



Can Green Finance Enhance Corporate Resilience? — An Empirical Study Based on Chinese Listed Companies

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Abstract: This study selects A-share listed companies in Shanghai and Shenzhen from 2009 to 2022 as research subjects to explore the impact mechanisms and pathways through which green finance development affects corporate economic resilience. The findings reveal that green finance development effectively enhances corporate economic resilience by promoting technological innovation, increasing media attention, and improving internal control quality, thereby strengthening firms' growth capacity and recovery ability. This enables enterprises to better recover and grow when facing external shocks. To achieve sustainable corporate development, the government should intensify policy support for green finance, enhance corporate media visibility to facilitate social supervision, relax constraints on technological investment, and ensure that environmental regulations more fully consider enterprises' actual conditions to optimize the policy environment.

Keywords: green finance, corporate resilience, technological innovation, media attention, internal control

1. Introduction

Against the backdrop of intensifying global uncertainties, including public health events, China-U.S. trade frictions, and frequent geopolitical conflicts, external shocks pose severe challenges to corporate development. The necessity and importance of enhancing corporate resilience have become increasingly prominent. Companies lacking resilience are prone to difficulties, whereas highly resilient enterprises can turn crises into opportunities, underscoring the critical role of corporate resilience in macroeconomic stability and making its enhancement an urgent issue to address. Green finance serves as a crucial policy instrument for promoting high-quality economic development and has been incorporated into national strategies. Policy documents such as the report of the 20th National Congress of the Communist Party of China and the 2025 "Implementation Plan for High-Quality Development of Green Finance in the Banking and Insurance Sectors" have clarified its role in fostering green development and strengthening the economy's ability to withstand risks.

Existing research has explored the economic effects of green finance from multiple dimensions, but a research gap remains regarding the micro-level mechanisms focusing on corporate resilience. At the macro level, studies by Yao Dengbao et al. (2023)[1] indicate that the development of green finance can significantly enhance China's macroeconomic resilience through technological innovation and industrial structure upgrading, with the most pronounced effect in eastern provinces and a weaker effect in central and western regions. At the meso level, research by Chai Zhengmeng(2024) [2] points out that green finance development can enhance manufacturing resilience, although the impact exhibits a fluctuating inverted U-shaped pattern as the level of manufacturing resilience increases. Zhu Ning (2024)[3]found that green finance primarily enhances the resilience of the upstream and downstream coal industry chain through a compensatory innovation effect. Furthermore, other scholars have confirmed that green finance can significantly improve the climate resilience of grain production. From a micro perspective, most studies focus on green finance's impact on corporate sustainable development, technological innovation, green total factor productivity, and green transition, among other areas. A review of the literature reveals that existing studies predominantly rely on macro-level or industry-level data, lacking in-depth exploration of micro-level mechanisms such as internal resource allocation and governance structures within firms.

Under the "Dual Carbon" goals, green finance can support corporate development and enhance competitiveness by providing financing and supporting technology, thereby strengthening corporate resilience. The synergy between the two is essential for high-quality corporate development. In light of this, this paper aims to investigate the impact of green finance on corporate resilience, analyze the relevant transmission mechanisms, to address the research gap and provide a theoretical basis for policy design.

2. Research hypotheses

2.1 Green Finance, Media Attention, and Corporate Resilience

Leveraging innovative financial products and services, green finance has successfully captured not only investor attention but also extensive media coverage. Rooted in signaling theory, this sustained media focus on green finance effectively mitigates information asymmetry between firms and their stakeholders, including investors and consumers. As corporate visibility increases, companies are better positioned to attract more customers and partners, thereby accelerating their development. Under media scrutiny, corporate operational details and environmental practices become subject to public examination. This transparency not only enhances a firm's sense of social responsibility but also strengthens consumer trust and support, ultimately contributing to improved corporate resilience.

2.2 Green Finance, Corporate Technological Innovation, and Corporate Resilience

The development of green finance inevitably influences corporate behavior. From an incentive perspective, the role of green finance extends beyond merely providing funding for technological innovation. Through policy guidance and market incentive mechanisms, it significantly stimulates corporate enthusiasm for green technology innovation. Furthermore, from a regulatory standpoint, external government oversight creates a compelling effect, pressuring enterprises to innovate, enhance product competitiveness, and thereby drive corporate growth. Technological innovation can create new opportunities for firms, enabling them to “turn crises into opportunities.” Following an external shock, technological innovation equips companies with new profit-generating capabilities, allowing for rapid recovery and even surpassing previous performance levels. Consequently, technological innovation enables enterprises to demonstrate greater resilience.

2.3 Green Finance, Internal Control Quality, and Corporate Resilience

The development of green finance compels enterprises to improve their internal control systems to ensure the proper use of green funds and the achievement of environmental objectives. To obtain green finance support, firms must strengthen internal controls, establish sound environmental management systems, standardize fund usage procedures, and enhance the accuracy and transparency of information disclosure. As a crucial internal governance mechanism, internal control positively influences both the growth capacity and recovery capacity of enterprises, thereby enhancing corporate stability and resilience, and ultimately strengthening the ability to withstand external shocks. Based on this analysis, the following hypotheses are proposed:

H1: The development of green finance promotes corporate resilience.

H2: The development of green finance enhances corporate resilience through the mediating effects of media attention, technological innovation, and internal control quality.

3. Research design

3.1 Data Description

This study selects A-share listed companies in Shanghai and Shenzhen from 2009 to 2022 as the research sample. The specific sample processing procedure is as follows: (1) Excluding particularly distinctive financial firms and companies under “Special Treatment” (ST); (2) Matching basic data on company headquarters locations with regional green finance indices; (3) Removing samples with missing data for key variables. The final sample comprises 4,934 companies, resulting in a total of 39,561 firm-year observations. To mitigate the influence of outliers, all continuous variables were winsorized at the 1st and 99th percentiles. The data utilized in this study are primarily sourced from the CSMAR database, Wind database, DIB database, the China Financial Yearbook, the China Statistical Yearbook on Science and Technology, and the China Industrial Statistical Yearbook.

3.2 Model Specification

To assess the potential impact of green finance development on corporate resilience, the following econometric model (1) is constructed:

$$Res_{it} = \beta_0 + \beta_1 GD_{jt} + \gamma X + \sum Year + \sum Industry + \varepsilon_i \quad (1)$$

where Res represents corporate resilience; GD denotes the city-level green finance development index; X is the set of control variables; Year and Industry represent the year and industry fixed effects, respectively; Subscripts i, j, and t denote the firm, city, and year, respectively; ε is the random error term; β_0 and β_1 are the parameters to be estimated. A significantly positive coefficient for β_1 would indicate that the development of green finance has a positive promoting effect on corporate

resilience.

To investigate the potential transmission channels underlying the relationship between green finance and corporate resilience, we examine the mediating roles of media attention (Media), corporate innovation (Innovation), and internal control quality (IC). Following the two-step approach outlined by Jiang Ting(2022) [4], we employ Model (2) to test for the existence of these mechanisms.

$$M = \alpha_0 + \alpha_1 GD_{jt} + \gamma X + \sum Year + \sum Industry + \varepsilon_{it} \quad (2)$$

3.3 Variable Definitions

3.3.1 Dependent Variable

Corporate Resilience (Resilience). Following the methodologies of Zhang Jichang et al. (2022)[5] and Shi Dan et al. (2022)[6], this study measures corporate resilience from two dimensions: recovery capacity and growth capacity. Recovery capacity refers to an organization's ability to return to its original state or functionality after experiencing a shock, while growth capacity indicates the organization's ability not only to recover but to emerge stronger than before. Specifically, recovery capacity is measured using four indicators: the quick ratio, absorbed slack resources, unabsorbed slack resources, and return on equity (ROE). Growth capacity is gauged by the year-on-year growth rates of total assets, operating revenue, and net profit. All these individual indicators are standardized, and a composite resilience score is calculated by taking their average.

3.3.2 Core Explanatory Variable

Green Finance Development (GD). Following the research of Wang Jie and Wang Jun(2024)[7], the green finance development index is constructed using the entropy method across multiple dimensions, including green credit, green investment, green insurance, green bonds, government green support, green funds, and green equity.

3.3.3 Mediating Variables

Media Attention (Media). This study employs media attention as a mediating variable. Drawing on the methodologies of Wang Fusheng et al.(2022) [8] and Xiao Zuoping(2021) [9], it is measured by the natural logarithm of one plus the annual count of media reports about the company, as well as by the total number of online media reports.

Corporate Innovation (Innovation). Corporate innovation is measured by the natural logarithm of one plus the total number of patent applications (including invention patents, utility model patents, and design patents). These three patent types are assigned weights of 3, 2, and 1, respectively, in the calculation.

Internal Control Quality (IC). This study treats internal control as a mediating variable. Following the approach of Li Ruijing and Dang Suting(2022)[10], the quality of internal control for listed companies is measured by taking the natural logarithm of one plus the internal control index from the DIB database. A higher IC value indicates superior internal control quality within the firm.

3.3.4 Control Variables

Drawing on relevant literature, this study incorporates the following control variables: firm size (Size), firm age (Age), CEO duality (Dual), board size (Board), the proportion of independent directors (Indr), return on assets (ROA), and Tobin's Q (TQ). Additionally, industry fixed effects (Industry) and year fixed effects (Year) are controlled for in the analysis.

4. Empirical analysis

This study next examines the effect of the level of green finance development on corporate resilience. As shown in Column (1) of Table 1, the coefficient of the green finance index is positive and statistically significant at the 1% level without including control variables. Column (2) indicates that after incorporating a series of control variables, the coefficient for the Green Finance Index (GD) is 0.055, remaining positive and statistically significant at the 1% level. This result suggests that the development of green finance promotes corporate resilience, supporting Hypothesis H1. After controlling for other influencing factors, a 1% increase in the level of green finance development leads to a 5.5% improvement in the level of corporate resilience. The inclusion of firm-level controls and the use of firm and year fixed effects, with standard errors clustered at the firm level, strengthen the robustness of this finding.

Table 1. Baseline Regression: Green Finance and Corporate Resilience

Variables	(1) Resilience	(2) Resilience
GD	0.066*** (3.287)	0.055*** (2.868)
Size		-0.030*** (-13.827)
Age		-0.003*** (-9.073)
Dual		0.014** (2.460)
Board		-0.005** (-2.497)
Indr		-0.001 (-1.233)
ROA		0.301*** (6.662)
TQ		-0.000 (-0.109)
_cons	-0.004 (-0.231)	0.666*** (12.246)
year	Yes	Yes
Industry	Yes	Yes
N	35369	34502
R ²	0.0239	0.0507

5. Mechanism Analysis

5.1 Media Attention Mechanism

Given the current level of internet development and the influence of news media, this study selects the total number of news media reports (Media1) and the count of online media reports (Media2) as proxy variables for media attention. Higher values indicate greater media attention. The regression results for the specific mechanism channel test are shown in Columns (1) and (2) of Table 2. Regional green finance development has a significantly positive effect on media attention, indicating that higher levels of regional green finance development attract greater media focus, thereby influencing corporate resilience and thus validating H2.

5.2 Innovation Mediation Mechanism

As shown in Column (3) of Table 2, the regression results indicate that the Green Finance Development Index has a significantly positive impact on corporate innovation capability, significant at the 5% level. This implies that a higher level of green finance development strengthens corporate innovation capacity, thereby enhancing corporate resilience, which validates H2.

5.3 Internal Control Mechanism

The regression results in Column (4) of Table 2 show that the coefficient for the degree of green finance development is significantly positive at the 1% level. This demonstrates that green finance can effectively promote the quality of internal control within firms, subsequently influencing corporate resilience, thus validating H2.

Table 2. Tests on Mediating Mechanisms of Media Attention, Corporate Innovation, and Internal Control

	(1)	(2)	(3)	(4)
Variables	Media1	Media2	Innovation	IC
GD	0.178** (2.337)	0.151* (1.898)	0.314** (2.160)	47.140*** (5.124)
_cons	-2.800*** (-11.616)	-2.321*** (-9.611)	-10.977*** (-25.779)	220.079*** (9.805)
Control Variables	Yes	Yes	Yes	Yes
year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
N	38256	37434	37042	35147
R ²	0.3923	0.3798	0.4626	0.3087

6. Conclusions

6.1 Main Conclusions

Against the backdrop of rising global uncertainties, frequent public events, China-U.S. trade frictions, and geopolitical conflicts, external shocks pose severe challenges to corporate development, making the enhancement of corporate resilience an urgent issue to address. Based on this, this study selects A-share listed companies in Shanghai and Shenzhen from 2009 to 2022 as the research sample and employs methods including mediation effect tests to investigate the impact mechanism and pathways through which green finance development affects corporate economic resilience.

The findings are as follows: First, the level of green finance development in a firm's region significantly enhances corporate resilience, and this positive effect remains significant after a series of robustness and endogeneity tests. Second, green finance development improves corporate growth capacity and recovery capacity—and thereby resilience—by promoting technological innovation, increasing media attention, and enhancing internal control quality. This enables firms to recover and grow more effectively when facing external shocks. However, there are still issues such as insufficient exploration of the moderating variables between green finance and corporate resilience, unclear operational mechanisms in contexts like digital transformation, and lack of further verification of cross-regional spillover effects and policy adaptability.

6.2 Policy Recommendations

First, environmental regulation policies should be optimized. When formulating such policies, full consideration should be given to their synergistic effect with green finance to avoid conflicts and substitution between the two. Through reasonable environmental regulation policies, enterprises can be guided towards a greener and more sustainable development direction, achieving a win-win situation of economic benefits and environmental protection.

Second, the media should strengthen the publicity of green finance to improve the public's awareness and participation in it. Enterprises should actively respond to media attention, enhance their green information disclosure, and improve information transparency, thereby establishing a good corporate image and attracting more consumers and partners.

Third, enterprises should fully utilize the financial support provided by green finance, increase investment in technological innovation and industrial upgrading, and enhance their core competitiveness and sustainable development capabilities to better respond to external shocks and challenges.

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