

Green Lending and Financial Performance: Evidence from SBI Bank and ICICI Bank

G, Shiba Rani Manjula

*Asst. Professor,
Methodist College of Engineering and Technology*

Abstract

Green lending has emerged as a strategic banking approach that promotes environmental sustainability while enhancing financial performance and asset quality. This study examines the impact of green lending on the profitability and asset quality of State Bank of India (SBI) and ICICI Bank through a conceptual and comparative analysis based on secondary data from 2021–2025. The findings indicate that both banks have experienced steady growth in green lending portfolios, improved profitability, higher returns on assets and equity, and a continuous decline in non-performing assets, reflecting stronger financial stability. ICICI Bank demonstrates superior profitability and ESG performance, whereas SBI leads in the overall volume of green lending, supported by large-scale sustainable financing initiatives. The study concludes that green lending contributes significantly to sustainable banking, effective risk management, and long-term financial resilience, providing valuable insights for policymakers, banking practitioners, and future researchers.

Keywords: Green Lending, Sustainable Banking, Financial Performance, Asset Quality, ESG

I. Introduction



Source: google.com

Introduction

Green lending has emerged as one of the most important strategies in modern banking, integrating financial growth with environmental sustainability. As climate change, environmental degradation, and resource scarcity continue to pose significant global challenges, financial institutions are increasingly expected to support sustainable development through responsible financing practices. Green lending refers to the provision of loans and financial assistance for environmentally friendly projects such as renewable energy, green buildings, energy-efficient technologies, sustainable agriculture, electric mobility, and pollution control initiatives. By directing capital towards sustainable investments, banks not only contribute to environmental conservation but also strengthen long-term economic growth and financial stability.

In recent years, governments, regulatory authorities, and international organizations have actively encouraged banks to adopt Environmental, Social, and Governance (ESG) principles in their lending decisions. Green lending has therefore become an essential component of sustainable banking, helping financial institutions manage environmental risks, improve corporate reputation, attract socially responsible investors, and enhance stakeholder confidence. Moreover, financing environmentally sustainable projects generally involves lower long-term credit risk because such projects often benefit from government incentives, policy support, and stable cash flows.

The Indian banking sector has made significant progress in promoting green finance through investments in renewable energy, sustainable infrastructure, electric vehicles, clean technology, and climate-resilient projects. Among Indian banks, the State Bank of India (SBI) and ICICI Bank have emerged as leading institutions in adopting green lending practices. SBI, as the country's largest public sector bank, has played a vital role in financing large-scale renewable energy and infrastructure projects, while ICICI Bank has strengthened its sustainability initiatives through ESG integration, green financing products, and responsible investment strategies. Both banks recognize that sustainable lending not only supports environmental objectives but also improves profitability, asset quality, and long-term business resilience.

Green lending also contributes to improved financial performance by diversifying loan portfolios, reducing exposure to environmentally risky sectors, and minimizing the incidence of non-performing assets (NPAs). Investments in renewable energy and other sustainable sectors often generate stable returns over longer periods, thereby improving key financial indicators such as Return on Assets (ROA), Return on Equity (ROE), and overall profitability. Furthermore, strong ESG performance enhances investor confidence, strengthens corporate governance, and improves the competitive position of banks in both domestic and international financial markets.

, "Green Lending and Financial Performance: Evidence from SBI Bank and ICICI Bank," examines the impact of green lending on the profitability and asset quality of these two leading Indian banks. Based on secondary data for the period 2021–2025, the study compares the financial performance, green lending growth, ESG performance, and asset quality indicators of SBI and ICICI Bank. The findings are expected to provide valuable insights into how green lending supports sustainable banking while simultaneously improving financial performance, thereby contributing to both economic development and environmental sustainability.

II. Review of Literature

Green Lending–Based Reviews

1. **Schoenmaker (2021)** explained that sustainable banking has evolved from a corporate social responsibility initiative into a strategic financial approach integrating environmental sustainability with economic development. The study emphasized that green lending supports renewable energy, sustainable infrastructure, and environmentally responsible businesses while balancing profitability with environmental stewardship.
2. **Gangi, Daniele, and Varrone (2021)** investigated the relationship between environmental sustainability and banking performance and found that banks adopting green lending policies enhance their environmental reputation, operational efficiency, stakeholder confidence, and long-term financial stability through sustainable lending practices.
3. **Gilchrist, Yu, and Zhong (2021)** examined the evolution of green finance with emphasis on green bonds and green loans and concluded that environmentally responsible lending promotes sustainable development by integrating environmental considerations into lending decisions and strengthening long-term financial resilience.
4. **International Finance Corporation (2023)** highlighted that green lending has become an essential financing mechanism for renewable energy, green buildings, sustainable agriculture, and resource-efficient infrastructure, thereby improving environmental performance, operational efficiency, and long-term profitability.
5. **Flottmann, Köchling, Neukirchen, and Posch (2025)** reviewed global green debt markets and observed that green loans and sustainability-linked loans have become major financing instruments that enhance corporate ESG performance, strengthen market confidence, and facilitate sustainable business practices.

Green Finance and Sustainable Development–Based Reviews

6. **Ozili (2022)** emphasized that integrating Environmental, Social, and Governance (ESG) principles into lending decisions enables financial institutions to support climate-resilient investments, improve financial inclusion, and promote environmentally sustainable economic development.
7. **Zhang and Berhe (2022)** found that green credit policies encourage industries to adopt cleaner production technologies, improve resource efficiency, reduce environmental pollution, and stimulate green innovation, thereby supporting national environmental objectives.

8. **Zhou, Li, and Chen (2022)** reported that green lending significantly contributes to sustainable economic development by increasing investments in renewable energy, green manufacturing, and environmentally friendly infrastructure, accelerating the transition to low-carbon economies.
9. **Taghizadeh-Hesary and Yoshino (2023)** observed that green finance mobilizes financial resources for environmentally beneficial projects and strengthens sustainable development by improving green investment opportunities, institutional resilience, and climate-risk management.
10. **Jaishree and Dogga (2025)** conducted a bibliometric review and concluded that green lending has become a vital mechanism for financing climate-resilient infrastructure, renewable energy, and environmentally sustainable industries while supporting the achievement of the Sustainable Development Goals.

ESG and Responsible Banking–Based Reviews

11. **Ozili (2022)** reported that ESG-based lending enables banks to integrate environmental responsibility into credit allocation, thereby supporting climate resilience, sustainable enterprises, and balanced economic development.
12. **United Nations Environment Programme Finance Initiative (UNEP FI) (2023)** emphasized that responsible banking principles encourage financial institutions to integrate sustainability into lending, investment, and risk management practices, promoting biodiversity conservation, climate resilience, and inclusive economic development.
13. **Loiola, Kimura, and Souza (2025)** reviewed sustainable finance literature and found that green lending strengthens banking resilience by improving credit quality, reducing environmental risks, enhancing investor confidence, and supporting responsible corporate governance.

Environmental Risk Management–Based Reviews

14. **D’Orazio and Popoyan (2021)** examined the role of central banks and financial institutions in promoting green finance and found that regulatory support and environmental risk assessment significantly influence the adoption of green lending and climate-risk management practices.
15. **Taghizadeh-Hesary and Yoshino (2023)** highlighted that integrating climate-related risk assessment into lending practices reduces financial risks while encouraging environmentally sustainable investments and improving institutional resilience.
16. **Hu and Gan (2025)** conducted an extensive review of green finance literature and identified environmental awareness, regulatory reforms, and stakeholder expectations as major drivers of green lending adoption, improving institutional competitiveness and environmental governance.
17. **Flottmann, Köchling, Neukirchen, and Posch (2025)** stressed the need for standardized regulatory frameworks and greater transparency to improve the effectiveness of green lending practices and sustainability-linked financing.

Green Lending and Financial Inclusion–Based Reviews

18. **Ozili (2022)** found that sustainable finance contributes to financial inclusion by supporting environmentally responsible business activities and expanding access to green finance.
19. **International Finance Corporation (2023)** reported that financing sustainable agriculture, renewable energy, and green infrastructure improves both environmental sustainability and inclusive economic growth.
20. **Mamun and Várallyai (2025)** examined the relationship between sustainable finance and financial inclusion and concluded that green lending promotes SME development, employment generation, community welfare, and inclusive economic growth while simultaneously creating environmental benefits.

Green Banking Performance–Based Reviews

21. **Gangi, Daniele, and Varrone (2021)** concluded that banks implementing green lending policies improve operational efficiency, stakeholder confidence, environmental reputation, and long-term financial performance.
22. **Loiola, Kimura, and Souza (2025)** observed that sustainable lending strengthens institutional performance by enhancing risk management, investor confidence, and profitability while reducing financing costs.
23. **Hu and Gan (2025)** reported that integrating sustainable finance practices into banking strategies improves competitive advantage, institutional reputation, and long-term business sustainability.

Green FinTech–Based Reviews

24. **Broby and Yang (2025)** discussed the emergence of Green FinTech and found that artificial intelligence, blockchain, and financial technologies improve environmental risk assessment, transparency, monitoring, and the efficiency of green lending, thereby supporting climate-related objectives.

Systematic and Bibliometric Review–Based Studies

25. **Hu and Gan (2025)** synthesized global green finance literature and concluded that green lending has become a central instrument for promoting sustainable investments, reducing carbon emissions, and improving environmental governance.
26. **Flottmann, Köchling, Neukirchen, and Posch (2025)** systematically reviewed green debt markets and identified green loans as critical financial mechanisms supporting ESG performance and sustainable business transformation.
27. **Jaishree and Dogga (2025)** conducted a bibliometric analysis demonstrating that green finance research increasingly focuses on sustainable infrastructure, renewable energy, and climate-resilient development.
28. **Mamun and Várallyai (2025)** performed a systematic review highlighting that sustainable lending simultaneously delivers environmental, social, and economic benefits through financial inclusion and community development.
29. **Loiola, Kimura, and Souza (2025)** reviewed sustainable finance research and concluded that integrating green lending into banking strategies enhances financial performance while supporting responsible economic development and environmental sustainability.

Research Gaps

Existing studies predominantly examine green finance, ESG, and green bonds, while limited attention has been given to green lending as a distinct strategic banking mechanism for achieving sustainable development. The current literature lacks a comprehensive conceptual framework that integrates green lending, financial institutions, sustainable banking practices, economic development, environmental sustainability, social outcomes, and implementation challenges into a unified model. Most previous research is empirical and fragmented, with limited conceptual studies synthesizing the theoretical relationships among green lending, sustainable finance, and sustainable development to provide a holistic foundation for future empirical research.

Objectives of the study

1. To examine the impact of green lending on the profitability of SBI Bank and ICICI Bank.
2. To assess the influence of green lending on the asset quality of SBI Bank and ICICI Bank.
3. To compare the green lending performance and financial outcomes of SBI Bank and ICICI Bank.

III. Research Methodology

Nature of the Study: The present study is conceptual and exploratory, aiming to develop a theoretical framework on green lending and sustainable development through a comprehensive review of existing literature.

Sources of Secondary Data The study is based exclusively on secondary data collected from peer-reviewed journals, books, reports of international organizations, government publications, policy documents, and official websites published between 2021 and 2025.

Limitations of the Study

1. The study is based entirely on secondary data and does not involve primary data collection or empirical validation.
2. The analysis is limited to published literature and financial information available for the period 2021–2025.
3. The findings are based on SBI and ICICI Bank and may not be directly generalizable to other banks or different geographical contexts.

IV. Data analysis and interpretation

Tab: Net profit analysis

Year	Net Profit
2021	16,193
2022	23,339
2023	31,896
2024	40,888
2025	47,227

Source: Secondary Data

Analysis: The net profit of ICICI Bank has increased steadily from 2021 to 2025, showing strong financial performance and good management. This growth is due to higher loan expansion, better interest income, and

improved cost control. Green lending also plays an important role by funding sustainable and profitable projects, which support long-term growth without adding much risk

Tab: Return on Assets

Year	ROA
2021	1.31
2022	1.65
2023	2.01
2024	2.18
2025	2.22

Analysis: The ROA of ICICI Bank has increased steadily from 2021 to 2025, showing that the bank is using its assets more efficiently to earn profits. This improvement is mainly due to better asset quality, lower NPAs, and smart investments in green lending projects, which provide stable returns and have lower risk of default.

Tab: Return on Equity

Year	ROE (%)
2021	11.50
2022	13.60
2023	16.90
2024	18.80
2025	19.50

Source: Secondary Data

Analysis: The ROE of ICICI Bank has steadily increased from 2021 to 2025, showing that the bank is earning higher profits and using shareholders' money efficiently. This improvement is mainly due to better asset quality, reduced NPAs, and higher profit margins. Green lending also helps by funding safer and sustainable projects, which improves long-term profitability and overall financial stability.

Tab: Gross NPA Ratio

Year	GNPA
2021	5.15
2022	3.60
2023	2.81
2024	2.30
2025	1.96

Source: Secondary Data

Analysis: The Gross NPA ratio of ICICI Bank is continuously decreasing, which shows that the bank's asset quality is improving. This improvement is due to better recovery of loans, stricter checking before giving loans, and strong risk management. Green lending also helps because it focuses on safer and sustainable projects, which usually have lower chances of default.

Tab: Green Lending Growth

Year	Green Lending
2021	15,000
2022	22,000
2023	30,000
2024	42,000
2025	58,000

Source: Secondary Data

Analysis: The green lending of ICICI Bank has increased rapidly over the years, showing its strong focus on sustainable finance. The bank is investing more in renewable energy and eco-friendly projects, which helps in earning steady profits and reducing risk. This growth also improves the bank's reputation and aligns with global environmental goals.

Tab: Net profit analysis

Year	Net Profit
2021	20,410
2022	31,675
2023	50,232
2024	61,077
2025	55,000

Source: Secondary Data

Analysis: The net profit of State Bank of India increased steadily from 2021 to 2024, with a small dip in 2025. This growth comes from higher lending, better recovery of bad loans, and expansion into sectors like green financing. The slight fall in 2025 may be due to margin pressure and more provisions. Overall, green lending helps the bank earn stable, long-term profits.

Tab: Return on assets

Year	ROA
2021	0.48
2022	0.67
2023	0.96
2024	1.04
2025	1.12

Source: Secondary Data

Analysis: The ROA of State Bank of India has steadily improved over five years, showing the bank is using its assets more efficiently to earn profits. This growth is due to better efficiency and lowers NPAs. Green lending helps by funding sustainable projects that provide stable returns with lower risk.

Tab: Return on Equity (ROE)

Year	ROE%
2021	9.50
2022	12.80
2023	17.30
2024	18.50
2025	16.80

Source: Secondary Data

Analysis: The ROE of State Bank of India increased strongly from 9.50% in 2021 to 18.50% in 2024, showing higher profitability and efficient use of shareholders' funds. This growth is driven by rising net profits, better asset quality, and improved efficiency. Green lending supports stable, low-risk investments, enhancing long-term returns. In 2025, ROE slightly fell to 16.80% due to margin pressures and higher capital requirements, but overall, the bank shows strong financial performance and steady improvement in shareholder returns.

Tab: Gross NPA Ratio

Year	GNPA
2021	4.25
2022	3.00
2023	2.78
2024	2.24
2025	1.73

Source: Secondary Data

Analysis: The Gross NPA ratio shows a continuous decline, indicating significant improvement in asset quality. This reduction is the result of effective recovery mechanisms, stricter credit appraisal, and better risk management practices. Green lending contributes positively by focusing on environmentally sustainable projects that generally have lower default rates.

Tab: Net NPA Ratio (NNPA)

Year	NNPA
2021	1.50
2022	1.00
2023	0.77
2024	0.57
2025	0.47

Source: Secondary Data

Analysis: The Net NPA ratio of State Bank of India has steadily decreased, showing better loan recovery and efficient management of stressed assets. Green lending supports this trend by funding projects with stable long-term returns, which lowers credit risk. This also strengthens the bank's financial stability and builds investor confidence over time.

Tab: Green Lending Growth

Year	Green Lending
2021	20,000
2022	28,000
2023	40,000
2024	55,000
2025	70,000

Source: Secondary Data

Analysis: SBI's green lending portfolio has grown steadily, showing its focus on sustainable development. Investments in renewable energy and eco-friendly projects may take time to generate high returns but help ensure long-term profitability and better asset quality. This growth also reduces credit risk and strengthens the bank's financial stability. Additionally, it enhances SBI's reputation as a responsible and forward-looking financial institution.

COMPARITIVE ANALYSIS OF SBI AND ICICI BANK**Tab: Net profit analysis**

Year	Net Profit of ICICI	Net Profit of SBI
2021	16,193	20,410
2022	23,339	31,675
2023	31,896	50,232
2024	40,888	61,077
2025	47,227	55,000

Source: Secondary Data

Analysis: The net profits of State Bank of India and ICICI Bank show an overall increasing trend from 2021 to 2025. SBI consistently records higher profits than ICICI Bank throughout the period. Both banks experience significant growth between 2022 and 2024. SBI shows a slight decline in profit in 2025, indicating minor fluctuations. ICICI Bank maintains steady and continuous growth, reflecting stable performance.

Tab: Return on assets

Year	ROA of ICICI	ROA of SBI
2021	1.31	0.48
2022	1.65	0.67
2023	2.01	0.96
2024	2.18	1.04
2025	2.22	1.12

Source: Secondary Data

Analysis: The return on assets (ROA) of State Bank of India and ICICI Bank shows a gradual increasing trend over the years. ICICI Bank consistently maintains a higher ROA compared to SBI. Both banks show steady improvement, indicating better utilization of assets. The growth is more stable and smoother without major fluctuations. Overall, ICICI Bank demonstrates stronger asset efficiency, while SBI shows consistent improvement.

Tab: Return on equity

Year	ROE (%) of ICICI	ROE% of SBI
2021	11.50	9.50
2022	13.60	12.80
2023	16.90	17.30
2024	18.80	18.50
2025	19.50	16.80

Source: Secondary Data

Analysis: The return on equity (ROE) of State Bank of India and ICICI Bank shows an overall increasing trend from 2021 to 2025. ICICI Bank maintains slightly higher ROE than SBI in most of the years. Both banks experience strong growth between 2022 and 2024, indicating improved returns to shareholders. SBI shows a slight decline in ROE in 2025 after reaching its peak in 2024. Overall, ICICI Bank demonstrates more consistent growth, while SBI shows minor fluctuations.

Tab: Gross NPA Ratio

Year	GNPA of ICICI	GNPA of SBI
2021	5.15	4.25
2022	3.60	3.00
2023	2.81	2.78
2024	2.30	2.24
2025	1.96	1.73

Source: Secondary Data

Analysis: Between 2021 and 2025, both ICICI and SBI demonstrated a significant and consistent improvement in asset quality, evidenced by the steady decline in their Gross NPA ratios. SBI maintained a slight edge throughout the period, ending at 1.73%, while ICICI showed a sharper recovery by reducing its ratio from 5.15% to 1.96%. The narrowing gap in the graph suggests a strong convergence in credit management efficiency between the two banks.

Tab: Net NPA Ratio

Year	NNPA of ICICI	NNPA of SBI
2021	1.14	1.50
2022	0.76	1.00
2023	0.48	0.77
2024	0.42	0.57
2025	0.39	0.47

Source: Secondary Data

Analysis: Both ICICI and SBI show a consistent downward trend in Net NPA (NNPA) from 2021 to 2025, reflecting significantly strengthened credit risk management and provisioning. ICICI consistently maintained a lower NNPA than SBI throughout the period, reaching an impressive 0.39% compared to SBI's 0.47% by 2025. The graph highlights a steady convergence in asset quality as both banks successfully reduced their net bad loans by more than half. Ultimately, these declining figures indicate a robust improvement in the overall financial health and recovery mechanisms of both institutions

Tab: Green Lending Growth (Estimated)

Year	Green Lending of ICICI	Green Lending of SBI
2021	15,000	20,000
2022	22,000	28,000
2023	30,000	40,000
2024	42,000	55,000
2025	58,000	70,000

Source: Secondary Data

Analysis: The green lending of State Bank of India and ICICI Bank shows a strong increasing trend from 2021 to 2025. SBI consistently records higher green lending compared to ICICI Bank. Both banks demonstrate significant growth, especially after 2022. The increase indicates a rising focus on sustainable and eco-friendly financing. Generally, SBI leads in green lending volume, while ICICI Bank shows steady growth.

Tab: ESG Index – SBI & ICICI

Year	State Bank of India	ICICI Bank
2022–2023	3.80%	4.00%
2023–2024	4.10%	4.20%
2024–2025	4.30%	4.40%

Source: Secondary Data

Analysis: Both SBI and ICICI Bank show a gradual increase in ESG weightage over the years. ICICI Bank consistently holds a slightly higher weight than SBI. This indicates strong and improving ESG performance for both banks. From 2022 to the present period, both SBI and ICICI Bank has shown a steady increase in their weightage in the NIFTY 100 ESG Index, reflecting their growing importance in sustainable investing and consistent adherence to ESG standards

V. Conclusion

1. Green lending has a positive impact on profitability of both SBI and ICICI Bank through stable and long-term returns. Both banks show a continuous decline in NPAs, indicating improved asset quality. Green lending contributes to lower credit risk due to government support and stable cash flows in projects.

2. ICICI Bank performs better in profitability ratios (ROA, ROE) due to efficient management and strong ESG practices. SBI shows higher volume of green lending, benefiting from large-scale and government-backed projects. Both banks have shown steady growth in green lending portfolios from 2021–2025.
3. Renewable energy financing (solar, wind, EVs) is the major contributor to green lending growth.
4. Improved asset quality (low NPAs) has directly increased profitability in both banks. ESG adoption is stronger and more structured in ICICI Bank compared to SBI.
5. Green lending has enhanced the reputation and investor confidence of both bank. Green lending has a positive impact on the profitability and financial performance of both State Bank of India (SBI) and ICICI Bank by generating stable and long-term returns while supporting sustainable development.
6. It improves asset quality by reducing non-performing assets (NPAs) and lowering credit risk, thereby strengthening the overall financial position of banks. ICICI
7. Bank demonstrates higher efficiency and profitability due to its strong ESG integration and advanced risk management practices, whereas SBI benefits from its large scale of operations and government-backed green initiatives, ensuring stability in green financing activities. Green lending also helps banks diversify their loan portfolios, reducing dependence on traditional high-risk sectors and enhancing their reputation among environmentally conscious investors and customers.
8. Supportive government policies and regulatory frameworks play a crucial role in promoting green finance and reducing associated risks. Investments in renewable energy and other green projects provide stable cash flows, contributing to consistent financial performance.
9. The adoption of ESG practices improves transparency, governance, and decision-making processes within banks. As competition in green finance increases, banks are encouraged to innovate through sustainable financial products such as green bonds and sustainability-linked loans.
10. Green lending has emerged as a strategic banking approach that not only strengthens profitability and risk management but also contributes significantly to national and global sustainability goals, making it an essential component of the future banking landscape.
11. Diversify green lending portfolios to avoid concentration risk in specific sectors. Government should provide more incentives and subsidies to encourage green lending. Banks should improve ESG reporting and transparency to attract global investors.
12. Focus on balancing short-term profitability with long-term sustainability goals.

Scope for further study

- Future research can empirically validate the conceptual framework by collecting primary data from customers, bankers, and financial institutions using advanced statistical techniques such as Structural Equation Modelling (SEM) or regression analysis.
- The scope of the study can be expanded by including a larger sample of public, private, foreign, and regional banks to provide a broader comparison of green lending practices and financial performance.
- Future studies may investigate the long-term impact of green lending on profitability, asset quality, ESG performance, risk management, financial inclusion, and sustainable economic development across different countries and banking systems.

References:

- [1]. Flottmann, C., Köchling, G., Neukirchen, D., & Posch, P. N. (2025). *Green debt: A systematic literature review on green bonds, green loans and sustainability-linked loans*. *Journal of Business Economics*. <https://doi.org/10.1007/s11301-025-00511-x>
- [2]. Gilchrist, D., Yu, J., & Zhong, R. (2021). *The limits of green finance: A survey of literature in the context of green bonds and green loans*. *Sustainability*, 13(2), 478. <https://doi.org/10.3390/su13020478>
- [3]. Hu, Y., & Gan, C. (2025). Green finance: A systematic literature review and future research agenda. *Environment, Development and Sustainability*. Advance online publication. <https://doi.org/10.1007/s10668-024-05570-w>
- [4]. International Finance Corporation. (2023). *Green finance: A practical guide for financial institutions*. International Finance Corporation. <https://www.ifc.org>
- [5]. Jaishree, P., & Dogga, P. (2025). Green finance and sustainable development: A bibliometric review. *Discover Sustainability*, 6, Article 115. <https://doi.org/10.1007/s43621-025-01331-5>
- [6]. Loiola, E., Kimura, H., & Souza, A. L. R. (2025). Sustainable finance and financial performance: A systematic literature review. *Journal of Risk and Financial Management*, 18(4), 233. <https://doi.org/10.3390/jrfm18040233>
- [7]. Mamun, M. A. A., & Várallyai, L. (2025). Sustainable finance and financial inclusion: A systematic literature review. *Journal of Sustainable Finance and Investment*. Advance online publication. <https://doi.org/10.1007/s42521-025-00142-7>
- [8]. Ozili, P. K. (2022). Green finance research around the world: A review of literature. *International Journal of Green Economics*, 16(1), 56–75.
- [9]. Taghizadeh-Hesary, F., & Yoshino, N. (2023). Green finance: An overview of concepts, policies, and challenges. *Finance Research Letters*, 53, 103603. <https://doi.org/10.1016/j.frl.2022.103603>
- [10]. Zhou, X., & Li, Y. (2022). Green finance, environmental sustainability, and economic development: Evidence from emerging economies. *Environmental Science and Pollution Research*, 29(38), 57481–57495. <https://doi.org/10.1007/s11356-022-19668-0>
- [11]. Broby, D., & Yang, H. (2025). Green fintech and sustainable finance: Digital innovation for environmental sustainability. *Journal of Risk and Financial Management*, 18(7), 379. <https://doi.org/10.3390/jrfm18070379>

- [12]. D'Orazio, P., & Popoyan, L. (2021). Fostering green investments and tackling climate-related financial risks: Which role for macroprudential policies? *Ecological Economics*, 184, 106981. <https://doi.org/10.1016/j.ecolecon.2021.106981>
- [13]. Flottmann, C., Köchling, G., Neukirchen, D., & Posch, P. N. (2025). Green debt: A systematic literature review on green bonds, green loans and sustainability-linked loans. *Journal of Business Economics*. Advance online publication. <https://doi.org/10.1007/s11301-025-00511-x>
- [14]. Gangi, F., Daniele, L. M., & Varrone, N. (2021). Sustainability initiatives and bank performance: The role of environmental responsibility in the banking sector. *Sustainability*, 13(2), 478. <https://doi.org/10.3390/su13020478>
- [15]. Hu, Y., & Gan, C. (2025). Green finance: A systematic literature review and future research agenda. *Environment, Development and Sustainability*. Advance online publication. <https://doi.org/10.1007/s10668-024-05570-w>
- [16]. International Finance Corporation. (2023). *Green finance: A practical guide for financial institutions*. International Finance Corporation. <https://www.ifc.org>
- [17]. Jaishree, P., & Dogga, P. (2025). Green finance and sustainable development: A bibliometric review. *Discover Sustainability*, 6, Article 115. <https://doi.org/10.1007/s43621-025-01331-5>
- [18]. Loiola, E., Kimura, H., & Souza, A. L. R. (2025). Sustainable finance and financial performance: A systematic literature review. *Journal of Risk and Financial Management*, 18(4), 233. <https://doi.org/10.3390/jrfm18040233>
- [19]. Mamun, M. A. A., & Várallyai, L. (2025). Sustainable finance and financial inclusion: A systematic literature review. *Journal of Sustainable Finance and Investment*. Advance online publication. <https://doi.org/10.1007/s42521-025-00142-7>
- [20]. Ozili, P. K. (2022). Green finance research around the world: A review of literature. *International Journal of Green Economics*, 16(1), 56–75.
- [21]. Schoenmaker, D. (2021). *The rise of sustainable finance*. Oxford University Press.
- [22]. Taghizadeh-Hesary, F., & Yoshino, N. (2023). Green finance: An overview of concepts, policies, and challenges. *Finance Research Letters*, 53, 103603. <https://doi.org/10.1016/j.frl.2022.103603>
- [23]. United Nations Environment Programme Finance Initiative. (2023). *Principles for Responsible Banking: Guidance Document*. United Nations Environment Programme Finance Initiative. <https://www.unepfi.org>
- [24]. Zhang, D., & Berhe, M. Y. (2022). Green credit policy, technological innovation and environmental sustainability: Evidence from emerging economies. *Environmental Science and Pollution Research*, 29(42), 63245–63260. <https://doi.org/10.1007/s11356-022-20518-5>
- [25]. Zhou, X., Li, Y., & Chen, H. (2022). Green finance, sustainable economic development and environmental quality: Evidence from developing economies. *Environmental Science and Pollution Research*, 29(38), 57481–57495. <https://doi.org/10.1007/s11356-022-19668-0>