Networks-ESG performance relationship?

Question3:Does Green Finance Policy moderate the relationship between green financing and ESG performance?

1.3 Research Gap

This study fills the existing research gap from the following aspects. First, most studies focus on the direct impact of institutional ownership on ESG (Crane et al., 2019), neglecting the dynamic collaborative effects of institutional investor networks (e.g., information sharing, coordinated voting). Network structural characteristics (e.g., centrality, density) may significantly amplify their collective influence on corporate ESG practices (Bajo et al., 2020). Second, in emerging markets like China, the mediating role of financing constraints in the relationship between institutional investor

networks and ESG performance remains underexamined (Guo et al., 2023). While Resource Dependence Theory posits that external financial dependency enhances firms' responsiveness to investor pressures (Hillman et al., 2009), empirical evidence for this mechanism in the ESG context is scarce. Third, the moderating role of green finance policies is underappreciated. While prior research emphasizes policy impacts on ESG outcomes (Li & Wang, 2023), how such policies amplify or weaken the influence of institutional investor networks requires deeper analysis (Qian & Yu, 2024). This study addresses these gaps by integrating a network governance perspective, the mediating pathway of financing constraints, and the moderating effect of policy environments, thereby constructing a multi-level analytical framework. This approach offers novel theoretical insights and practical implications for sustainable finance in China. Lastly, in terms of the research method, previous studies apply either quantitative or qualitative approach. This study applies mixed research method including both quantitative or qualitative approach.

2. Literature Review

2.1 Theoretical Foundations

Resource Dependence Theory (Hillman et al., 2009) posits that firms rely on external resources (e.g., capital) for survival and must actively manage relationships with key resource providers (e.g., institutional investors). In the ESG context, if green finance policies reduce financing costs for sustainable projects, firms gain stronger incentives to align with investor networks' ESG demands. To maintain resource flow, firms that rely heavily on external financial markets must proactively manage their financier connections. Gatekeepers to money, such as institutional investors in well-connected networks, can influence business decision-making (Cleary & Wang, 2017; Crane et al., 2019). In environments where green finance policy frameworks reward sustainable operations or where companies with higher ESG ratings have a lower cost of capital, RDT says firms have more incentives to meet investor networks' ESG expectations. Thus, RDT shows how finance restrictions mediate institutional investor influence: the more dependent a firm is on external funding, the more open it is to investor-driven ESG measures.

Stakeholder Theory (Freeman, 1984) emphasizes balancing diverse stakeholder interests, positioning institutional investors as critical actors who leverage capital and voting rights to drive ESG practices (Cohen et al., 2023).This approach holds that organizational existence and effectiveness depend on balancing and integrating stakeholder interests. Institutional investors can impact corporate strategies through their money and voting rights in ESG (Sun & Zhao, 2024; Cohen et al., 2023). Institutional investor networks can push for stronger ESG disclosures or divest from companies that don't satisfy sustainability standards, intensifying these pressures (Crane, Koch, & Michenaud, 2019). Stakeholder Theory presents a moral and strategic reason why strong institutional investor networks may encourage ESG commitments.

Finally, Social Network Theory (Bajo et al., 2020) conceptualizes institutional investors as network nodes, where connection density and centrality determine information flow and collective action efficiency. For example, highly central investors act as ESG "hubs," accelerating sustainability adoption through peer pressure and norm diffusion (Fan et al., 2023). Together, these theories explain how institutional investor networks influence corporate ESG performance through resource control, stakeholder alignment, and network structure.Social Network Theory views institutional investors as nodes in a network with linkages representing co-ownership or information-sharing channels (Crane et al., 2019). High-density networks or networks with notable "central" investors can coordinate ESG activity, increasing their influence over company boards (Chen, Li et al., 2023). As peer pressure and reputational concerns drive investors to agree with the group's ESG stance, such networks can spread sustainability best practices faster (Fan, Ly, & Jiang, 2023). Scholars can understand how investor connection, not shareholding percentages, affects firm-level ESG outcomes by studying network architectures (Yang et al., 2024).

2.2 Key Concepts

This section defines the core variables of the study, including Institutional Investor Networks, ESG Performance, Green Finance Policy, and Financing Constraints, while elaborating on their measurement methods and theoretical foundations.

2.2.1 Institutional Investor Networks

Institutional investor networks refer to structured relationships among institutional investors formed through shared ownership, information exchange, or coordinated actions (Bajo et al., 2020). Key characteristics include network density (closeness of connections among members), centrality (hub status of individual investors), and heterogeneity (diversity of member types). For example, highly central investors (e.g., large pension funds) may drive ESG adoption through concentrated voting power or collective advocacy (Fan et al., 2023). Social Network Theory posits that dense institutional investor networks accelerate ESG diffusion through norm propagation and peer pressure (Gong & Liu, 2023). For instance, network members may share ESG evaluation frameworks or jointly demand enhanced environmental transparency, fostering collective action (Cohen et al., 2023).

2.2.2 ESG Performance

ESG performance reflects a firm's integrated outcomes in environmental (E), social (S), and governance (G) dimensions (Gillan et al., 2021). Specific aspects include: Environmental aspect measures the carbon emissions intensity, energy efficiency, pollution control investments. Social subconstrcut measures the employee

welfare, community engagement, human rights in supply chains. In terms of the Governance, it measures the Board diversity, anti-corruption mechanisms, shareholder rights protection.ESG ratings face subjectivity and regional biases. For example, Chinese firms may receive higher environmental scores for policy-aligned "green innovation," but actual emission reductions require empirical validation (Li & Wang, 2023).

2.2.3 Green Finance Policy

Green finance policies are regulatory and incentive measures designed to channel capital toward sustainability, including green credit, green bonds, carbon trading mechanisms, and mandatory ESG disclosures (Akomea-Frimpong et al., 2022). In China, these policies manifest as:

Green Credit Guidelines: Prioritizing low-interest loans for low-carbon projects.

Green Bond Certification: Reducing financing costs via official accreditation.

Environmental Penalties: Restricting funding for high-pollution firms (Ma et al., 2024).

Robust green finance policies enhance institutional investor networks' influence by lowering ESG investment costs and risks (Yang et al., 2024). For instance, in policy-supported regions, networks more effectively push firms to adopt clean technologies (Lei et al., 2023).

2.2.4 Financing Constraints

Financing constraints refer to difficulties in accessing external capital at reasonable costs due to information asymmetry, insufficient collateral, or low credit ratings (Hadlock & Pierce, 2010). In ESG contexts, constrained firms may delay environmental or social projects due to funding shortages (Zhang & Lucey, 2022).

Resource Dependence Theory suggests that institutional investor networks alleviate financing constraints by providing reputational endorsements and long-term capital, thereby freeing resources for ESG investments (Hillman et al., 2009). For example, holdings by prominent investors reduce debt costs, enabling firms to implement costly pollution control projects (Chen et al., 2023).

2.3 Hypothesis Formulation

As shown in figure 1, three hypotheses are proposed to evaluate institutional investor networks, financing restrictions, ESG performance, and Green Finance Policy in China's Listed enterprises based on theoretical background and empirical evidence.

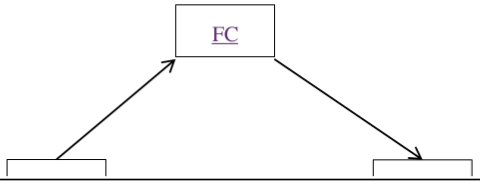

Figure 1: Proposed conceptual model

2.3.1 Institutional Investor Networks and ESG Performance

Institutional investors, as significant stakeholders, can motivate and force enterprises to fulfill greater ESG criteria (Freeman, 1984; Cordeiro & Tewari, 2015). Sustainability is typically driven by ethical requirements, reputational concerns, and the desire to reduce long-term climate change and social unrest risks (Cohen, Kadach, & Ormazabal, 2023). These investors can influence business behaviour more if they cooperate through co-investment linkages, coordinated voting methods, or shared sustainability research (Crane, Koch, & Michenaud, 2019). Social Network Theory explains how densely interconnected networks efficiently exchange information and norms (Bajo, Croci, & Marinelli, 2020). High network centrality suggests that some investors may be "hubs" of ESG expertise or action, inspiring others. This unified attitude improves the investor network's bargaining power with corporate management, raising ESG problems to the strategic forefront (Fan, Ly, & Jiang, 2023). Institutional investor cliques minimize information asymmetry and promote governance, including ESG disclosure, according to preliminary studies (Crane et al., 2019; Yang et al., 2024). Strong investor networks scrutinise firms' environmental and social implications, which can spur better ESG practises to prevent reputational damage and divestment threats (Chen, Li et al., 2023). Well-coordinated investor pressure may enhance national sustainability goals in China due to its regulatory focus on green development (Xue, Wang, & Bai, 2023; Ma, He, & Zeng, 2024). Based on above discussions, this study proposed the following hypothesis 1:

H1: Institutional Investor Networks positively affects ESG performance.

2.3.2 Mediation Role of Financing Constraints

Resource Dependence Theory (RDT) emphasises external capital as a strategic resource for business survival and expansion (Hillman, Withers, & Collins, 2009; Barney, 1991). Financially strapped companies may struggle to fund expensive environmental or social welfare projects with long payback periods (Chan, Chou, & Lo, 2017; Zhang & Lucey, 2022). In China, where capital markets are developing and risk perceptions are high, many firms—especially SMEs—face financing frictions (Guo, Fang, Liu, Wang, & Wang, 2023). In this scenario, institutional investor networks can facilitate or block. First, by holding significant stakes in several enterprises, these networks can communicate a company's financial health and promise to the market, cutting capital costs (Crane et al., 2019; Chen, Li et al., 2023). Second, such networks frequently have privileged access to firm-specific information, allowing them to provide capital or promote a firm to co-investors based on more accurate ESG risk and benefit evaluations (Gong & Liu, 2023). Third, institutional investor networks can give long-term funding to enterprises with a credible commitment to sustainability because strong ESG performance can offset reputational risks and boost long-term profits (Crace & Gehman, 2023). Signaling by respectable institutional investors helps reduce moral hazard and adverse selection issues connected with funding ESG projects (Chen, Zhang, & Liu, 2021). A cluster of significant institutional investors endorsing a corporation shows trust in its governance and future, prompting additional lenders or equity investors to contribute funds on better terms. After alleviating financial limitations, the firm can invest in difficult ESG activities including pollution-control technology upgrades and personnel training (Chan et al., 2017; Ma et al., 2024). Financial restrictions have an important mediating role: strong institutional investor networks minimize these constraints, which improves ESG performance. According to statistics, investor networks may directly affect ESG performance through the firm's financial capacity to implement sustainable strategies (Zhang & Lucey, 2022; Crane et al., 2019). Thus, this study proposes the following hypothesis 2:

H2: Financing constraints positively mediates the relationship between Institutional Investor Networks and an organisation's ESG ratings.

2.3.3 Moderation of Green Finance Policy

Green credit guidelines, green bond issuance frameworks, and mandatory ESG disclosures in China create an institutional environment that rewards or penalizes firms based on their sustainability profiles. These robust policies can increase institutional investors' willingness and ability to coordinate around ESG goals (Ma et al., 2024). Tougher rules generally offer financial incentives like lower interest rates for green loans or preferred tax treatment for sustainable projects (Lei, Miao, & Yao, 2023; Li, Hu, & Hong, 2024). These incentives can boost ESG investment ROI, making them more appealing to investors and corporate management. Furthermore, legislative pressures such required disclosure requirements or penalties for ecologically detrimental actions make ESG concerns more public, raising reputational stakes for

enterprises and investors (Zhang et al., 2019; Huang et al., 2023). Thus, institutional investors in close networks may be more inclined to avoid poor ESG performers, increasing their collective pressure on corporations (Cohen et al., 2023). Moreover, a favorable green finance policy environment helps reduce ESG investment uncertainty. Corporate managers and investors can plan forward with confidence that ESG commitments will meet future regulatory and market expectations when policies are stable and well-enforced (Qian & Yu, 2023; Kwilinski, Lyulyov, & Pimonenko, 2025). This predictability enables institutional investor networks to invest in green finance enterprises, boosting their ESG influence (Velte, 2023; Heavin & Power, 2018). In situations with more extensive green finance policies, institutional investor networks could support ESG improvements more. Investor networks may not have enough external reinforcement to change business behaviour if such policies are weak or inconsistent (Li & Wang, 2023; Lupo-Pasini, 2022). Hence, hypothesis 3 is proposed:

H3: Green Finance Policy positively moderates the relationship between Institutional Investor Networks and an organisation's ESG ratings.

3. Research Methodology

3.1 Quantitative Approach

This study aims to empirically analyze the influence of institutional investor networks on corporate financing decisions within China's Listed enterprises, employing a decade of A-share data from 2014 to 2023.

Institutional investor networks

Previous studies measure the Institutional investor networks using the following methods. Firstly, in terms of the degree Centrality, it quantifies the number of direct connections an investor has, reflecting information access and dissemination capacity (Bajo et al., 2020). Regarding the Betweenness Centrality, it Identifies "bridging" roles in resource flows, highlighting key coordinators within the network (Yang et al., 2024). In terms of the Network Density, it is Calculated as the ratio of actual connections to potential maximum connections, indicating overall collaboration efficiency (Crane et al., 2019). For this study, Network centrality for institutional investors will be operationalized using three indices, using Fan et al. (2023) and Bajo et al. (2020) methods:

Degree Centrality (Deg): Institutional investor's direct network linkages. Investor resource acquisition and knowledge dissemination potential is shown by this indicator.

Closeness Centrality (Close): Measures an institutional investor's network information transmission efficiency by the inverse of the sum of all network members' distances.

Betweenness Centrality (Bet): Measures an institutional investor's network intermediary function in information and resource exchange.

Financing Constraints

Previous studes measure the Financing Constraints by:

SA Index: A non-parametric model based on firm size and age; higher values indicate severe constraints (Hadlock & Pierce, 2010).

WW Index: A multivariate metric incorporating cash flow, dividend payouts, and investment opportunities (Whited & Wu, 2006).

Market-based Indicators: Debt costs (e.g., bond yields) or equity financing challenges (e.g., market reactions to stock issuance) (Guo et al., 2023).

ESG Performance

Previous studies measures the ESG from the following Measurement Methods:

Third-party Ratings: Standardized metrics such as Huazheng ESG ratings (Wang & Hou, 2024) or MSCI ESG indices.

Self-reported Data: Qualitative and quantitative disclosures in annual reports or CSR reports (e.g., carbon emissions).

Hybrid Approaches: Combining quantitative data (e.g., pollutant emissions) with qualitative analysis (e.g., governance transparency) (Bartram et al., 2022).

This study Measures ESG using Huazheng ESG ratings (Wang & Hou, 2024).

Green Finance Policy Intensity

Previous studies measure the Green Finance Policy Intensity by:

Policy Intensity Index: Textual analysis to quantify policy stringency and coverage (Li & Wang, 2023).

Regional Implementation: Metrics like provincial green credit balances as a percentage of total loans (Qian & Yu, 2023).

Corporate Response Indicators: Green bond issuance volumes or ESG compliance rates (Zheng et al., 2023).

This study quantified Green Finance Policy Intensity via policy text analysis, incorporating regional green credit volume and green bond issuance (Li & Wang, 2023).

Regression Models

H1:ESG = $\alpha_0+\alpha_1$*IIN+α_2*CVS+ε_1

H2:FCA = $\beta_0+\beta_1$*IIN+β_2*CVS+ε_2

H3:ESG = $\gamma_0+\gamma_1$*IIN+γ_2*FC+γ_3*CVS+ε_3

H3:ESG = $\theta_0+\theta_1$*IIN+θ_2*GFP+θ_3*IIN*GFP+θ_4*CVS+ε_4

3.2 Qualitative Approach

This study plans to collect around 15 semi-structured Interviews. Deep conversations with organizational stakeholders from selected manufacturing

businesses will reveal real-world obstacles, rewards, and strategical considerations for these integrative strategies.

3.3 Data Analysis

Quantitative analysis utilizing Stata will find patterns, correlations, and causal links using advanced analytical methods. Descriptive statistics summarize data and highlight relevant variables, followed by normality tests to check parametric assumptions. The independent variables will be tested for multicollinearity using Variance Inflation Factor (VIF) analysis to assure regression correctness. The degree and direction of bivariate associations across the dataset will be assessed using correlation analysis. Regression analysis with fixed effects models will follow these core principles for hypothesis testing. Controlling for city- or firm-level factors that remain constant across time improves estimated impacts by addressing unobserved variability. NVivo will help code and thematize qualitative data to complement quantitative conclusions. This phase categorizes and interprets textual or transcribed data to find patterns and themes that numerical results may not reveal. Thus, the mixed-methods design integrates objective statistical analysis with contextual understanding to draw comprehensive conclusions.

4. Conclusion

The research integrates Stakeholder Theory, Resource Dependence Theory, and Social Network Theory to explain how investors drive organizational sustainability. It also emphasizes "networked governance" in emerging markets, showing how interconnected investors can influence corporate agendas when institutional frameworks reward sustainable conduct. Practically, the findings may inform green finance regulation policy formulations. Tax breaks for investor consortia that fund environmentally friendly projects or streamlined approval processes for ESG-focused funds could encourage institutional investors to collaborate on ESG initiatives. Regulatory organizations can also tighten disclosure rules to make business ESG data clear enough for investor networks to find high-impact involvement opportunities. Recognizing the importance of network linkages might help institutional investors choose co-investment partners. Collaboration with other ESG-focused institutional actors could increase leverage when engaging with company boards, allowing them to demand better sustainability policies. Network-based analytical methods may help investors find companies with appealing financial returns and considerable ESG improvement prospects. Finally, corporate managers should consider how ESG strategies affect investor networks and policy frameworks. To attract patient capital, companies may implement open and forward-looking ESG practices to align with prominent investor networks. Doing so may reduce their financing needs and provide reputational and policy benefits, such as special loan rates or tax incentives for green projects.

The study acknowledges some limitations despite its methodological rigor. First, its reliance on a specific cohort of China's listed businesses may limit its applicability in other geographic or economic contexts. Second, qualitative interviews can lead to socially desired responses, question misinterpretation, and recollection bias, which can skew self-reported findings.

5. Research Time Plan

	2026				2027				2028				2029		
TASK NAME	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Comprehensive Literature Review															
Finalize Research Design															
Data Collection															
Data Analysis															
Interpretation															
Draft Thesis															
Present at international conference															
Viva Voce															
Final Thesis															

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