Journal of Project Management 10 (2025) 745–762

Contents lists available at GrowingScience

Journal of Project Management

homepage: www.GrowingScience.com

Corporation financialization and its impact on green project investments: A systematic literature review

Anass Hamadelneel Adow[a*]

[a]*Department of Accounting, College of Business Administration, Prince Sattam Bin Abdulaziz University, 173 Alkharj 11942, Saudi Arabia*

A B S T R A C T

Sustainable Development Goals (SDGs) 8, 9, 12, 13, and 16 highlight the importance of industrial innovation to align the firms' financial goals with sustainable green investments. There is a vast literature investigating the trade-off between Corporation Financialization (CF) and green project investments. This study reviews such literature by following a systematic review approach of PRISMA and selected 90 research papers from the Scopus database published during 2011-2025. The findings suggest that CF has a deep impact on firms' innovation and sustainability behavior, which is largely influenced by governance structures, managerial incentives, and strategic priorities. The literature informs that excessive CF usually discourages investments in innovation and green projects. Firms' CF activities prioritize shareholder value over green project investments. However, environmental regulations, green finance initiatives, and carbon market mechanisms change the CF behavior of firms in highly polluting industries with strong governance. Policy uncertainty reduces the incentive for green project investments. Moreover, firms' financial constraints increase CF and reduce investments in green projects. However, digitalization and technological change help to increase green investments. Moreover, state-owned firms are more active in green project investments compared to private firms. In addition, the government's stringent environmental regulations and governance reforms help to mitigate CF's crowding-out effect on green project investments. The literature provides policy implications to integrate sustainability into core financial strategies by aligning investment decisions with long-term environmental goals, which can be achieved by strengthening governance, adopting green finance frameworks, and influencing firms' strategic financial management in favor of green projects.

Article history:
Received May 2, 2025
Received in revised format May 27, 2025
Accepted July 23 2025
Available online
July 23 2025

Keywords:
Corporate Financialization
Green Projects
Environmental Sustainability
Innovations
Governance
Sustainable Development Goals (SDGs)

© 2025 by the authors; licensee Growing Science, Canada.

1. Introduction

Corporate Financialization (CF) would raise the focus of firms on financial motives, instruments, and markets, which may ignore the strategic investments in green projects and innovation to meet Corporate Social Responsibility (CSR) (Huang & Mirza, 2023). Thus, CF could reduce corporate sustainability agendas to meet CSR. CF prioritizes shareholder value maximization, short-term profits, and financial performance. As a result, green initiatives like renewable energy installations, energy-efficient infrastructure, and low-carbon innovation could be underfunded. Thus, CF seems as a short-termism in decision-making in literature and can reduce green projects, innovation, and sustainable growth of the firms (Zhou et al., 2024). Financial markets usually attract firms to target quick returns, which discourages investments in green projects. On the other hand, green projects require significant investment, which may not have quick returns. Moreover, CF encourages firms to invest their profit in financial activities like stock buybacks, dividend payouts, and speculative investments. Thus, this crowding-out effect reduces funds for green project initiatives.

On the positive aspect of CF in literature, CF may support green projects. For instance, the rising global pressure for Environmental, Social, and Governance (ESG) motivates shareholders, investors, and rating agencies to force firms to follow green practices in their operations (Li et al., 2024a). This pressure motivates firms to invest in green projects to improve their ESG scores. In this way, firms with better ESG performance would have more access to green bonds and sustainable loans

* Corresponding author
E-mail address a.adow@psau.edu.sa (A. H. Adow)

ISSN 2371-8374 (Online) - ISSN 2371-8366 (Print)
© 2025 by the authors; licensee Growing Science, Canada
doi: 10.5267/j.jpm.2025.7.003

with lower borrowing rates, which could reduce the need for CF for quick returns. Through government support and pressures, financial markets are also focusing on green financial instruments as green bonds, carbon credits, and ESG-linked derivatives (Zhou et al., 2023b), which provide an opportunity for firms to allocate their funds for green projects. Consequently, sustainable finance can increase firms' efforts for clean energy, waste reduction, and carbon-neutral projects, which can boost the market value of firms, raise investor confidence, and increase access of firms to global capital markets. Furthermore, CF raises strategic risk management to meet green objectives (Wang et al., 2024b). For instance, investing in energy efficiency and green projects would decrease the exposure to volatile fossil fuel prices and carbon taxes, which can reduce the corporate risk associated with the change in environmental regulations. Thus, green projects are a risk-reducing and cost-saving strategy. Consequently, energy-efficient projects would reduce long-term operational costs and increase asset value.

The literature exposes a complex relationship between CF and green projects. On the one hand, CF would discourage long-term environmental investments in green projects due to short-term profit motives and capital reallocation to financial markets, which would undervalue the non-financial aspects of firms. On the other hand, CF can be strategically aligned with sustainability objectives by promoting ESG incentives, green financial instruments, and climate-related risk management to initiate the role of CF in green projects. Thus, CF could also promote green projects if financial markets promote the sustainability efforts of the firms by supporting green investments. In this way, CF can become a powerful driver of the sustainable transformation of firms through promoting green projects, which can be supported by investor expectations, regulatory frameworks, and corporate strategic alignment. This inconclusive relationship motivates us to conduct a comprehensive review of the literature to synthesize the mechanisms, conditions, and governance frameworks to observe how financialization affects environmental priorities. Thus, this review aims to critically examine the constraining and supporting aspects of CF on green projects, which can inform corporate strategy toward more sustainable financial and operational decisions.

2. Methodology

The PRISMA methodology is adopted in this review study, following Liberati et al. (2009) to find a comprehensive literature on the connection between CF and green project adoption. The Scopus database is explored for this purpose to select articles that are centrally focused on the relationship between CF and green project investments. Moreover, those studies are focused on caring internal governance structures, managerial incentives, strategic priorities, regulatory frameworks, and financial decisions in this relationship. At first, the keywords (TITLE-ABS-KEY ("corporate financialization" OR "corporate financialization" OR "shareholder value" OR "financial motives" OR "financial market pressure" OR "capital reallocation" OR "profit maximization" OR "short-termism")) AND (TITLE-ABS-KEY ("green projects" OR "green investment" OR "sustainability projects" OR "sustainable investment" OR "clean technology" OR "environmental innovation" OR "ESG" OR "Environmental, Social, and Governance" OR "low-carbon investment" OR "CSR" OR "renewable energy investment" OR "eco-innovation")) are searched from Scopus search engine.

We find 306 articles from the provided keywords and utilize the filters of "Journals", "English", period "2011-2025", and subject area of "Business, Management, and Accounting". After applying these filters, 149 articles were found. Thus, we focus on recent research articles published during 2011-2025 and published in journals with English language. These filters also help us to focus on firm-level empirical articles with the applied keywords, and we exclude the selection of other types and the scope of the articles. Later, we carefully study the abstracts of the articles to focus on those articles that have studied the relationship between CF and green projects with subthemes of governance structures, managerial incentives, strategic priorities, regulatory frameworks, and financial strategic decisions. After these efforts, we extract 90 articles out of 149 for final review and ignore 59 articles to avoid repetition of themes and scope. Then, whole articles are carefully studied to explore the major findings, methodological approaches, and controlling and moderating factors in the relationship between CF and green projects.

3. Analysis of Thematic Clustering and Bibliographic Coupling

Fig. 1 is constructed by VOSviewer to do thematic clustering analysis by providing a CSV file containing all bibliographic data from the Scopus database on the relationship between CF and green projects. The figure shows that the keyword "financialization" is found as a central theme with a blue color node, which is connected to green projects, corporate governance, sustainability strategies, and environmental performance of the firms. Thus, the most dominant focus of the literature is on the concept of financialization. Moreover, "green projects", "shareholder wealth", "shareholder primacy", and "agency theory" are major keywords in this cluster. This cluster suggests that a major literature examines green project management, which prioritizes shareholder interests to shape firms' investment behavior under financialization. The dominance of shareholder models has been criticized in the literature for promoting short-termism, which can ignore the long-term sustainability objectives of green innovation and projects.

The green cluster comprises "corporate governance", "profit maximization", "stakeholder management", "social capital", "social responsibility", "corporate ownership", "corporate ownership", "profit maximization", and "green project analysis". This thematic cluster reflects the role of corporate structures and strategic motives on environmental and social goals to achieve green projects. The "profit maximization" and "corporate ownership" together indicate that studies critically examine the relationship between shareholder financial objectives and stakeholder-oriented responsibilities. Moreover, the linkage of

financialization with “social capital” and “stakeholder management” suggests that firms are leveraging the governance frameworks and stakeholder engagement to promote green investments. Furthermore, “green project analysis” explains an emphasis on evaluating environmental projects through financial and strategic goals to align sustainability with value creation.

The red cluster shows “sustainability”, “corporate responsibility”, “valuation”, “firm performance”, “globalization”, “financial crisis”, and “innovation”. Thus, this cluster explains the debate on the allocation of resources to sustainable initiatives. Mostly, projects require a huge investment, and they may be neglected by firms to operate under the pressure of short-term financial performance for the sake of greater value. Thus, the co-occurrence of “valuation” and “firm performance” explains the nexus between immediate profitability and long-term environmental value of the firms.

The light green cluster contains “corporate social responsibility”, “profitability”, “sales”, “supply chain”, “recycling”, “investment”, “game theory”, and “circular economy”. This cluster explains the connection between operational strategies, sustainability practices, and the economic performance of the firms. The “corporate social responsibility”, “profitability”, and “sales” show that responsible business practices are aligned with financial outcomes. Moreover, the “supply chain” and “recycling” point toward operational dimensions of sustainability with resource efficiency and waste reduction. The “circular economy” emphasizes a shift in the literature toward the promotion of resource regeneration and long-term environmental value. The “game theory” indicates a strategic perspective to decision-making for green investments and circular practices in a competitive environment.

The purple cluster shows “short-termism”, “sustainable development”, “risk management”, “ESG performance”, and “business sustainability”. This cluster explains the thematic connection between financial decision-making and long-term sustainability goals. The “short-termism” shows that the pressure to deliver immediate financial results may reduce firms’ commitment to green projects. Furthermore, “business sustainability” shows the need to adopt forward-looking strategies to reduce long-term sustainability challenges. Lastly, the keyword “China” is also prominent in this purple cluster. Thus, regional Chinese studies got a lot of attention in ESG and CF literature.

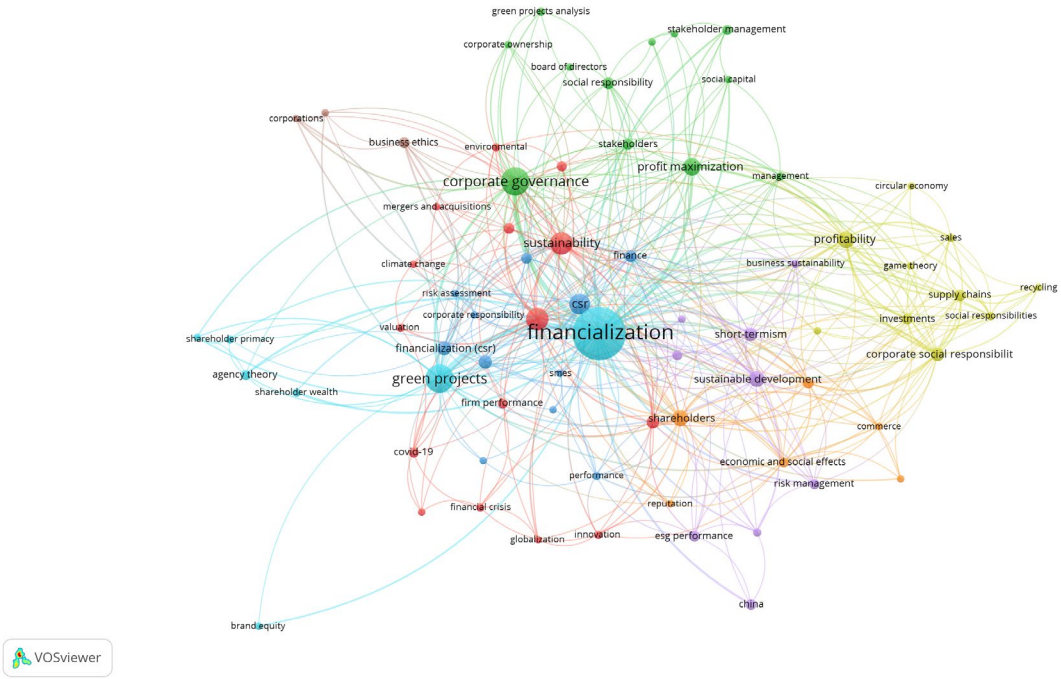

Fig. 1. Thematic clustering

On the whole, Fig. 1 provides a comprehensive relationship between CF and green projects. The co-occurrence patterns highlight the central role of financialization, which is significantly connected with corporate governance, sustainability, and green project evaluation. However, the cluster also reveals short-termism and shareholder primacy in emerging frameworks, which integrate stakeholder engagement, circular economy practices, and ESG performance into corporate strategies to achieve both goals of valuation and environmental performance.

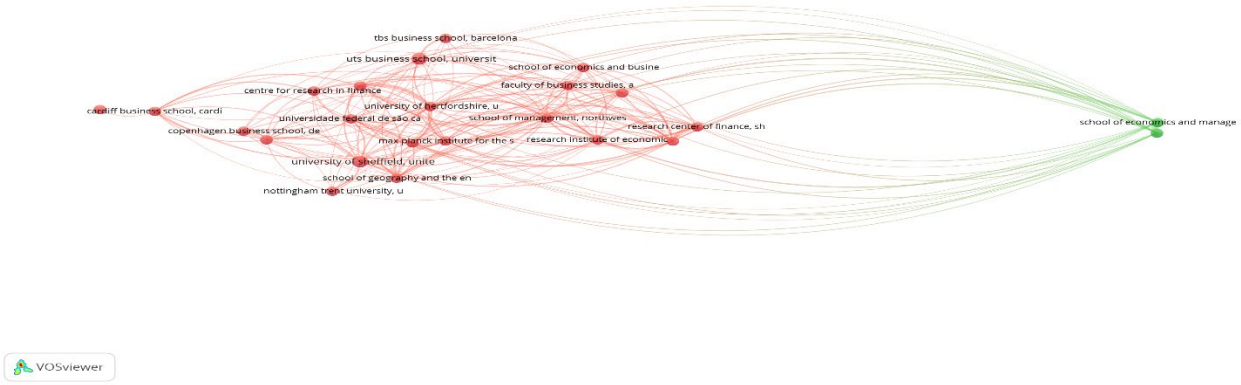

Fig. 2. Bibliographic coupling of institutions

Fig. 2 shows the bibliographic coupling of institutions, which reflects the coupling in citing common references and shows the common thematic interest of researchers from different institutions. The School of Management is located in the most central position in the red cluster, which shows this institution is most significant in bibliographic connections in citing shared citations with other institutions in the world. Thus, this institution plays a leading role in producing research, which is largely cited and linked to other institutions. Therefore, this institution is a hub of collaboration in the thematically consistent research on sustainability and finance issues. Moreover, the school of economics and management in the green cluster has strong connections with many institutions in the red cluster. Thus, this institute has a coupling with many business and management schools, which indicates the strong citation coupling in finance, corporate governance, and strategic sustainability studies, which are frequently cited by many institutions in the red cluster. Thus, it corroborates the green cluster's intellectual leadership in its research outputs on finance and sustainability literature by coupling citations.

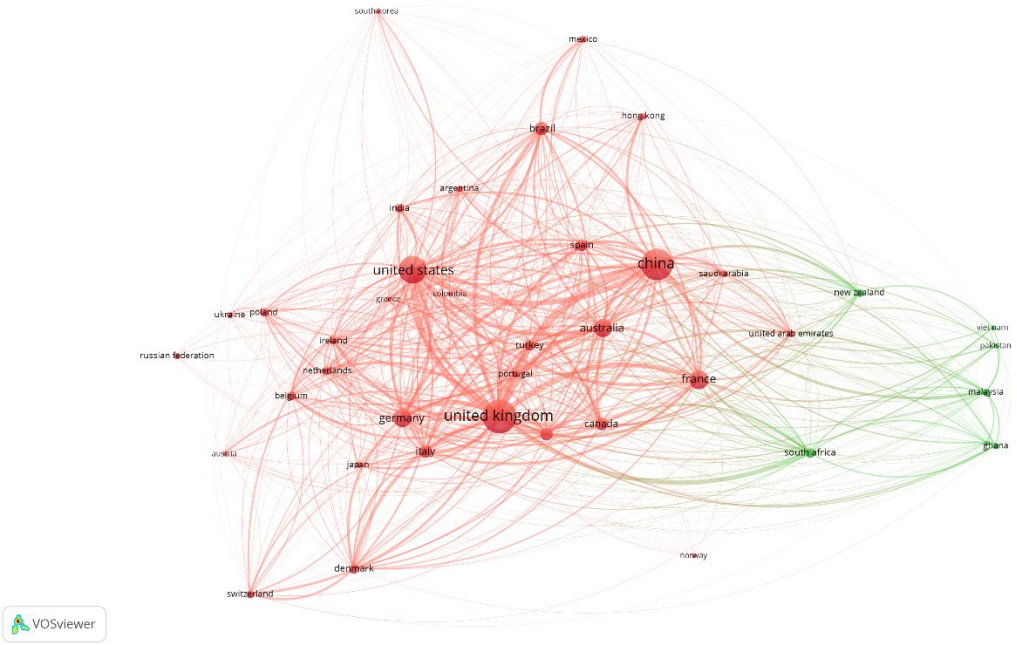

Fig. 3. Bibliographically coupling of countries

Fig. 3 displays the bibliographic coupling of nations involved in the research on CF and green projects, which shows that bibliographic coupling occurs with the authors from different countries citing similar literature. Hence, it shows a string of shared research foundations and intellectual orientations across national boundaries on the thematic topic of CF and green

projects. Fig. 3 corroborates that the US, the UK, and China are most prominent in bibliographic coupling. So, they have considerable overlap in their cited references. Other countries like Germany, France, and Australia also serve as major contributors to the field, as per bibliographically coupled with finance, sustainability, governance, and green investments. Moreover, European countries in a cluster focus more on regulatory and policy-driven sustainability issues. However, Asian countries are clustered more around themes of corporate growth and financial reform, focusing on emerging markets in Asia.

4. In-Depth Review of the Literature

The literature has investigated this issue from multiple dimensions. Thus, this section is categorized into multiple subsections to focus on the various dimensions of the literature.

4.1. CSR and CF Relationship: Governance or Agency

CSR and CF share a dual relationship. For instance, CSR is a governance mechanism aimed at aligning corporate strategies with stakeholder interests and accounts for long-term green projects, which restrains speculative and short-term financial practices, and funding for CF activities. On the other hand, CSR may also function as a tool for managerial discretion, which provides reputational cover and enables financial returns instead of long-term green investment. For instance, Zheng et al. (2024a) explored this duality and found that CSR was positively associated with financialization in non-state-owned firms (SOF), dispersed ownership firms, and operationally underperforming firms. In this way, CSR did not restrain the speculative behavior of firms and acted as a reputation insurance mechanism, which contributed to a crowding-out of investments in green projects. Similarly, Su and Lu (2023) observed that firms with higher CSR ratings were engaged in financial asset allocation, which was supported by improved credit access and investor perception. However, this effect weakened with strong internal controls and substantial managerial ownership. Thus, governance played its role in this relationship.

Lei et al. (2022) showed that CSR-driven financialization was most pronounced in non-SOF and disjointed ownership structures, which served as a branding strategy for shareholder value maximization and supported short-termism behavior. Zhao et al. (2020) explored this dynamic and revealed that CSR supported green innovation under regulatory pressure. However, financialization negated its benefits in non-SOF and financially constrained firms. Regulatory frameworks and legal enforcement also offset the agency-driven misuse of CSR. Zhao and Wang (2025) demonstrated that competition laws enhanced CSR behavior in financialized firms. Thus, market competition had a mediated role, which indicated that CSR was aligned with broader social goals in the firms operated under external scrutiny. However, CSR preserved financial interests rather than promoting sustainability in less-regulated environments. Jones and Nisbet (2011) reported that CSR initiatives with stakeholder accountability repurposed to support brand management and investor relations, and CSR was performed for strategic restructuring to improve shareholder value and market signaling.

Zhuang & Duan (2025) stated that SOF became more short-termist in times of environmental uncertainty, which redirected resources from CSR to speculative financial investments. Similarly, Cui and Zhu (2024) analyzed managerial myopia and found that a short-term approach weakened sustainability practices by increasing financial asset holdings. However, media scrutiny mitigated these effects by promoting accountability. Liu et al. (2025b) showed that high ESG scores eased financing constraints, and financialization reduced this benefit. The ownership structure in non-SOF determined the ESG. Yang and Li (2023) also demonstrated that CF reduced ESG performance by reallocating resources from green projects and innovation. However, this relationship was moderated by green innovation and regional policy environments. Huang and Mirza (2023) found that green practices correlated with greater financialization in larger firms with female board members, which suggested that green practices reflected strategic opportunism, but not sustainability transformation. However, the firm size and capacity mediated the financial motives of green claims. Huang et al. (2025) stated that public environmental concern worked as informal governance and it pressured firms to increase financial holdings in a return-seeking direction.

Table 1
Summary of the CSR and CF relationship

Source	Effect	Explanations
CSR as Governance Mechanism	Decreased CF	Competition law aligned CSR with social goals (Zhao & Wang, 2025). Under regulation, CSR promoted green innovation (Zhao et al., 2020). Strong ESG and governance reduced financialization benefits (Liu et al., 2025b).
Media Scrutiny and Regulatory Quality	Decreased CF	Media scrutiny curbed CF (Cui & Zhu, 2024). Legal and regulatory pressure enhanced CSR's real impact (Zhao & Wang, 2025).
CSR as Managerial Discretion	Increased CF	CSR is linked to CF in non-SOF, dispersed, and underperforming firms (Zheng et al., 2024a). CSR improved financial allocation (Su & Lu, 2023). Branding CSR drove short-termism (Lei et al., 2022). CSR for signaling (Jones & Nisbet, 2011). Strategic greenwashing in large and female-board firms (Huang & Mirza, 2023).
Increased CF	Decreased Green Projects	CF weakened green project commitment (Zheng et al., 2024a). CF reduced ESG outcomes (Yang & Li, 2023). Managerial myopia diverted funds (Cui & Zhu, 2024). Public pressure could not prevent CF crowd-out (Huang et al., 2025).
Decreased CF	Increased Green Projects	CSR supported green innovation under regulatory pressure (Zhao et al., 2020). Market competition and legal enforcement reduced CF and aligned CSR with green goals under external scrutiny (Zhao & Wang, 2025).

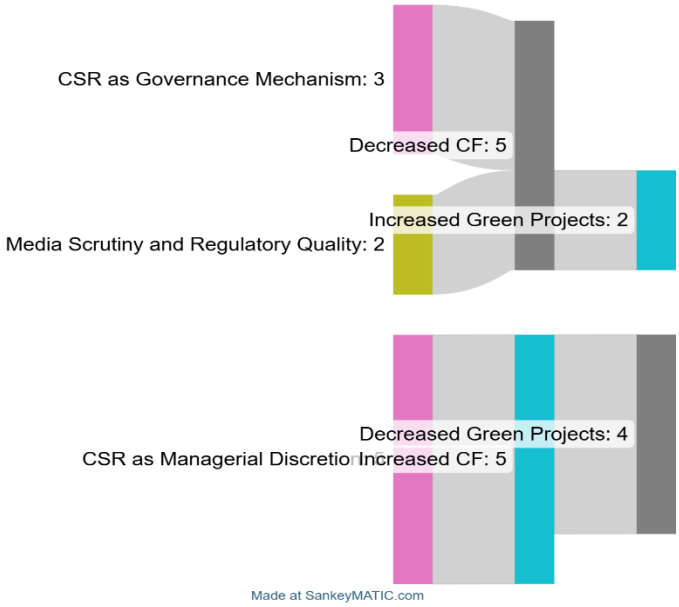

Fig. 4. The impact of CSR on CF and green project investments

The findings of this subsection are concluded in Table 1 and Fig. 4. CSR worked from a governance mechanism to an agency tool, which was affected by ownership structure, regulatory context, internal governance, and managerial incentives. Some studies concluded that CSR acts as a disciplining force, which enhances transparency and stakeholder alignment. However, other studies concluded that CSR was adopted to address speculative behavior and managerial discretion. Therefore, the CSR and CF nexus is context-based and depends on governance quality.

4.2. Green Projects, Environmental Regulation, and CF

The literature advocated that green projects' funding and environmental regulations reduced CF, and funds were allocated toward productive and sustainable activities, which were affected by environmental taxation and judicial reform. For instance, Zhou and Qi (2023) demonstrated that green reforms restrained CF in SOF and high-polluting firms with less myopic managers. This policy shifted capital away from financial assets toward green projects. Hu et al. (2023a) found that local government energy polices discouraged CF, and this effect was stronger in regions with green reputations, which were supervised by regulatory bodies. Hu et al. (2023b) reported that Green Credit Guidelines (GCG) promoted green projects and reduced CF in SOF and green provinces, which was supported by credit constraints and improved governance. Zhou et al. (2023b) also stated that green bond issuance transformed CF into green project funding and innovation in SOF and polluted firms with strong managerial incentives.

Zhou et al. (2023a) investigated the Chinese green campaign and reported a crowding-out effect on CF. Thus, regulatory pressure put tight financing constraints, which diverted funds from speculative assets toward green projects and innovation. This result was aligned with the Porter Hypothesis, and strong environmental mandates enhanced firm competitiveness by allocating funds for green projects. Zhang et al. (2023) and Jiang et al. (2022b) also validated the effectiveness of Chinese GCG policies and reported that it constrained CF in non-SOF with experienced financial executives and competition. Thus, it enhanced media scrutiny, reduced agency costs, and supported green projects. Xu and Guo (2024) and Gu and Qiao (2024) also reported the same findings of these Chinese policies, which reduced CF in polluting industries. Song et al. (2025a) and Wang et al. (2024a) reported that GCG reduced CF but promoted precautionary financialization to hold financial assets against external shocks. Moreover, the precautionary component contributed to productivity, green projects, and green innovation. Jiang et al. (2022b) found that GCG reduced CF in financially constrained firms, which confirmed that GCG not only shaped firm behavior but also interacted with broader structural disparities in the financial system.

Ma and Yan (2023) show that carbon markets reduced CF under the carbon trading scheme by relaxing financing constraints and incentivizing green projects. However, Liu & Pan (2024) reported that firms redirected funds from green projects toward financial assets once they achieved emissions reduction goals, which reduced innovation capacity and long-term competitiveness of firms as well. Zhang and Zheng (2024) stated this relationship from a different angle. Carbon markets increased long-term CF in non-SOF and volatile financial environments. Thus, firms preferred financial hedging over technological adaptation and green projects. Qu et al. (2024) found different results and stated that emissions trading schemes enhanced productivity, which helped channel capital away from CF to operation and green projects. However, their impact on innovation was found to be limited, which suggested alignment between environmental policy and innovation strategy. Wang et al. (2024d) found that the environmental protection policy significantly reduced CF in SOF and firms in green finance regions, which promoted a crowding-out of financial activities in favor of green innovation and projects.

Wang et al. (2024c) stated that green mergers and acquisitions reduced financing constraints and speculative behavior, which helped promote sustainability and green projects under supportive governance. It confirmed that institutional alignment converted CF into green projects. Xuan et al. (2024) found that Chinese asset management regulation reduced CF and speculative investments, which enhanced green projects and innovation in SOF and firms with shadow banking exposure. Tu et al. (2024) argued that excessive CF could reduce the effectiveness of climate policy. However, the Chinese policies encouraged green innovation and projects in highly financialized non-SOF. Pan et al. (2025) reported that Chinese circuit court tribunals reduced CF by reducing uncertainty, which encouraged innovative investment in green projects with the help of legal infrastructure. Yang et al. (2025) found that environmental taxes discouraged CF in politically connected firms and encouraged innovation in green projects by curbing rent-seeking behavior.

Table 2
The summary of the effects of CF and regulations on green projects

Source	Effect	Explanations
Green Credit Guidelines	Decreased CF	GCG reduced CF by promoting green project funding and productivity (Hu et al., 2023b; Song et al., 2025a; Wang et al., 2024a; Jiang et al., 2022b; Zhang et al., 2023; Gu & Qiao, 2024).
Environmental Regulation and Green Reform	Decreased CF	Local policies and regulatory campaigns reallocated capital from CF to sustainable investments (Zhou & Qi, 2023; Xu & Guo, 2024; Wang et al., 2024d; Zhou et al., 2023a; Jiang et al., 2022b).
Carbon Markets and Trading Schemes	Decreased CF	Well-designed carbon markets shifted funds toward green projects (Ma & Yan, 2023; Qu et al., 2024; Wang et al., 2024d; Pan et al., 2025).
Green Bonds	Decreased CF	Green financial instruments transformed speculative CF into innovation and sustainability (Zhou et al., 2023b; Wang et al., 2024c).
Asset Management and Legal Reform	Decreased CF	Asset regulations and circuit courts reduced uncertainty and CF in SOF (Xuan et al., 2024; Pan et al., 2025; Yang et al., 2025).
Environmental Taxes	Decreased CF	Discouraged speculative financial behavior and encouraged green innovation (Yang et al., 2025).
Excessive CF with post-carbon credit gains	Increased CF	Some firms redirected capital from green projects back to financial assets after short-term emissions goals (Liu & Pan, 2024; Zhang & Zheng, 2024).

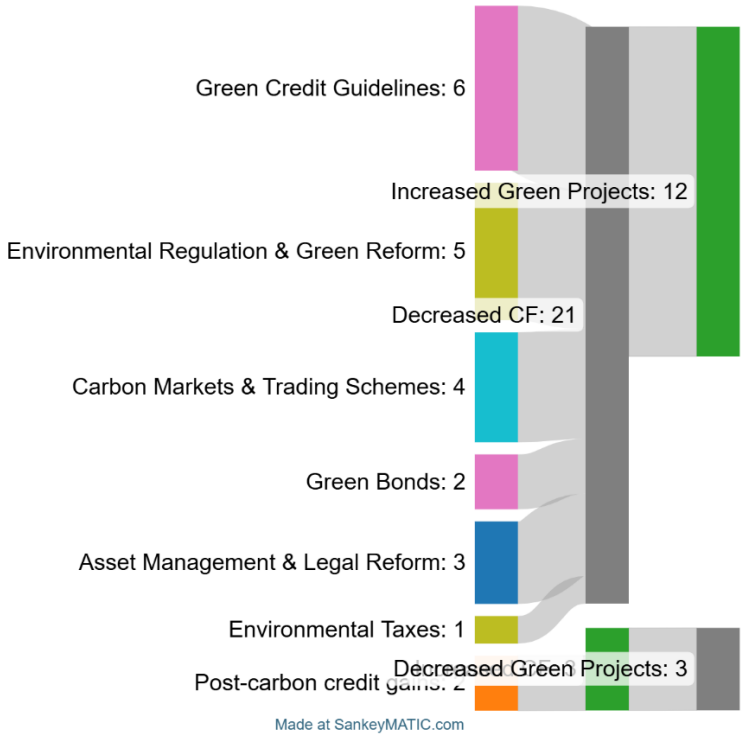

Fig. 5. The effects of CF and regulations on green projects

The findings of this subsection are concluded in Table 2 and Fig. 5. GCG and environmental regulation worked as structural constraints on CF. Moreover, carbon markets and environmental taxes, which are effectively designed and institutionally supported, can shift speculative behaviors toward innovation, green projects, and sustainability. However, financing constraints, ownership structure, governance quality, and regulatory heterogeneity could affect the intensity of the effects. Therefore, green finance and projects should be economically viable, institutionally embedded, and strategically aligned to play their potential role against CF.

4.3. CF and Green Innovation Nexus

The literature highlighted the negative and positive roles of CF on green innovation and projects. Thus, some studies consistently reported the negative relationship between CF and green innovation. However, other literature also found the U-shaped effects, which corroborated that CF might act as a temporary catalyst and can have pleasant effects on innovation in the long term. Huang et al. (2021) found that CF in Chinese firms was speculative, which resulted in a strong negative association with green innovation and CF. However, regional disparities and access to finance were found to be more influential than firm-level characteristics in producing such effects. Xu and Xuan (2021) also confirmed that CF reduced R&D and green investment, which reduced patent output and reduced long-term firm performance. Thus, they suggested the importance of control systems and stable macroeconomic environments in mitigating the adverse effects of CF. Similarly, Tong et al. (2024) demonstrated that CF significantly reduced green innovation and projects in private, high-tech, and capitally constrained firms, which was aggravated by agency issues and financial inflexibility. However, managerial myopia dampened the financialization-innovation linkages due to short investment prospects.

Li et al. (2024b) showed a negative impact on independent innovation and highlighted that command-and-control regulations were effective in neutralizing this adverse effect than market-based mechanisms in regions with strict regulations. Guo et al. (2022) stated that market competition had a dual effect. It aggravated short-termism but forced firms to innovate to remain competitive in the market. Yu et al. (2022) investigated different types of CF and reported that transaction-oriented CF enhanced liquidity, which promoted innovation. However, investment-oriented CF crowded out R&D and green projects. Thus, agency conflicts and governance structures could shape the innovation outcomes of CF. Liu & Wang (2025) investigated the role of monetary policy and reported that it promoted green innovation and projects. However, excessive CF dampened this effect by redirecting resources toward speculative channels. Wei et al. (2025) reinforced the importance of institutional quality and showed that the institutional environment reduced credit spreads, which shifted firms' strategies from financial speculation toward productive and green investments.

Zhong et al. (2025) reported that CF in polluting industries reduced financing constraints and managerial agency problems, which directly crowded out innovation and green projects. However, the results were different in Eastern and Central China. Song et al. (2025b) confirmed that excessive CF undermined innovation and productivity. However, firm-level innovation partially counteracted this effect, which corroborated a feedback mechanism with strong innovation capabilities to reduce the effect of CF. Li et al. (2025) reported that moderate CF supported innovation and green projects. However, excessive CF mitigated green efforts. Moreover, experienced managers navigated firms toward the optimal size of CF with a green productivity boom. Zhang & Du (2024) reported a reservoir effect and financial income supported innovation in innovation-driven non-SOF with high ESG scores, but it reduced spillover benefits. Huang & Xu (2024) documented that financialization mitigated green innovation and projects. However, internal controls and equity incentives reduced this effect by aligning managerial goals with long-term innovative projects.

Yang and Chen (2023) found that CF crowded out green innovation and projects by diverting funds away from R&D toward CF. However, that digitalization preserved innovation incentives due to financial pressure. Li et al. (2023) found that short-term CF raised corporate risk-taking behavior, which reduced innovation and green projects. However, governance, institutional investors, and analyst attention moderated these impacts. Consumer demand for eco-friendly goods reduced the negative effects of CF on innovation. Tu and Shi (2023) found that Chinese carbon trading improved innovation quality in firms with a lower level of CF. Thus, excessive CF reduced the effectiveness of environmental policy tools. Zhou et al. (2021) found that financial arbitrage helped firms sustain innovation to sustain speculative opportunities with strategic goals in non-SOF. Wu et al. (2024a) investigated clean energy US firms and found that CF through shareholder pressures and executive compensation incentives reduced innovation for renewable energy. From a digital transformation perspective, Zhao et al. (2024) found that digitalization supported green projects, which reinforced financialization patterns as per firm context, CSR engagement, and media scrutiny.

Table 3
A summary of the CF and green innovation relationship

Source	Effect	Explanations
Increased CF	Decreased Green Innovation	Huang et al. (2021), Xu & Xuan (2021), Tong et al. (2024), and Yang & Chen (2023) confirmed that CF diverted funds from R&D and innovation.
Increased CF	U-Shaped Innovation Effect	Li et al. (2025), Yu et al. (2022), and Zhang & Du (2024) noted that moderate CF initially promoted but later delayed green innovation.
Increased CF	Reduced Policy Effectiveness	Tu & Shi (2023) and Liu & Wang (2025) suggested that CF weakened the impact of carbon trading and monetary policy on green innovation.
Decreased CF	Increased Green Innovation	Wei et al. (2025) and Huang & Xu (2024) indicated that better institutional quality, internal control, and reduced CF to support green investment.
Institutional Governance	Mitigates CF Impact	Yang & Chen (2023), Li et al. (2023), and Huang & Xu (2024) highlighted that digitalization, analyst attention, and equity incentives offset CF's negative effect.
Market Competition	Dual Effect on Innovation	Market competition pressurized innovation and raised short-term CF (Guo et al., 2022).

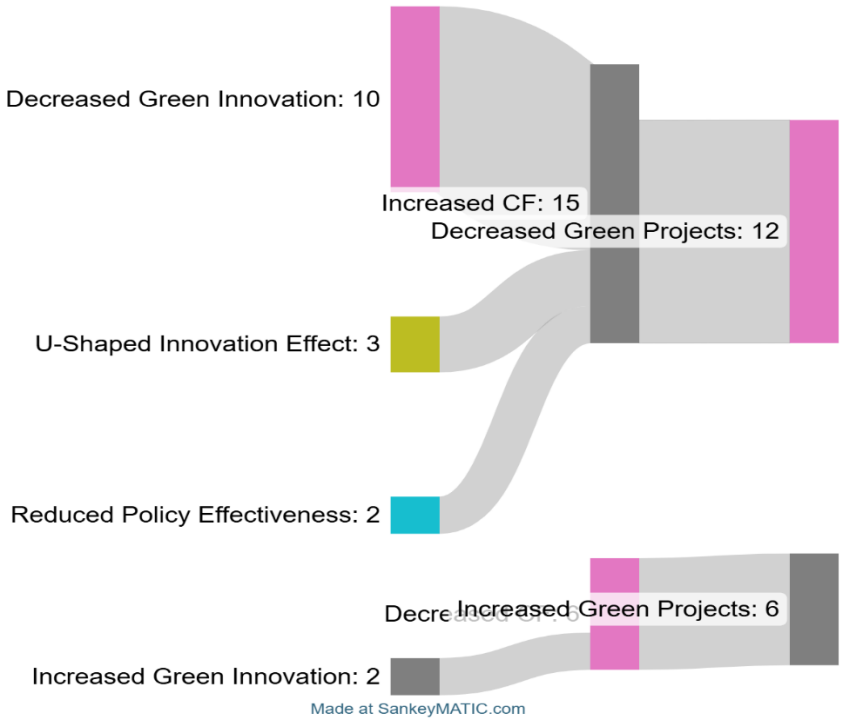

Fig. 6. The effects of CF on green innovations

The findings of this subsection are concluded in Table 3 and Fig. 6. This subsection mostly supported the crowding-out effects of CF on innovation and green projects. The excessive CF consistently reduced green innovation by diverting resources to financial channels in financially constrained firms and with skewed managerial incentives. However, a moderate level of CF and transaction-oriented CF reduced these effects with strong institutional quality, internal governance, and digital capacity. Thus, this relationship may be declared as non-linear, which depends on the moderating effects of firm attributes, policy design, and external governance. Moreover, strategic alignment of CF and environmental objectives is important to reduce the crowding-out of CF on green projects.

4.4. Policy Uncertainty, Digitalization, and the CF

Policy Uncertainty (PU) and technological transformation could shape the pattern of CF. Thus, these factors can aggravate or mitigate firms' tendencies toward CF, which consequently affect long-term green investment in projects and innovation. Chen et al. (2024) stated that PU forced firms to allocate investments in financial assets as a form of self-insurance. These effects were more prominent in the presence of financially experienced executives under tight financing constraints in non-SOF. Thus, ownership structure moderated this relationship. Zhou et al. (2024) demonstrated that PU reduced green projects by crowding out R&D activities, which shifted firms' interest in short-term CF. However, accountability mechanisms, market competition, and media scrutiny moderated these effects, and managerial short-termism intensified this effect. Zhou et al. (2022) identified a non-linear relationship between PU and innovation, and moderated PU encouraged firms to hedge risk with innovation. However, excessive PU suppresses this dynamic in highly financialized firms.

Zheng et al. (2024b) stated that climate risk would alter CF behavior, and physical and sentiment-driven climate risks raise CF in risk-taking financially constrained firms, which responded to PU and diverted resources into liquid assets. Thus, this behavior reduced sustainability-focused investments in green projects. Nalin & Yajima (2024) investigated the effects of external shocks on CF and found that foreign debt and exchange rate volatility affected CF. For instance, CF reduced investment due to PU shocks, which reduced productive investments in green projects. Jiang et al. (2022a) demonstrated that digital finance crowded out green investment by shifting focus on speculative investment in polluting sectors due to weak environmental enforcement. Sui & Yao (2023) found that cloud computing reduced CF by promoting innovations and reducing speculative activities in private firms in Eastern regions of China, which was also affected by spatial and ownership-based heterogeneity in digital finance. Dong et al. (2024) found that the Chinese broadband policy increased green innovation and projects, which reduced CF by enhancing firm efficiency.

Jia & Zhang (2024) stated that bank digitalization reduced credit constraints, which improved strategic green innovation and reduced CF in SOF and polluting firms in Eastern China with environmental regulations and media oversight. However, this impact was limited to strategic innovation. Pan and Lin (2025) found feedback between intelligent manufacturing and CF. Thus, firms having high CF and innovation intensity could benefit from digital and energy-efficient upgrades, and these transitions redirected financial resources toward low-carbon innovation. Liu et al. (2023) reported that financially constrained

firms moved asset allocation toward financial assets, which reduced financing for R&D and green projects in the slump period. However, less-constrained firms-maintained innovation investments. Lan et al. (2024) found that pollution increased firms' financial asset holdings with strict environmental regulation and limited financial access. Sawyer (2022) stated that CF adverse effects were found from institutional design flaws. Thus, financial architecture with industrial policy redirected capital flows toward green projects.

Table 4
A summary of PU, Digitalization, and the CF relationship

Source	Effect	Explanations
Increased PU	Increased CF	PU triggered risk-aversion and hedging behaviors that led firms to reallocate funds toward financial assets in non-SOF and firms with financially experienced managers (Zhou et al., 2024; Zheng et al., 2024b; Nalin & Yajima, 2024; Liu et al., 2023).
Increased PU	Decreased Green Projects	Excessive PU crowded out R&D, which suppressed innovation, and incentivized CF in high-risk firms (Zhou et al., 2024; Zheng et al., 2024b; Nalin & Yajima, 2024).
Increased CF	Decreased Green Projects	CF driven by PU, climate risk, or financial constraints resulted in reduced R&D and green investment under weak governance or during PU shocks (Zhou et al., 2024; Jiang et al., 2022a; Zheng et al., 2024b; Nalin & Yajima, 2024).
Increased Digitalization	Decreased CF	Cloud computing, broadband policy, bank digitalization, and intelligent manufacturing lowered CF by easing financing constraints, increasing efficiency, and supporting innovation (Sui & Yao, 2023; Dong et al., 2024; Jia & Zhang, 2024; Pan & Lin, 2025; Sawyer, 2022).
Decreased CF	Increased Green Projects	Digital transformation and industrial policies shifted capital from financial assets to green innovation (Dong et al., 2024; Jia & Zhang, 2024; Pan & Lin, 2025).

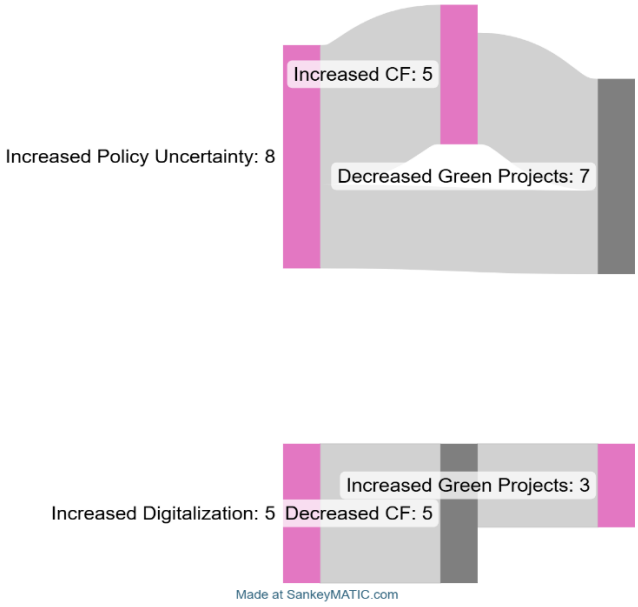

Fig. 7. The effects of PU, Digitalization, and the CF on green projects

The findings of this subsection are concluded in Table 4 and Fig. 7. Macroeconomic volatility, PU, and technological transformation affect CF. Thus, PU and environmental shocks raised short-term financial strategies in risk-averse and financially constrained firms. However, digital innovation with robust institutional frameworks reduced these effects, which improved efficiency and investments for green projects.

4.5. CF with the Ownership Structure, Firm Attributes, and Institutional Contexts

CF can be affected by ownership structures, managerial attributes, financing conditions, pollution intensity, and the quality of institutional governance. The literature has highlighted the heterogeneity in financial behavior across firms due to these factors. For instance, Tao et al. (2021) found that crowding-out of CF on green projects was more pronounced in non-SOF and small firms under stringent regulation. However, these effects were different in financially flexible firms, which strategically allocated financial assets for green projects. However, Shen et al. (2024) found that non-SOF, SMEs, and highly polluting firms increased CF under Chinese emissions trading due to short-term profit-seeking behavior in a similar way. However, quotas and subsidies redirected capital in green projects, which was also affected by firm ownership and size. Wang et al. (2024b) found that carbon risk reduced CF in SOF and financially constrained firms, which shifted investments toward green innovation and projects, which corroborated the Porter Hypothesis. Similarly, Li et al. (2024a) showed that ecological policy reduced CF in non-SOF and polluting firms with stricter environmental laws, which reduced agency costs and improved ESG governance.

Gu et al. (2024) found that financial backgrounds intensified the adverse effect of CF on green projects. However, female owners mitigated this effect. Thus, executive identity and professional orientation improved strategic capital allocation. Xu & Shi (2025) found that CF had nonlinear effects on green projects in firms with strong green innovation capabilities. Thus, managerial traits could have dual effects by improving or obstructing green projects with financialized strategies. Narayanan et al. (2021) stated that Australian managers prioritized CF over environmental considerations, which was also moderated by environmental incentives. Thus, performance evaluation could align managerial behavior with long-term sustainability. Liu et al. (2025a) showed that lower CF responded greater to carbon trading policies. Thus, CF acted as a barrier to policy effectiveness. Similarly, Wang et al. (2025) demonstrated that PU prompted financial assets and reduced green projects with high financing constraints and low risk tolerance.

Wu et al. (2024b) found that interest rate liberalization improved green project investment in low-financialized firms. Thus, financialized firms showed less willingness to start green projects and preferred financial flexibility. Zhong and Li (2024) stated that property rights, debt levels, and regional governance quality shaped the strategic use of financial assets. Thus, CF showed a dual effect on green projects with supporting and a crowding-out mechanism in heavily polluting firms. Zhu & Wu (2025) found that green governance increased earnings in highly financialized firms. These effects were amplified with weak internal controls. However, strong ESG practices would improve investor trust under financialized conditions. Azkunaga et al. (2013) stated that neoliberal reforms and investor-centric governance normalized financialization with corporate structures. They found that green projects were supported over CF by reducing reliance on market-based governance.

Table 5
A summary of the effects of ownership and firm attributes on green projects

Source	Effect	Explanations
Increased CF	Decreased Green Projects	Financialization crowded out environmental investments in non-SOFs and small firms under weak institutional controls (Tao et al., 2021; Shen et al., 2024; Wang et al., 2025; Zhong & Li, 2024).
Decreased CF	Increased Green Projects	Lower levels of CF supported green innovation and reallocation of capital toward long-term sustainability under policy reforms (Li et al., 2024a; Wu et al., 2024b).
SOE Ownership	Decreased CF	SOEs showed greater policy compliance and redirected financial assets toward green innovation under carbon risk and institutional pressure (Wang et al., 2024b).
Non-SOE Ownership	Increased CF	Non-SOFs were more vulnerable to speculative short-termism and exhibited higher CF behavior, which reduced long-term green investments (Shen et al., 2024; Gu et al., 2024).
Female Executive Leadership	Decreased CF-Driven Crowding	Female executives mitigated the adverse effect of CF on green projects (Gu et al., 2024).
Strong ESG Governance	Increased Green Investments	ESG governance helped align CF with sustainability goals in highly financialized firms (Zhu & Wu, 2025; Zhong & Li, 2024).
Poor Internal Controls	Increased CF	Weak internal governance increased CF and speculative practices, which reduced capital availability for green innovation (Zhu & Wu, 2025).
Strict Environmental Regulations	Decreased CF	Regulatory frameworks like emissions quotas and subsidies constrained CF and incentivized green project investments (Li et al., 2024a; Tao et al., 2021).
High Financing Constraints	Increased CF	Firms facing tight financing conditions preferred financial asset allocation over green projects due to risk aversion (Wang et al., 2025).

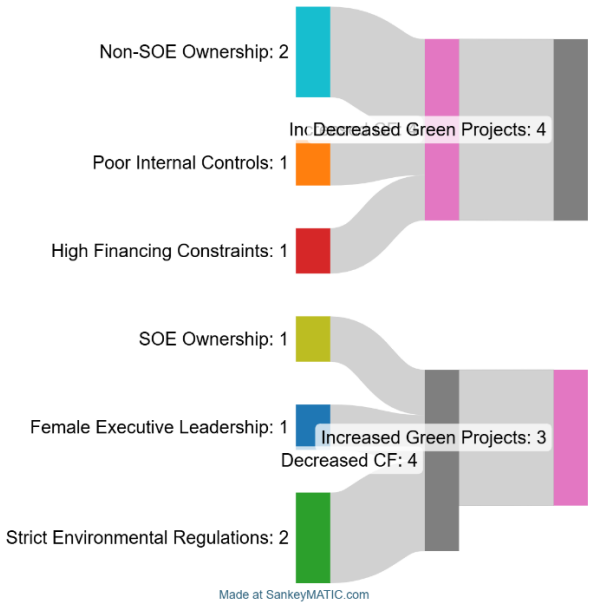

Fig. 8. The effects of ownership structure and firm attributes on CF and green projects

The findings of this subsection are concluded in Table 5 and Fig. 8. The impact of CF on green projects varies as per ownership types, managerial attributes, financing conditions, and institutional frameworks. SOF, green governance, and regulatory discipline reduced CF. However, managerial financial bias, weak internal controls, and PU increased CF. Thus, firm attributes and institutional context have a deep effect on the connection between CF and green projects.

4.6. Global, Governance, and Political Dimensions of Financialization

Globalization and political influences also shaped the relationship between CF and green projects. Particularly, the global expansion of financialization is influenced by the dominance of environmental and social investments, which can promote green project investments as per the governance of climate finance. Thus, governance plays a critical role in promoting green investments. For instance, Tulum and Lazonick (2018) investigated the US pharmaceutical sector and found that firms prioritized stock buybacks over innovation investments. Comparing US and European firms, the authors concluded that the productivity paradox is rooted in governance, which rewards short-term gains over ecological investment in green projects. Similarly, Fieldman (2014) found that financial liberalization has wrinkled stakeholder-oriented models in coordinated economies, and centralization of financial markets reduced innovation and ecological modernization, which favored short-termism. Ertürk (2015) found that the European markets aligned with US governance threatened financialized behaviors, which marginalized sustainable investment in green projects.

Gilbertson (2021) investigated Colombian firms and found that carbon trading and forest offset credit affected strategies of global finance to protect ecological systems. These mechanisms deepened environmental and social vulnerabilities. Richards and Lyons (2016) explored firms in Uganda and found that carbon-offset projects improved investment in sustainable projects, which helped to influence risk perpetuating with corporate enclosure and ecological subordination. Similarly, Bracking (2012) explored private equity funds in offshore jurisdictions, which acted as major agents of CF in African economies. The authors found that these funds speculated on biodiversity, land, and carbon futures with extractive investments. Thus, CF operated as a socio-technical system and integrated governance to raise green projects. Ferrando et al. (2021) stated that a world-ecology perspective could not support local environmental priorities, which had adverse effects on ecological systems due to temporally fixed capital.

Stroehle et al. (2025) found that quantifying environmental impact, firms resisted the domination of shareholder value. However, monetizing impacted financial logic unless it was influenced by governance and stakeholder inclusion. Scherer et al. (2016) found that digitalization and CF reduced firms' capacity to invest in green projects to meet market pressures and regulatory complexity. The financial metrics affected corporate decision-making, which disincentivized firms from green projects and reinforced the structural incompatibility between CF governance and sustainability. In South Asia, Hameed et al. (2024) found that CF influenced natural resource markets, and PU also exerted a stronger destabilizing effect. Thus, traditional CF amplified inefficiencies, but AI-driven financial mechanisms improved stability in resource allocation under environmental constraints, which corroborated that AI and institutional reform enhanced the resilience of resource governance. Zhou et al. (2023c) found that local government debt for infrastructure increased pollution and CF in coastal and pollution-intensive regions with weak institutional governance. Iorember et al. (2024) showed that CF without environmental safeguards raised ecological footprints, and human capital and energy efficiency moderated these effects.

Table 6
A summary of globalization, political dimensions, CF, and green projects

Source	Effect	Explanations
Increased CF	Decreased Green Projects	Financial liberalization, stock buybacks, and market-driven logics shifted capital away from innovation and green projects (Tulum & Lazonick, 2018; Fieldman, 2014; Ertürk, 2015; Scherer et al., 2016; Zhou et al., 2023c).
Increased CF	Increased Ecological Exploitation	Private equity and carbon trading increased speculative investments in biodiversity and carbon futures, which marginalized local ecological goals (Bracking, 2012; Gilbertson, 2021; Richards & Lyons, 2016).
Weak Global Governance	Reduced Green Investments	Dominance of financial logic and weak stakeholder inclusion disincentivized sustainability-aligned capital flows (Stroehle et al., 2025; Ferrando et al., 2021).
Digitalization and CF	Reduced Green Projects	Digital transformation under financial pressure constrained long-term ecological investments due to financial metrics and regulatory burdens (Scherer et al., 2016).
Local Government Debt	Increased CF	Infrastructure-related local government borrowing drove CF and pollution in polluted regions with weak institutions (Zhou et al., 2023c).
AI and Institutional Reform	Reduced CF Instability	AI-driven finance with institutional reform stabilized resource governance and improved environmental resilience (Hameed et al., 2024).
CF without Safeguards	Increased Ecological Footprint	Lack of environmental safeguards in CF has led to environmental degradation. Human capital and energy efficiency moderated this effect (Iorember et al., 2024).
Carbon Offset Mechanisms	Green Investment with Risk	Carbon projects improved investment in sustainability, which also created ecological subordination risks (Richards & Lyons, 2016; Gilbertson, 2021).

The findings of this subsection are concluded in Table 6 and Fig. 9, which highlights that CF influenced environmental governance, corporate strategy, and resource control. In resource economies, CF in private equity reduced green project sustainability. In developed economies, shareholder-value ideologies and market-oriented governance have also reduced firms' capacity to invest in green innovation and projects. Thus, structural transformation is required by shifting governance away from shareholder primacy, which can improve green project investment.

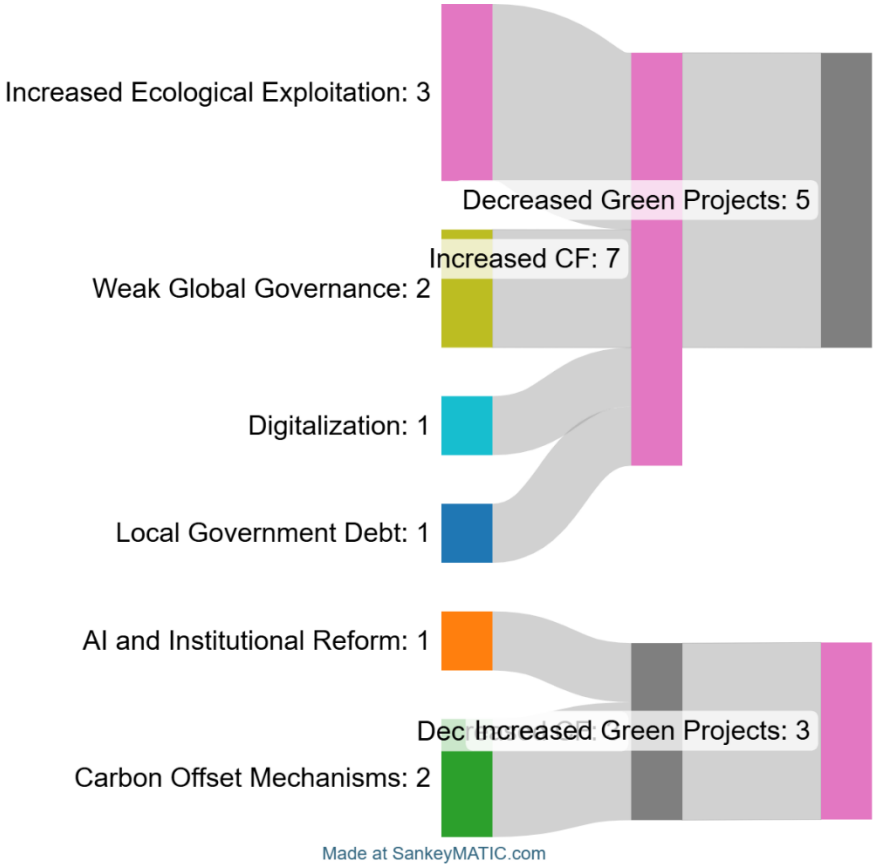

Fig. 9. The effects of globalization and political dimensions on CF and green projects

5. Synthesis of the Literature

CF refers to the firms' prioritizing financial activities over productive investments in green projects. The trade-off between CF and green project funding has been investigated in recent literature with mixed findings due to some internal and external factors. The most prominent factors behind this trade-off are governance and managerial motives. For instance, firms emphasizing shareholder value maximization would be involved in more CF activities to generate short-term profits, which reduces the availability of funding for long-term innovation and investment in green projects. CSR initiatives caring stakeholder interests may also motivate managerial decisions favoring CF over sustainable growth. The tension between managerial opportunism and stakeholder governance shapes how firms allocate resources between financial markets and productive uses.

However, environmental regulations and GF initiatives put pressure on management to invest in green projects and to avoid speculative financial activities. For instance, carbon trading schemes, green credit regulations, and sustainable financing frameworks may force firms to redirect capital from CF toward innovative investments in green projects. These regulatory tools are more effective in firms with strong governance and highly polluting industries. Moreover, encouraging green technologies would also help management to align financial markets with the SDGs. However, CF could have a crowding-out effect on green projects by reducing funding for R&D activities. Thus, firms engaged heavily in CF tend to allocate fewer resources to innovation. These decisions would undermine the long-term competitiveness of firms, which can reduce sustainability efforts. However, some types of CF related to transactional activities may facilitate innovation under some firm-specific conditions. Moreover, market competition and active CSR engagement can mitigate the negative effects, which highlights the significance of institutional and market contexts.

PU, digitalization, and technological progress also affect CF. Moderate PU may increase innovation by encouraging firms to seek new opportunities for green projects. However, excessive volatility in PU discouraged long-term investment in green projects and intensified CF. Moreover, digital technologies of cloud computing and other innovations can reduce financial speculation by improving operational efficiencies and innovation capacities for green projects. Moreover, firms' internal financing constraints and external economic conditions are shaping financial behavior. Heterogeneity among firms is also an important factor influencing CF. For instance, SOF may respond more positively to policy measures to reduce CF and promote green projects. However, private firms may exhibit stronger tendencies toward financial speculation and would ignore green projects. Moreover, financing constraints, managerial focus, and regional policy environments also shaped firms' financial strategies. CF is also influenced by the global political economy framework due to the involvement of natural resources and

ecological assets in decision-making. Carbon credits, green bonds, and ecosystem services may prioritize investor interests over green project investment.

6. Conclusion

The trade-off between CF and green project investment is extensively investigated in recent literature. Therefore, the present research aims to review such literature to comprehend the complex connection between CF and green project investment. A systematic review approach is adopted to select the research articles from the Scopus database, following PRISMA guidelines. After searching for the keywords, 306 articles were found, and after applying filters, 149 articles were found. Lastly, 90 research articles were selected after careful review of the abstracts and conclusions of 149 articles published during 2011-2025. The connection between CF and green project investments is affected by internal governance structures, regulatory and environmental policies, innovation dynamics, ownership patterns, and broader political-economic contexts. In which governance and managerial motives are the most prominent drivers of CF. For instance, firms prioritize CF due to managerial incentives aligned with shareholder value maximization, which reduces productive investments in green projects. Regulatory frameworks like environmental governance and green finance shape the CF behaviors. However, their effectiveness may vary depending on firm characteristics and institutional contexts. Moreover, CF generally crowds out innovation and green investments in green projects, which is challenging firms' sustainable transitions. Moreover, PU and digital transformation complicate this relationship. PU usually constrains long-term investment for operation and green projects. However, technological advances reduce reliance on financial speculation and promote green projects. Ownership structures like SOF and private firms reveal varied responses to policy interventions, which mostly help mitigate CF. CF in the natural resource sector and ecological assets needs attention to critically assess how market-based instruments interact with social and environmental objectives.

The reviewed literature presents many policy implications to align the CF with the sustainable growth of firms by investing in green projects. Firm-level policies should be initiated by strong governance to match managerial strategies with long-term productive investment in green projects. Moreover, a balance should be maintained between long-run sustainable goals with short-term financial gains from CF activities. For this purpose, effective regulation should be framed to mitigate the adverse effects of CF on business operations and green project investments. For this purpose, regulators should promote transparency in CF activities by promoting monitoring and reporting requirements to ensure that firms are balancing financial objectives with social and environmental responsibilities. Governments and financial authorities should incentivize sustainable investments in green projects by supporting green bonds and ESG activities. So, firms can be financially supported for investment in environmentally friendly technologies and green projects. Regulatory frameworks should facilitate easier access to capital for firms that demonstrate strong ESG performance to reduce the speculative activities of CF. Policymakers should recognize the ownership structures, industry sectors, and geographical contexts of the firms to design heterogeneous policies as per firm- and sector-specific initiatives. Moreover, Policymakers should develop a stable policy environment to reduce PU, which can improve firms' motivations to invest in long-term green projects and to avoid excessive CF.

Funding

The authors extend their appreciation to Prince Sattam bin Abdulaziz University for funding this research work through the project number (PSAU/ 2025/02/32670).

References

Azkunaga, J. A., San-Jose, L., & Urionabarrenetxea, S. (2013). The impact of financial globalization and financialization on the economy in the current crisis through banking corporate governance. *Contemporary Economics, 7*(3), 79-94. https://doi.org/0.5709/ce.1897-9254.91

Bracking, S. (2012). How do investors value environmental harm/care? Private equity funds, development finance institutions and the partial financialization of nature-based industries. *Development and Change, 43*(1), 271-293. https://doi.org/10.1111/j.1467-7660.2011.01756.x Jones, B., & Nisbet, P. (2011). Shareholder value versus stakeholder values: CSR and financialization in global food firms. *Socio-Economic Review, 9*(2), 287-314. https://doi.org/10.1093/ser/mwq033

Chen, Y., Xu, J., Wang, S., & Xu, S. (2024). Economic environment uncertainty and financialization of real estate firms. *International Review of Economics & Finance, 93*, 1104-1114. https://doi.org/10.1016/j.iref.2024.05.011

Cui, Y., & Zhu, S. (2024). The Influencing Mechanism of Managerial Myopic Behavior on Enterprise Sustainable Development Performance: Evidence Based on Listed Companies in China. *Sustainability, 16*(11), 4472. https://doi.org/10.3390/su16114472

Dong, H., Tao, M., Wang, J., & Baiocchi, G. (2024). How broadband infrastructure development impacts green innovation? A corporate financialization mediated perspective. *Sustainable Development, 32*(6), 6881-6902. https://doi.org/10.1002/sd.3063

Ertürk, I. (2015). Challenges of financialised firm behaviour for Capital Markets Union. *Law and Financial Markets Review, 9*(3), 196-201. https://doi.org/10.1080/17521440.2015.1084561

Ferrando, T., Junqueira, G. D. O., Vecchione-Gonçalves, M., Miola, I., Prol, F. M., & Herrera, H. (2021). Capitalizing on green debt: A world-ecology analysis of green bonds in the Brazilian forestry sector. *Journal of World-Systems Research, 27*(2), 410-438. https://doi.org/10.5195/jwsr.2021.1062

Fieldman, G. (2014). Financialisation and ecological modernisation. *Environmental Politics, 23*(2), 224-242. https://doi.org/10.1080/09644016.2013.821826

Gilbertson, T. L. (2021). Financialization of nature and climate change policy: implications for mining-impacted Afro-Colombian communities. *Community Development Journal, 56*(1), 21-38. https://doi.org/10.1093/cdj/bsaa052

Gu, X., & Qiao, S. (2024). Break the Eclectic Choice: Can Green Credit Policy Restraint the Polluting Firms' Financialization? Evidence From China. *SAGE Open, 14*(4), 21582440241288063. https://doi.org/10.1177/21582440241288

Gu, Y., Zhang, W., Sha, L., & Wang, L. (2024). Research on corporate financialization and green innovation: moderating role of CEO's individual characteristics. *Chinese Management Studies, 18*(4), 1130-1148. https://doi.org/10.1108/CMS-11-2022-0415

Guo, Y., Fan, L., & Yuan, X. (2022). Market competition, financialization, and green innovation: Evidence from China's manufacturing industries. *Frontiers in Environmental Science, 10*, 836019. https://doi.org/10.3389/fenvs.2022.836019

Hameed, J., Huo, C., Albasher, G., & Naeem, M. A. (2024). Revisiting the nexus between financialization and natural Resource efficiency through the lens of financial development and green industrial optimization. *Journal of Cleaner Production, 468*, 143066. https://doi.org/10.1016/j.jclepro.2024.143066

Hu, G., Strielkowski, W., Li, H., Zenchenko, S., & Xu, J. (2023b). Can green credit policy under the concept of green economy curb corporate financialization to promote sustainable development?. *Frontiers in Environmental Science, 11*, 1127380. https://doi.org/10.3389/fenvs.2023.1127380

Hu, G., Yu, Y., & Wang, Q. (2023a). Do local governments' energy-saving target constraints inhibit financialization? Evidence from nonfinancial listed firms in China. *Plos One, 18*(5), e0285342. https://doi.org/10.1371/journal.pone.0285342

Huang, C., & Mirza, S. S. (2023). Green business practices and corporate financialization: Role of female directors in Chinese small and medium enterprises (SMEs). *Journal of Corporate Accounting & Finance, 34*(1), 137-151. https://doi.org/10.1002/jcaf.22586

Huang, J., Su, H., & Chen, L. (2025). Does environmental concern drive financial assets? Evidence from China. *Borsa Istanbul Review, 25*(1), 127-136. https://doi.org/10.1016/j.bir.2024.12.013

Huang, Y., & Xu, Z. (2024). The role of principal-agent in corporate financialization and green innovation. Finance Research Letters, 63, 105391. https://doi.org/10.1016/j.frl.2024.105391

Huang, Z., Li, X., & Chen, S. (2021). Financial speculation or capital investment? Evidence from relationship between corporate financialization and green technology innovation. *Frontiers in Environmental Science, 8*, 614101. https://doi.org/10.3389/fenvs.2020.614101

Iorember, P. T., Isik, A., & Alymkulova, N. (2024). Achieving environmental quality in the Mediterranean region: the role of financialization, human capital and energy efficiency. *Euro-Mediterranean Journal for Environmental Integration, 9*(4), 1993-2002. https://doi.org/10.1007/s41207-024-00526-y

Jia, K., & Zhang, Y. (2024). Bank digitalization and corporate green innovation: empowering or negative? *Frontiers in Energy Research, 12*, 1336087. https://doi.org/10.3389/fenrg.2024.1336087

Jiang, P., Jiang, H., & Wu, J. (2022b). Is inhibition of financialization the sub-effect of the green credit policy? Evidence from China. *Finance Research Letters, 47*, 102737. https://doi.org/10.1016/j.frl.2022.102737

Jiang, Y., Guo, C., & Wu, Y. (2022a). Does digital finance improve the green investment of Chinese listed heavily polluting companies? The perspective of corporate financialization. *Environmental Science and Pollution Research, 29*(47), 71047-71063. https://doi.org/10.1007/S11356-022-20803-Z

Lan, Q., Ma, P., Feng, S., Tan, Y., Liu, S., & Zhai, Y. (2024). Air pollution and corporate financial assets allocation: Evidence from China. *Journal of Cleaner Production, 469*, 143195. https://doi.org/10.1016/j.jclepro.2024.143195

Lei, L., Zheng, D., & Chen, X. (2022). Corporate social responsibility and corporate financialization—Based on information effect and reputation insurance effect. *Plos One, 17*(7), e0271552. https://doi.org/10.1371/journal.pone.0271552

Li, S., Yin, Y., Jiao, Z., & Zhao, Q. (2025). Financial investment and green development: How does financialization affect green total factor productivity? *Finance Research Letters, 78*, 107258. https://doi.org/10.1016/j.frl.2025.107258

Li, W., Chen, L., & He, S. (2023). The effect of enterprise financialization on green innovation: evidence from Chinese A-share non-financial listed enterprises. *Environmental Science and Pollution Research, 30*(19), 56802-56817. https://doi.org/10.1007/s11356-023-26377-8

Li, X., Ke, D., Li, G., & Tsai, S. B. (2024b). Financialization, Heterogeneous Environmental Regulation, and Corporate Green Innovation: Evidence from China. *Polish Journal of Environmental Studies, 33*(3), 2739-2760. https://doi.org/10.15244/pjoes/175299

Li, X., Liu, G., Zhao, Y., Sun, Y., & Guo, J. (2024a). Regional Green Development and Corporate Financialization: A Quasi-Natural Experiment on the Ecological Conservation and High-Quality Development of the Yellow River Basin. *Sustainability, 16*(11), 4662. https://doi.org/10.3390/su16114662

Liberati, A., Altman, D., Tetzlaff, J., Mulrow, C., Gøtzsche, P., Ioannidis, J., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA Statement for Reporting Systematic Reviews and Meta-Analyses of Studies That Evaluate Health Care Interventions: Explanation and Elaboration. Journal of Clinical Epidemiology, 62, e1-34. https://doi.org/10.1016/j.jclinepi.2009.06.006

Liu, H., & Pan, H. (2024). Reducing carbon emissions at the expense of firm physical capital investments and growing financialization? Impacts of carbon trading policy from a regression discontinuity design. *Journal of Environmental Management, 356*, 120577. https://doi.org/10.1016/j.jenvman.2024.120577

Liu, L., & Wang, C. (2025). Monetary Policy and Corporate Financialization Drive Sustainable Technology. *International Review of Economics & Finance, 101,* 104187. https://doi.org/10.1016/j.iref.2025.104187

Liu, L., Liu, L., Liu, K., & Jiménez-Zarco, A. I. (2025a). Climate policy and corporate green transformation: Empirical evidence from carbon emission trading. *Research in International Business and Finance, 74*, 102675. https://doi.org/10.1016/j.ribaf.2024.102675

Liu, Y., Liu, J., & Zhang, L. (2023). Enterprise financialization and R&D innovation: A case study of listed companies in China. *Electronic Research Archive, 31*(5), 2447-2471.

Liu, Y., Wu, L., Lam, J. F., Yu, F., & Ieong, W. I. (2025b). Does Corporate ESG Performance Help Ease Financing Constraints in the Context of Green Development?-Empirical Evidence from China. *Polish Journal of Environmental Studies, 34*(4), 3689-3702. https://doi.org/10.15244/pjoes/188900

Ma, W., & Yan, X. (2023). How do carbon emissions trading impact the financialization of non-financial companies? Evidence from a quasi-natural experiment in China. *Plos One, 18*(12), e0296277. https://doi.org/10.1371/journal.pone.0296277

Nalin, L., & Yajima, G. T. (2024). Balance Sheet Effects in a Financialized Environment: A Stock-Flow Consistent Framework for Mexico. *Review of Political Economy, 36*(1), 268-288. https://doi.org/10.1080/09538259.2022.2030946

Narayanan, V., Baird, K., & Tay, R. (2021). Investment decisions: The trade-off between economic and environmental objectives. *The British Accounting Review, 53*(3), 100969. https://doi.org/10.1016/j.bar.2020.100969

Pan, A., Zhang, Q., Tang, Z., & Qiu, J. (2025). Judicial independence and corporate financialization: Evidence from China. *Pacific-Basin Finance Journal, 92,* 102806. https://doi.org/10.1016/j.pacfin.2025.102806

Pan, X., & Lin, S. (2025). Can Intelligent Manufacturing Reduce Corporate Carbon Emissions? Empirical Evidence from China's Listed Manufacturing Firms. *Emerging Markets Finance and Trade, 61*, 3296-3307. https://doi.org/10.1080/1540496X.2025.2479058

Qu, F., She, W., Li, D., Zheng, B., & Albitar, K. (2024). Mitigating excessive financialization or promoting innovation? Productivity effects of China's carbon emission trading scheme. *Business Strategy and the Environment, 33*(7), 7427-7445. https://doi.org/10.1002/bse.3876

Richards, C., & Lyons, K. (2016). The new corporate enclosures: Plantation forestry, carbon markets and the limits of financialised solutions to the climate crisis. *Land Use Policy, 56*, 209-216. https://doi.org/10.1016/j.landusepol.2016.05.01

Rodriguez Lopez, J. M., Engels, A., & Knoll, L. (2017). Understanding carbon trading: Effects of delegating CO2 responsibility on organizations' trading behaviour. *Climate Policy, 17*(3), 346-360. https://doi.org/10.1080/14693062.2015.1119096

Sawyer, M. (2022). Financialisation, industrial strategy and the challenges of climate change and environmental degradation. *International Review of Applied Economics, 35*(3-4), 338–354. https://doi.org/10.4324/9781003266969-2

Scherer, A. G., Rasche, A., Palazzo, G., & Spicer, A. (2016). Managing for political corporate social responsibility: New challenges and directions for PCSR 2.0. *Journal of Management Studies, 53*(3), 273-298. https://doi.org/10.1111/joms.12203

Shen, J., Xu, M., Liu, X., & Zhao, Y. (2024). Active adaptation or short-run profit pursuing? Carbon emissions trading and corporate financialization: evidence from Chinese listed companies. *Environment, Development and Sustainability,* https://doi.org/10.1007/s10668-024-04708-0

Song, B., Yang, X., & Xu, Y. (2025b). The Impact of Financial Asset Allocation on Firms' Total Factor Productivity: Evidence from China's Non-Financial Companies. *Sustainability, 17*(1), 96. https://doi.org/10.3390/su17010096

Song, Z., Jia, Q., & He, Z. (2025a). Green credit guidelines and corporate financialization: Evidence from heavily polluting enterprises in China. *Finance Research Letters, 76*, 107040. https://doi.org/10.1016/j.frl.2025.107040

Stroehle, J., Gümüşay, A. A., Edinger-Schons, L. M., Vogel, A., Ebrahim, A., Rasche, A., & van den Terrell, E. (2025). A Critical Examination of Corporate Environmental and Social Impact Measurement and Valuation. *Journal of Management Inquiry*, https://doi.org/10.1177/10564926251330815

Su, K., & Lu, Y. (2023). The impact of corporate social responsibility on corporate financialization. *The European Journal of Finance, 29*(17), 2047-2073. https://doi.org/10.1080/1351847X.2023.2175704

Sui, B., & Yao, L. (2023). The impact of digital transformation on corporate financialization: The mediating effect of green technology innovation. *Innovation and Green Development, 2*(1), 100032. https://doi.org/10.1016/j.igd.2022.100032

Tao, L., Chen, L., & Li, K. (2021). Corporate financialization, financing constraints, and environmental investment. *Sustainability, 13*(24), 14040. https://doi.org/10.3390/su132414040

Tong, L., Hu, J., Yang, Z., Liu, Z., & Xu, S. (2024). Corporate financialization and green technology innovation: evidence from Chinese-listed manufacturing companies. The Singapore Economic Review, https://doi.org/10.1142/S021759082447009X

Tu, C., & Shi, Y. (2023). Market-incentive environmental regulation and the quality of corporate innovation. Sustainability, 15(7), 5924. https://doi.org/10.3390/su15075924

Tu, C., Qin, Z., & Yang, Q. (2024). Moderating effect of corporate financialization on the impact of climate policy on corporate green innovation: Evidence from China. *Chinese Journal of Population, Resources and Environment, 22*(3), 230-240. https://doi.org/10.1016/j.cjpre.2024.09.002

Tulum, Ö., & Lazonick, W. (2018). Financialized corporations in a national innovation system: the US pharmaceutical industry. *International Journal of Political Economy, 47*(3-4), 281-316. https://doi.org/10.1080/08911916.2018.1549842

Wang, J., Huang, H., Khan, A. N., Liao, Y., & Zang, D. (2024a). Inhibit or stimulate? Green credit guidelines and corporate financialization. *Journal of Cleaner Production, 470*, 143303. https://doi.org/10.1016/j.jclepro.2024.143303

Wang, M., Mohd Nor, N., Abdul Rahim, N., Khan, F., & Zhou, Z. (2025). Trade policy uncertainty and corporate financialization: strategic implications for non-financial firms in China. *Cogent Economics & Finance, 13*(1), 2460078. https://doi.org/10.1080/23322039.2025.2460078

Wang, W., Zhao, C., Ning, J., Yin, S., & Zhang, D. (2024d). Does ecological accountability restrain the financialization of heavily polluting enterprises? Evidence from China. *Frontiers in Environmental Science, 12*, 1400725. https://doi.org/10.3389/fenvs.2024.1400725

Wang, Y., Xu, Y., Guo, C., & Xie, M. (2024b). Can carbon risk restrain corporate financialization? Evidence from China. *Frontiers in Environmental Science, 12*, 1429110. https://doi.org/10.3389/fenvs.2024.1429110

Wang, Z., Zhao, H. Y., & Zhu, B. S. (2024c). Can Green Mergers and Acquisitions Curb the Financialization of Heavily Polluting Enterprises? Evidence From China. *Polish Journal of Environmental Studies, 33*(4), 4387-4406. https://doi.org/10.15244/pjoes/181159

Wei, X., Li, J., & Li, Y. (2025). Institutional Environment, Credit Risk Expectations, and Firms' Investment Strategies. *Finance Research Letters, 81,* 107371. https://doi.org/10.1016/j.frl.2025.107371

Wu, J., Li, A., Dan, A. K., Orozco, M. J. H., Khan, M. A., Nie, J., & Vorm, E. T. (2024a). Financialisation, energy transition, and the looting of clean energy business corporations in the United States. *Energy Research & Social Science, 114*, 103614. https://doi.org/10.1016/j.erss.2024.103614

Wu, W., Yang, S., Li, A., Chen, Y., & Chen, S. (2024b). Does interest rate liberalization affect corporate green investment? *Energy Economics, 131*, 107377. https://doi.org/10.1016/j.eneco.2024.107377

Xu, X., & Xuan, C. (2021). A study on the motivation of financialization in emerging markets: The case of Chinese nonfinancial corporations. *International Review of Economics & Finance, 72*, 606-623. https://doi.org/10.1016/j.iref.2020.12.026

Xu, Y., & Guo, S. (2024). Do Green Finance Policies Inhibit the Financialization of Manufacturing Enterprises? Empirical Evidence Based on a Quasi-Natural Experiment with the" Green Credit Guidelines". *Sustainability, 16*(15). https://doi.org/10.3390/su16156305

Xu, Y., & Shi, Q. (2025). Executive financial background and corporate digital transformation: empirical evidence from China. Applied Economics Letters, 1-9. https://doi.org/10.1080/13504851.2024.2449540

Xuan, S., Song, D., & You, G. (2024). Financial risk prevention and corporate green innovation: A quasi-natural experiment based on the new asset management regulation. Pacific-Basin Finance Journal, 88, 102566. https://doi.org/10.1016/j.pacfin.2024.102566

Yang, F., & Li, X. (2023). Corporate financialization, ESG performance and sustainability development: Evidence from Chinese-listed companies. *Sustainability, 15*(4), 2978. https://doi.org/10.3390/su15042978

Yang, J., & Chen, S. (2023). Corporate financialization, digitalization and green innovation: A panel investigation on Chinese listed firms. *Innovation and Green Development, 2*(3), 100068. https://doi.org/10.1016/j.igd.2023.100068

Yang, Z., You, F., Qin, Y., & Wu, G. (2025). Environmental taxes, political connections, and firm financialization: Evidence from China's environmental tax reform. *Finance Research Letters, 78*, 107178. https://doi.org/10.1016/j.frl.2025.107178

Yu, W., Zhan, Q., Ameer, W., Li, L., Tarczyński, W., & Mentel, U. (2022). Effects of heterogeneity of financialization on firm innovation: Evidence in context of energy transition in lens of research and development. *Frontiers in Energy Research, 10*, 930974. https://doi.org/10.3389/fenrg.2022.930974

Zhang, X., & Zheng, X. (2024). Does carbon emission trading policy induce financialization of non-financial firms? Evidence from China. *Energy Economics, 131*, 107316. https://doi.org/10.1016/j.eneco.2024.107316

Zhang, Y. J., & Du, M. (2024). Corporate financialization and green technological innovation: Evidence from China. *Journal of Climate Finance, 7*, 100043. https://doi.org/10.1016/j.jclimf.2024.100043

Zhang, Y., Xie, H., & Li, J. (2023). Does green credit policy mitigate financialization? Evidence from Chinese heavily polluting enterprises. *Environmental Science and Pollution Research, 30*(3), 7380-7401. https://doi.org/10.1007/s11356-022-22663-z

Zhao, Q., Guo, M., Feng, F., Li, J., & Guan, H. (2024). Path analysis of digital development on the green industrial transformation of Chinese resource-based enterprises. *Resources Policy, 93*, 105085. https://doi.org/10.1016/j.resourpol.2024.105085

Zhao, X. Z., Chen, J., Chen, F. W., Wang, W., & Xia, S. (2020). How high-polluting firms suffer from being distracted form intended purpose: A corporate social responsibility perspective. *International Journal of Environmental Research and Public Health, 17*(24), 9197. https://doi.org/10.3390/ijerph17249197

Zhao, Y., & Wang, Z. (2025). Anti-Unfair competition law, corporate financialization, and corporate social responsibility fulfillment. *Finance Research Letters, 79*, 107120. https://doi.org/10.1016/j.frl.2025.107120

Zheng, D., Lei, L., Wang, L., & Li, X. (2024a). Inhibiting or promoting: The impact of corporate social responsibility on corporate financialization. *International Review of Economics & Finance, 89*, 1404-1421. https://doi.org/10.1016/j.iref.2023.08.022

Zheng, L., An, Q., & Yang, M. (2024b). Climate change, corporate risk-taking, and financialization: evidence from Chinese A-share non-financial listed companies. *Environment, Development and Sustainability,* https://doi.org/10.1007/s10668-024-05045-y

Zhong, Z., & Li, K. (2024). " Crowding Out" or" Reservoir Effect"? Unraveling the Impact of Financialization on Green Innovation in Heavy Polluting Enterprises: Evidence from China's Listed Companies. *Sustainability, 16*(16), 7192. https://doi.org/10.3390/su16167192

Zhong, Z., Wu, S., Hu, J., Fang, L., & Li, K. (2025). Does Financialization Alleviate the Funding Dilemma of Green Innovation in Heavily Polluting Firms? Evidence from China's A-Share Listed Companies. *Systems, 13*(3), 192. https://doi.org/10.3390/systems13030192

Zhou, C., & Qi, S. (2023). Does green finance restrain corporate financialization? *Environmental Science and Pollution Research, 30*(27), 70661-70670. https://doi.org/10.1007/s11356-023-27476-2

Zhou, C., Qi, S., & Li, Y. (2023b). Do green bonds restrain corporate financialization?. Environmental *Engineering & Management Journal, 22*(3). 439-448. 10.30638/eemj.2023.034

Zhou, C., Qi, S., & Li, Y. (2024). Environmental policy uncertainty and green transformation dilemma of Chinese enterprises. *Journal of Environmental Management, 370*, 122891. https://doi.org/10.1016/j.jenvman.2024.122891

Zhou, M., Jiang, K., & Chen, Z. (2023c). The side effects of local government debt: Evidence from urban investment bonds and corporate pollution in China. *Journal of Environmental Management, 344*, 118739. https://doi.org/10.1016/j.jenvman.2023.118739

Zhou, W., Huang, X., Dai, H., Xi, Y., Wang, Z., & Chen, L. (2022). Research on the impact of economic policy uncertainty on enterprises' green innovation—based on the perspective of corporate investment and financing decisions. *Sustainability, 14*(5), 2627. https://doi.org/10.3390/su14052627

Zhou, Y., Du, Y., Lei, F., Su, Z., Feng, Y., & Li, J. (2021). Influence of financialization of heavily polluting enterprises on technological innovation under the background of environmental pollution control. *International Journal of Environmental Research and Public Health, 18*(24), 13330. https://doi.org/10.3390/ijerph182413330

Zhou, Z., Xu, L., Guo, P., & Ai, H. (2023a). Environmental regulation and corporate financialization: insight from Blue Sky Protection Campaign in China. *Environmental Science and Pollution Research, 30*(19), 54993-55008. 10.1007/s11356-023-26188-x

Zhu, B., & Wu, S. (2025). Green governance and value relevance of earnings. *International Review of Financial Analysis, 102*, 104120. https://doi.org/10.1016/j.irfa.2025.104120

Zhuang, X., & Duan, J. (2025). Under rising environmental uncertainty Chinese enterprises pursue fame or profits? Evidence from corporate social responsibility and financial investment. *International Journal of Emerging Markets, 20*(3), 1190-1213. https://doi.org/10.1108/IJOEM-04-2022-0639

© 2025 by the authors; licensee Growing Science, Canada. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (http://creativecommons.org/licenses/by/4.0/).