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Financial Flexibility and Corporate Sustainable Development Performance: Evidence from Chinese Firms and the Roles of Innovation, Environmental Governance, and Corporate Social Responsibility

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ABSTRACT

With the rapid transformation of China's economy toward high-quality development, sustainable development has become a key objective for Chinese enterprises. In this context, financial flexibility has emerged as an important strategic capability that enables firms to respond to environmental uncertainty while supporting long-term sustainability initiatives. Based on evidence and insights from Chinese listed firms, this study explores the relationship between financial flexibility and corporate sustainable development performance. Specifically, the paper examines how financial flexibility supports sustainability through three key mechanisms: innovation investment, environmental governance practices, and corporate social responsibility engagement. Furthermore, the moderating roles of governance mechanisms, including directors' and officers' liability insurance and media attention, are analyzed. The analysis suggests that financial flexibility plays a crucial role in enhancing the sustainable development performance of Chinese firms by providing financial resources for long-term strategic investments. The findings offer valuable implications for corporate financial management and sustainability strategies in emerging economies such as China.

KEY WORDS: financial flexibility; corporate sustainable development; Chinese firms; ESG; corporate governance

1. Introduction

Sustainable development has become a prominent global strategic objective for companies over the last few years. Governments, investors, and consumers alike make more and more demands of firms to reconcile economic growth with protection of the environment and social responsibility. This has resulted in corporate sustainable development performance increasingly serving as an essential indicator of a company's competitiveness and long-term value. This has been widely used to assess the performance of it in academic and policy-making terms of environmental, social, and governance (ESG) indicators. The problem is more pronounced in China, where that trend is evident.

After China's transition from high-speed growth to high-quality development, the government has set up several policies and frameworks to promote green transformation and improve corporate sustainability practices. National goals—including the "dual-carbon" objectives, which target carbon peaking and carbon neutrality—have intensified the expectation that firms will adopt environmentally sensitive business models. As a result, the increasing pressure is on Chinese businesses to meet the objectives set by regulators, investors and society to increase the sustainability performance and contribute to greater social and environmental considerations of enterprises.

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Sustainable development is frequently an expensive affair though. Corporate social responsibility activities such as green innovation, environmental governance, and corporate social responsibility initiatives require major investment costs as well and with great uncertainties, return on investment often involve long payback periods and returns. This kind of factors imposes financial constraints on many companies and limits their ability to carry out long-term sustainability programs.

This, as it turns out, is where financial flexibility will offer a genuine remedy for the dilemma. The new approach to financial flexibility provides for a crucial response to this difficulty. Financial flexibility represents a firm's capacity to access finance or obtain funds outside of the firm to respond to unplanned opportunities or threats. Maintaining cash reserves, debt capacity and the capital structure Most usually, firms find financial flexibility by having cash (or other means for capital) balance.

Existing empirical evidence from listed Chinese firms indicates that the financial flexibility can enhance the performances of corporate sustainable development performance by allowing to invest in long-term sustainability initiatives and address environmental and social challenges in a strategic fashion. While the role of financial flexibility in corporate sustainability is gradually coming to the fore, previous studies have primarily paid attention to its impact on financial risk management and corporate performance. (Meng, 2025)

There is limited research examining the mechanisms through which financial flexibility contributes to sustainable development, particularly among Chinese firms. Hence, the objective of this study is to find the relationship between financial flexibility and corporate sustainable development performance in Chinese enterprises. More specifically, it explores how financial flexibility facilitates sustainability via investing in innovation, governance practices for the environment and engaging stakeholders for corporate social responsibility. Further, governance mechanisms’ moderating roles such as directors’ and officers’ liability insurance and media attention are investigated.

2. Literature Review

2.1 Financial Flexibility and Corporate Outcomes in Chinese Firms

As corporate financial strategy, financial flexibility is well-known to be one of the main factors. It safeguards companies in bad economic times and allows firms to take advantage when opportunities of investments arise. Since the environment of the economy and the institutional frameworks of Chinese firms are fast-evolving, financial flexibility is a very important factor as well.

There are various challenges that Chinese enterprises come across ranging from financing constraints and regulatory changes to technological transformation. In this scenario, financial flexibility can help businesses to better adjust to and endure these challenges and maintain operational stability. It has been found in empirical studies on Chinese listed firms that, for instance, those with better amounts of financial flexibility could react more appropriately to external shocks like financial crises and economic downturns.

Moreover, financial flexibility is vital to support corporate innovation: Stable funding and long-term investment commitments normally support innovation activities, and this is also supported by financial flexibility: Companies with flexible financial resources can maintain R&D investment in a company, even when external financing conditions become unfavorable. Yet others claim too much financial flexibility is a governance problem as well.(Yang, et al, 2026) For larger companies with a lot of financial slack, managers might engage in wasteful investing or enter into expansion tactics that do not increase shareholder value significantly. If financial flexibility is beneficial, the application method is different and there are also proper controls in place.

At the same time, financial flexibility can support firms’ long-term sustainability strategies. Firms with greater financial flexibility are better positioned to allocate resources toward sustainability-related investments, including green innovation, environmental governance, and corporate social responsibility initiatives. (Lv & Lv, 2025)Such investments help firms respond to increasing regulatory requirements and stakeholder expectations regarding ESG performance.

In addition, financial instruments and policy incentives—such as environmental liability insurance and green credit policies—can influence corporate environmental behavior by shaping firms’ financial incentives. Corporate governance mechanisms and stakeholder monitoring, including media attention, can further strengthen firms’ incentives to allocate financial resources toward sustainability initiatives.(Zhou & Chen, 2025) Therefore, the impact of financial flexibility on corporate outcomes ultimately depends on how firms allocate financial resources and whether appropriate governance mechanisms are in place.

2.2 Determinants of Corporate Sustainable Development Performance in China

Sustainable development performance of companies is the capacity and performance of the firms to achieve economic growth, reduce the negative impact with respect to the environment, and fulfill their social responsibilities. Chinese sustainable development is now a prominent issue in national economic policy context.(Nian, et al, 2025) In the context of the country's move towards high quality development, corporate sustainable performance improves of the country's citizens and organizations with high priority.

Various factors have been found in the previous researches affecting Chinese companies' sustainability performance. Mechanisms of corporate governance have a role to play. Good governance mechanism increases transparency, accountability and future-oriented strategic approach thereby enhancing responsible corporate behavior.

Board traits of boards (board independence and board diversity) have been associated with sustainability performance is positively related to sustainability performance in an empirical study which have also a similar impact to the effectiveness of the governance dimension, including enhancing oversight and integrity independent and diverse board members; as well as board independence and diversity, of these characteristics can facilitate positive impact on sustainability performance and promote a higher degree of oversight through monitoring and encouraging ethical business decisions.

Technological progress is equally much a key performance driver of sustainability. Innovation in sustainable technology is, likewise, a key driver of the sustainability performance. Studies of Chinese firms in particular show that digital transformation of these activities provide evidence of increasing adoption of digital transformation of its own have positively led to green innovation and resource efficiency, and a substantial effect on their sustainability performance has been identified among them based on green innovation and resource efficiency. (Huang & Wei, 2026) By adopting new technologies, companies are increasingly able to create more sustainable products and procedures in a sustainable manner.

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Moreover, corporate sustainability behaviors are also influenced largely by government policies. Recently released measures taken by the Chinese government, including plans of green credit and low-carbon pilot policies have been put forth by the Chinese government in terms of promotion of adoption environmentally friendly technologies by firms to enhance the results of the environmental performance.

These studies contribute valuable insights into the institutional and technological determinants of sustainability performance, but the internal financial resources supporting firms to pursue sustainability strategies are relatively unexplored in their own right. In the literature, the impact of financial flexibility on corporate sustainable development has received minimal focus.

3. Mechanisms of linking financial flexibility to the sustainable development and financial freedom.

There exist multiple processes with the influence of financial flexibility on corporate sustainable development in the Chinese business environment.

3.1 Innovation Investment

Sustainable development is widely recognized as one of the important drivers of innovation. In China, technological innovation is important to assist in industrial upgrading and environmental protection. Innovation activities are costly, however, and risky with high uncertainty. Companies where there is a dearth of financial resources can perhaps not keep up the long-term investment in R&D.(Li & Sun, 2025) In this regard, corporate financial flexibility allows firms to sustain a relatively secure innovation spending level despite hostile external financing contexts. Cai & Lin (2025) calaim that this is because firms have enough cash reserves and leverage to generate internal funding to invest in new technologies and green assembly lines. And financially healthy firms may be better equipped to react dynamically to technology risks and to modify the innovation plans to fit the market environment. Accordingly, financial flexibility is useful for regular innovation activities that result to sustainable development.

3.2 Environmental Governance

Furthermore, the environmental governance is another way in which financial flexibility supports sustainable performance. Liao & Li (2025) found that Chinese companies are more under the pressure of regulation and the demand among stakeholders for environmental accountability. Compliance with such conditions also generally necessitates large investments in environmental protection and waste minimization technologies, pollution protection systems, as well as in the development of environmentally friendly production practices.

In particular, companies that have more financial flexibility are better positioned to invest resources towards environmental governance initiatives (environmental governance initiatives). For instance, companies have the potential to spend resources on advanced energy-efficient means and technologies, waste treatment facilities and pollution-control equipment etc to minimize environmental damage. Furthermore, financial flexibility fosters green innovation as businesses can develop more green-friendly technologies and processes for production. These investments help reduce emissions, drive better energy efficiency, and improve overall environmental performance. (Wang, Fu, & Zhang, 2025)

3.3 Corporate Social Responsibility

Jiang, et al(2024) support another consideration in sustainable development is corporate social responsibility (CSR). CSR activities commonly comprise charitable donations, community development programs, employee welfare initiatives, and responsible supply chain management. CSR activities in China are gaining attention from regulators, investors, and the public.

In addition, firms should consider having financial flexibility through this structure. This enables them to put resources into CSR activities while maintaining financial viability. With such investments, organizations are able to improve their corporate reputation, improve relationships with stakeholders, and enhance the legitimacy of the firm. Furthermore, an active participant in CSR practices may enjoy strategic benefits like more favourable support from various sectors—governments and their citizens, as well as community groups. These advantages can also improve long term sustainability performance of firms.(Peng, Zhang & Tao, 2026)

4. Governance Mechanisms

4.1 Directors' and Officers' Liability Insurance

Directors' and officers' liability insurance (D&O insurance) is an essential form of corporate governance in Chinese firms. Such insurance offers corporate executives protection against their own legal risks triggered by managerial decisions. D&O insurance also minimizes the risk of personal liabilities, which motivates managers to make longer-term strategic investments.

Sheng & An (2026) found that initiatives aiming to promote sustainability can have uncertain outcomes and payback times long. That's not a place where managers will be willing to invest in those kinds of projects if there isn't some kind of safeguard that covers them. Such concerns can be reduced through D&O insurance, a mechanism that reduces manager risk aversion and incentivizes managers to devote financial resources towards investing in sustainability-related projects.

4.2 Media Attention

Media attention also holds an important role in China's corporate environment when looking at its corporate environment as regulatory governance. Media press coverage increases transparency and makes corporate conduct clear. Positive media attention may also promote corporate reputation and promote responsible environmental and social behaviors by companies.

On the opposite, bad press is harmful to a firm's reputation and market value. As such, companies tend to get more media attention and engage in sustainability efforts as part of efforts to remain in the public eye and satisfy stakeholders.

5. Research Hypothesis Development

Financial flexibility is the ability to get financial resources at relatively low cost by a firm as a result of investment opportunities or unexpected shocks. In the fast changing China economic environment, financial flexibility is playing a more vital role for firms characterized by cash constraints and limited resources.

Sustainable development practice calls on companies to invest in technologies of innovation, environmental governance, corporate social responsibility, etc. These projects are traditionally capital intensive and associated with sizeable long-term commitments. Not the only ones who suffer to support investments due to limited money – especially during economic recessions.(Cai, et al, 2022)

On the other hand, less flexible financial companies have relatively weak internal resources and borrowing capabilities, so as to be less

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susceptible to change at investment level and pursuing long term sustainability strategy.

From the empirical data of Chinese listed companies, it can be seen that financial flexibility enhances the corporate performance towards sustainable development by providing resources to invest in green innovation, environmental protection, and corporate social responsibility (CSR) work.

$$SDP_{it} = \alpha_0 + \alpha_1 FF_{it} + \alpha_2 Controls_{it} + \varepsilon_{it}$$

(SDP_{it}) represents the sustainable development performance of firm i in year t, which is typically measured using environmental, social, and governance (ESG) indicators or sustainability performance scores. (FF_{it}) denotes the financial flexibility of firm i in year t, reflecting the firm's ability to obtain financial resources through internal funds or external financing. (Controls_{it}) represents a set of control variables that may affect sustainable development performance, including firm size, leverage, profitability, and firm age, as well as industry and year fixed effects. (α_0) is the constant term, (α_1) and (α_2) are regression coefficients, and (ε_{it}) is the error term capturing unobserved factors. A positive and statistically significant (α_1) indicates that financial flexibility improves the sustainable development performance of Chinese firms.

In addition to the direct link between the variables, financial flexibility can be an important factor for sustainable development through key channels. First, as the intermediary mechanism in the first link, innovation investment is an important mediator. More flexible financials allow firms to stay stable on R&D expenditure, drive technological innovation as well support environmentally-oriented production and business outputs. By repeatedly pushing forward innovations, companies can improve competitiveness as well as their environment - with social benefit too.

A second way in which financial flexibility improves environmental performance is through environmental governance. The firms that enjoy greater financial capacity are able to adopt pollution control systems, environmental management systems, and energy-efficient production processes. Such investments can assist companies in reducing carbon emissions, reducing waste production, and enhancing environmental performance in general.

Third, Corporate social responsibility (CSR) activities further advance sustainability. CSR activities such as philanthropy, employees' social welfare programs, and community involvement contribute to firms' social legitimacy and stakeholder relations. And the ability to generate finance enables firms to undertake these endeavors without threatening their financial stability, and thus support long-term sustainability policies.

Besides, governance mechanisms may also influence the links between financial flexibility and sustainability performance. Directors' and officers' liability insurance can decrease managers' own perceived personal risks involved with longer-term strategic choices, which in turn can lead to investment being more intensive in sustainability-oriented investments.

Media attention serves as a vehicle for governance as well, by promoting public scrutiny and encouraging firms to adopt environmentally and socially responsible practices. Taken together, these governance mechanisms enhance the role of financial flexibility in the development of the sustainable development of Chinese companies.

6. Conclusion and Implications

Based on empirical evidence from Chinese organizations, This study examines that financial flexibility is correlated with corporate sustainable development performance. Financial flexibility is the key determinant of corporate sustainable development performance. This highlights the role of financial flexibility in facilitating firms to undertake Sustainable Development strategies is key to the findings.

When provided with the right tools like financial availability and strategic flexibility in both their strategy and resource availability, financial resources for innovation investment, environmental governance and corporate social responsibility enablement the firm to invest in innovation.

Concurrently, the good effects of financial flexibility may be enhanced by governance practices, including directors' and officers' liability insurance and media attention that encourage responsibility in managerial decision-making and enhance stakeholder monitoring.

The implications of these results are manifold. Corporate managers must consider whether financial flexibility or not can be built into a long-term company sustainability strategy so as to support innovative and green investments without jeopardizing financial health.

For policymakers, fostering conducive institutional environments (e.g., green finance policies, transparency of information) might enhance financial flexibility as a mechanism to bring about sustainable development.

Financial flexibility should be considered primarily as a financial management resource, but also as the strategic instrument that permits firms to achieve sustainability and long-term value creation.

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