

# Financial strategies for sustainable business transformation: A comprehensive bibliometric review



Mfaume Ismail Mahmoud<sup>a</sup>  | Arni Surwanti<sup>a</sup> 

<sup>a</sup>Faculty of Postgraduate Studies, The Doctoral Management Program (PSDM), Universitas Muhammadiyah Yogyakarta, Indonesia.

**Abstract** The growing global attention on sustainability has driven substantial studies into financial strategies that help corporations navigate to more sustainable practices. This bibliometric study examines the evolution of financial frameworks for sustainability, with a focus on emerging trends, significant contributors, and research needs. A thorough analysis was conducted utilizing the Scopus database, which reviewed scholarly papers from 2015 to 2025. The VOSviewer software was used to analyze term co-occurrences and evaluate country-specific contributions to the subject. The findings show a significant increase in publications over the last decade, demonstrating the growing importance of financial strategies in promoting business sustainability. Green finance, the integration of Environmental, Social, and Governance (ESG) principles, and sustainable investment vehicles such as green bonds and impact funds are all popular research topics. This study identifies prominent researchers shaping the discourse on sustainable finance, providing a framework for future research. Despite the growing numbers of material, several critical gaps remain. These include the role of small and medium-sized businesses (SMEs) in sustainable finance, the impact of financial technology (FinTech) on green investments, and the effectiveness of regulatory frameworks in encouraging sustainable economic practices. Addressing these gaps is crucial for developing more equitable and resilient financial systems that can effectively support long-term sustainability goals. This paper provides valuable insights for policymakers, financial institutions, and academics and can be used to influence future advancements in sustainable financial methods. By advocating for resilience, innovation, and more effective regulatory frameworks, the study aims to make significant advances in the field of sustainability finance. The findings highlight the importance of ongoing research to ensure that financial systems line with global sustainability objectives and contribute to a more sustainable future.

**Keywords:** sustainable development, green finance, ESG integration, SMES

## 1. Introduction

With the rise of global issues such as climate change, resource shortages, and economic disparities, businesses are facing heightened demands to embrace sustainable practices that focus on long-term value rather than immediate profits (Gocher et al., 2024). Although significant focus has been placed on the environmental and social aspects of sustainability, the financial systems that support these changes are vital but have not been adequately examined (Ding et al., 2024). Financial strategies serve as the cornerstone of sustainable business transformation, equipping organizations with essential resources, adaptability, and innovation to handle the challenges of a swiftly changing global economy (Munteanu & Ionescu-feleag, 2024). By integrating financial planning with sustainability objectives, companies can reduce risks, create avenues for innovation, increase stakeholder confidence, and aid in broader societal advancement (Kanojia & Kaur, 2024).

The transition to sustainable business models requires a fundamental rethinking of established financial frameworks. Concepts such as ESG integration, green finance, and impact investment have emerged as critical instruments for altering financial decision-making to prioritize sustainability (Munteanu & Ionescu-feleag, 2024). Green bonds, social bonds, and climate-focused investment funds are examples of financial instruments that help firms balance profitability with social and environmental responsibility (Siu & Lam, 2024). Furthermore, including sustainability in corporate financial reporting and investment plans has become a major differentiator, allowing businesses to attract investors and improve their market positioning in an increasingly cognizant global marketplace (Alvarez-perez, 2024). Institutional dynamics, stakeholder theory, and resource-based perspectives all offer valuable insights into how financial innovations originate and how businesses can effectively apply sustainable financial practices (Arunkumar & Divya, 2025).

Despite these developments, the transdisciplinary character of sustainable finance poses problems for both researchers and practitioners. The area encompasses a wide range of domains, including corporate social responsibility, climate financing,



and circular economy investments, all of which are complex and have knowledge gaps (Oliver Yébenes, 2024). While research on ESG indicators and green financing has expanded significantly, topics such as the role of SMEs in sustainable finance and the influence of fintech developments on green investments remain unexplored (Bella et al., 2024). This bibliometric review fills these gaps by combining insights from a variety of scholarly publications, providing a structured examination of trends, problems, and new opportunities in financial strategies for long-term business transformation.

Financial sustainability strategies are more than just tools for business success; they also serve as catalysts for systemic transformation (Tolstov, 2024). Companies that adopt sustainability-focused financial practices are better positioned to respond to legislative demands, change consumer preferences, and change investor expectations (Orr & Jadhav, 2024). In addition to individual corporate benefits, these initiatives support global concerns such as climate resilience, poverty reduction, and inclusive growth, which are closely aligned with the United Nations Sustainable Development Goals (SDGs). To achieve these goals, financial institutions, policymakers, academics, and industry practitioners must work together to drive innovation, share best practices, and develop policy frameworks that support sustainable finance (Rangel et al., 2024).

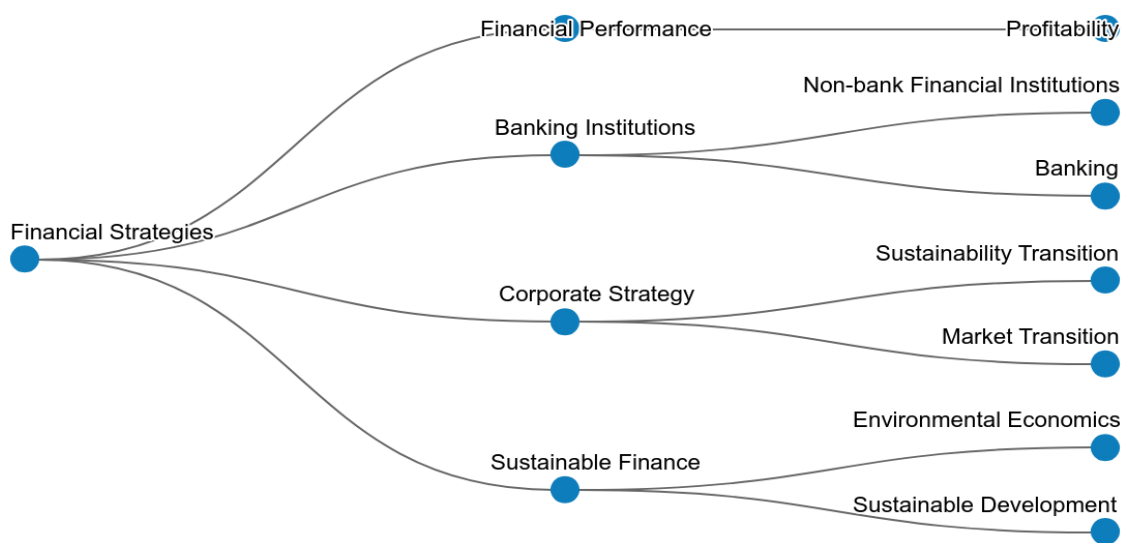
## 2. Materials and Methods

Bibliometric analysis is a systematic and quantitative way of evaluating and illustrating the current literature on a particular study subject (Benameur et al., 2024). Bibliographic factors such as publication year, author, keywords, and collaborative methods are analyzed to identify trends, research works, and research focus areas (Munteanu & Ionescu-feleag, 2024). Researchers can use bibliometric methodologies to assess a field's intellectual structure and dynamics, identify emerging issues, and locate potential gaps or possibilities for future research (Zeng et al., 2024).

The bibliometric study on financial strategies for sustainable business transformation identified the following research topics to guide the analysis:

- RQ1: What are publication trends over time in financial strategies for sustainable business transformation?
- RQ2: Who are the ten most cited authors in research?
- RQ3: What are the categories of documents based on the study subject?
- RQ4: Which network mapping technique utilizes citations by country?
- RQ5: How do keyword co-occurrence patterns reveal trends and gaps in financial strategies for sustainable business transformation?

The paper, Financial Strategies for Sustainable Business Transformation: A comprehensive bibliometric review, examines the financial frameworks that have fuelled sustainable business transformation over the past decade. Trend analysis in the academic literature provides insights into the field's evolution, acknowledges key contributions, and identifies future research areas (Rauf et al., 2024). Finally, this research is an excellent resource for decision-makers seeking to manage the complexities of sustainability financing. It provides them with the tools and knowledge they need to promote resilient, innovative, and sustainable business practices in an interconnected global economy.



Powered by Scopus AI, Thu Feb 06 2025

**Figure 1** Concept map of financial strategies for sustainable business transformation. *Source* Scopus database.



### 3. Methodology

This research used bibliometric methods, applying VOSviewer software to evaluate and visually represent the bibliometric network of academic studies regarding financial strategies for sustainable business change (van Eck & Waltman, 2014). Data were systematically gathered from the Scopus database over a decade spanning from 2015-2025. The criteria for selection emphasized literature that has undergone peer review and possesses substantial academic importance, thereby guaranteeing the incorporation of impactful works in the discipline (Munteanu & Ionescu-feleg, 2024). Through the use of bibliometric methods, researchers have sought to reveal significant research trends, impactful publications, and the intellectual framework of sustainable finance studies (Benameur et al., 2024).

The bibliometric analysis focused on citation networks, patterns of keyword co-occurrence, and collaborations between authors to uncover significant trends and new research directions in sustainable finance. Analysis of citation networks identified the most frequently cited works, highlighting key studies in the discipline (van Eck & Waltman, 2014). Keyword co-occurrence mapping offered insights into developing themes and research priorities, whereas author collaboration analysis emphasized key contributors and research clusters. These integrated methods provide a thorough comprehension of the knowledge terrain, delivering crucial insights into how financial strategies aid sustainable business change (Zeng et al., 2024).

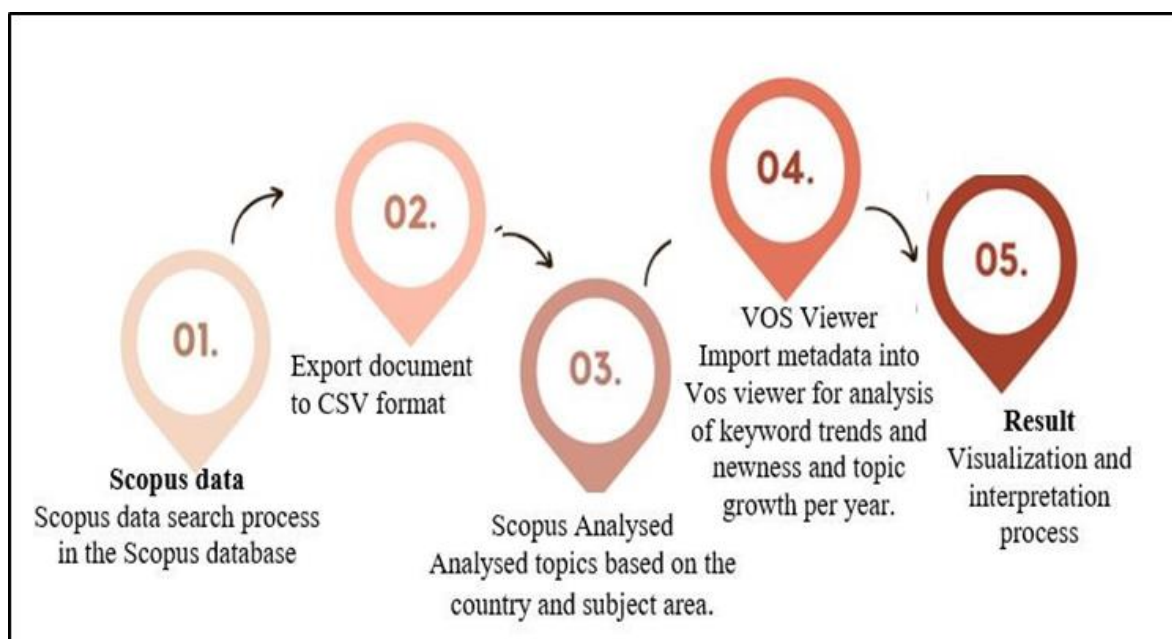


Figure 2 Stages of the VOSviewer process: data input, processing, and visualization.

### 4. Results and Findings

RQ1: What are publication trends over time in financial strategies for sustainable business transformation on the basis of the year of publication?

The analysis of publication trends from 2015-2025 revealed a notable increase in academic interest in financial strategies for sustainable business transformation. Previous research has focused primarily on corporate social responsibility (CSR) and sustainability reporting, with few analyses of financial tools specifically created to aid sustainability (Mishra & Sant, 2024). Nonetheless, as global issues such as climate change and economic disparities have become increasingly urgent, the importance of financial tools such as ESG integration, green bonds, and impact investment has increased (Oliver Yébenes, 2024). The increasing number of publications indicates a change in emphasis from theoretical sustainability ideas to actionable financial approaches that facilitate genuine business transformation.

Figure 3 below shows a sequence of numbers corresponding to the year 2015, which most likely represents the number of publications or research studies on financial solutions for sustainable business transformation. The numbers rose from 53 in 2015 to 446 in 2024, indicating a considerable increase in the number of publications over time. This shows an increase in attention and emphasis on the convergence of financial strategies and sustainable business practices (Papa et al., 2024). In 2025, there are 67 documents, and there aren't many documents yet because it's the beginning of the year. Based on this increasing trend, we expect that by the end of this year, the number of documents could exceed 446 compared to the year 2024. The constant increase in numbers shows the growing acknowledgment of sustainability as a crucial component in company transformation, fuelled by causes such as regulatory pressures, customer demand for ethical practices, and the need for long-term resilience in a changing global economy (Nguyen, 2024).



Moreover, the rapid rise from 53 articles in 2015 to 446 in 2024 demonstrates a nearly tenfold increase in research productivity. This exponential expansion highlights the field's dynamic nature, with more scholars and practitioners looking into creative finance solutions to promote sustainable business models (Kanojia & Kaur, 2024). The trend also points to a transformation in the business landscape, with sustainability no longer viewed as a niche concern but as an essential component of strategic financial planning. This rising body of research is projected to include a wide range of themes, including green financing, sustainable investment, and the incorporation of environmental, social, and governance (ESG) principles into financial decision-making, reflecting the broader societal push for sustainable development (Che et al., 2024).

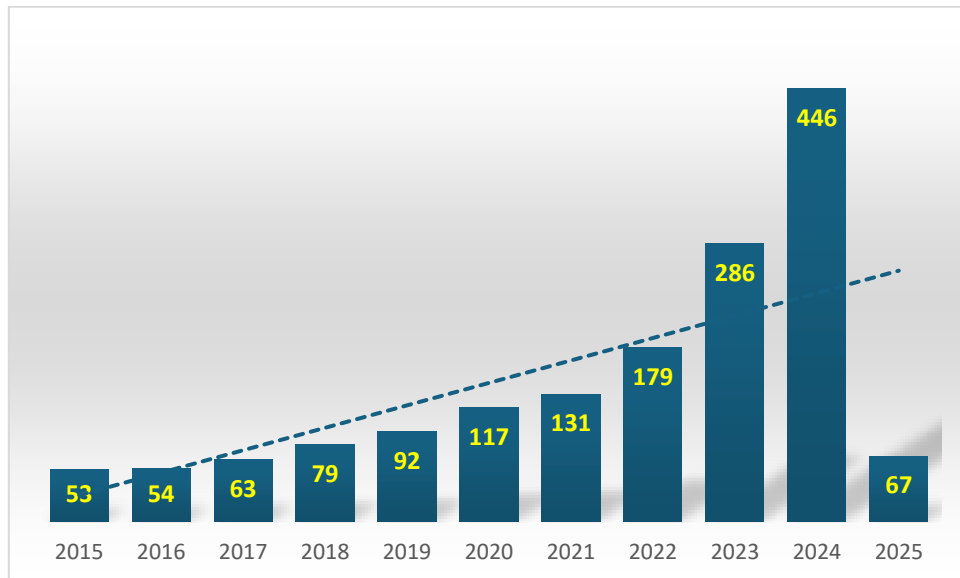


Figure 3 Publication trends by year. *Source* Scopus Database.

RQ2: Who are the ten most cited authors in research?

The bibliometric study reveals the top ten most referenced writers in the discipline, emphasizing their contributions to long-term financial strategy. These scholars have affected conversations around ESG measurements, green finance, and sustainable investment, influencing both academic and industry practices. Their work has offered frameworks for evaluating financial sustainability, directing business decision-making, and shaping policy formation at both the national and international levels. The significant number of citations indicates that their research had an impact on shaping the debate surrounding sustainability finance (Zakaria et al., 2024).

A closer look at citation networks reveals that these significant authors typically interact across fields, providing insights from economics, environmental science, and corporate finance. Their interdisciplinary approach has strengthened the foundation of sustainable financial management, allowing organizations to implement complete plans that address both economic and sustainability objectives concurrently (Naseer et al., 2024). Future studies could build on these contributions by examining new financial innovations such as digital currencies and blockchain-based sustainable investments.

Emphasizing the importance of major scholars in developing research into financial solutions for long-term business transformation, Figure 4 below shows that Chen, L., and Mhlanga, D. have the most publications, indicating that they have made significant contributions to the discussion of financial mechanisms that support long-term business sustainability. Moreover, the existence of other essential researchers, such as Anikin, D., Bhandari, M.P., Bogdan, O., Carp, M., Chupina, Z., Eccles, R.G., Ermakova, A., and Finogenova, Y., each with three publications, demonstrates a diverse research environment. These scholars shape the area by investigating various financial models, investment techniques, and legislative frameworks that promote business sustainability.

RQ3: What are the categories of documents based on the study subject?

The figure below depicts the distribution of document categories linked to finance strategies for sustainable business transformation across several fields of study. Environmental Science accounts for the most documents (15.7%), closely followed by business, management, and accounting (14.9%) and social sciences (14.7%). This distribution emphasizes the multidisciplinary aspect of sustainable business transformation, with contributions from the environmental and social sciences, as well as the business and management fields. The popularity of Environmental Science emphasizes the importance of ecological concerns in the design of financial strategies that promote sustainability (Wang & Zhang, 2025).

Other prominent categories include economics, econometrics, finance (12.8%), and energy (9.7%), indicating the relevance of economic theories and energy-related challenges in long-term financial planning. Computer science (8.1%) and engineering (7.3%) contribute as well, demonstrating the integration of technical and engineering approaches in establishing

long-term financial strategies. The variety of these categories implies that sustainable business transformation is a complicated, interdisciplinary activity that requires ideas from other disciplines to handle the multifaceted issues of sustainability in the financial industry.

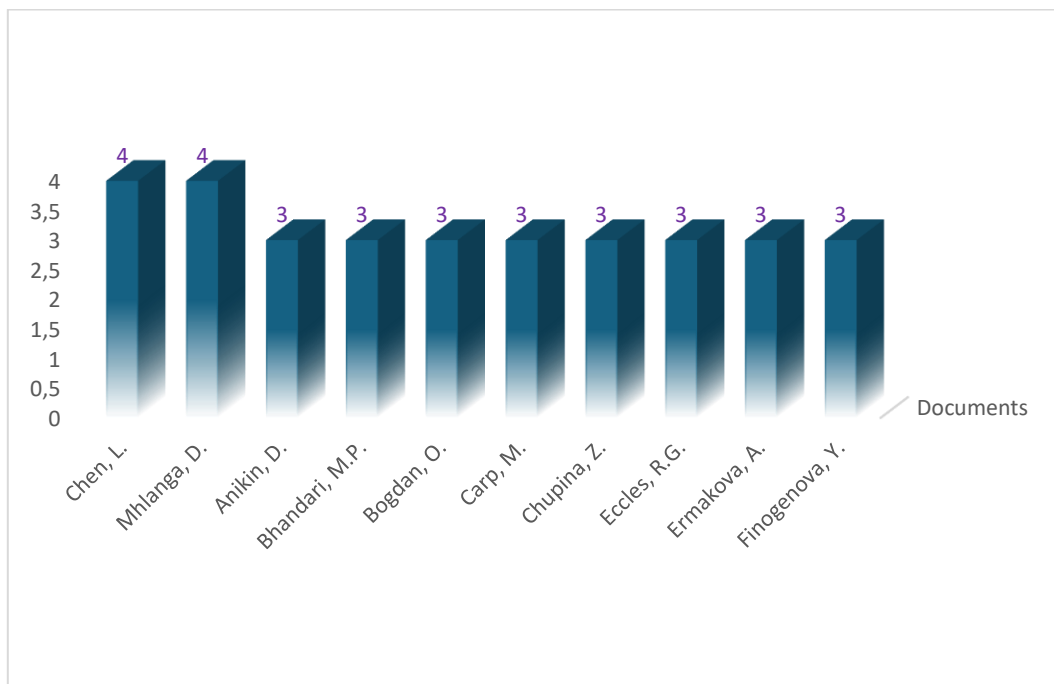


Figure 4 Publication trends by author. Source Scopus Database.

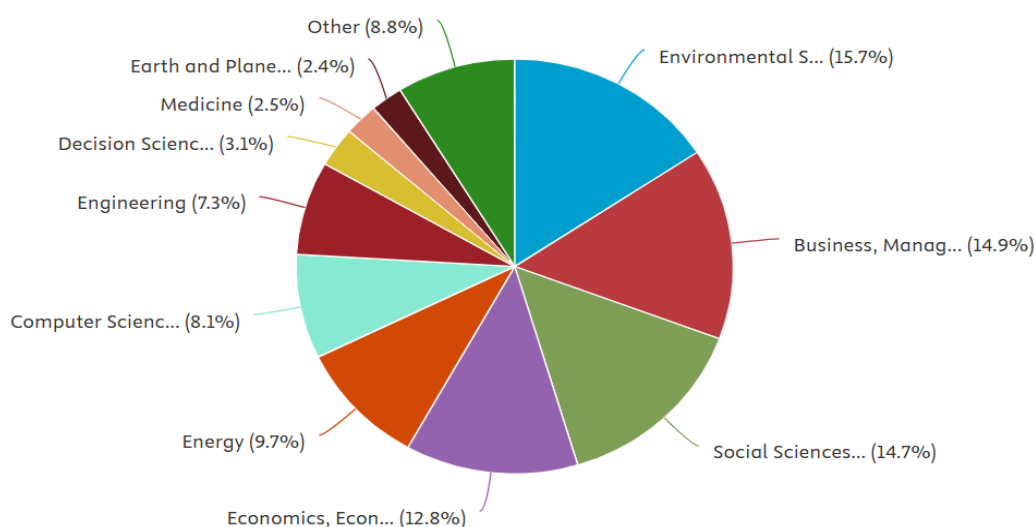


Figure 5 Pie chart illustrating documents categorized by subject area. Source Scopus Database.

RQ4: Which network mapping technique utilizes citations by country?

Figure 6 depicts a citation network analysis by country, which employs a bibliometric mapping method to reveal the citation linkages between different countries depending on their academic research efforts. The size of each nation's node reflects its citation effect, with larger nodes such as China, the United States, and the United Kingdom suggesting greater research productivity and influence. The connecting edges represent citation linkages, demonstrating the extent of worldwide research collaboration and knowledge exchange. This method is commonly used in conjunction with tools such as VOSviewer, which aids in identifying global research trends, essential contributors, and worldwide academic relationships (van Eck & Waltman, 2014).

The color-coded network clusters emphasize regional research ties and subject areas. China and the United States, for example, are well-positioned to demonstrate their leadership in terms of academic publishing and global citation rates.



European countries such as Italy, Spain, and Portugal constitute a densely interconnected network, indicating significant regional research collaboration. Countries such as Indonesia, Australia, and South Africa are strongly associated, meaning that they are gaining clout in sustainable financing and business transformation research. This mapping method is crucial for scholars, governments, and organizations trying to comprehend global academic influence and promote international collaboration.

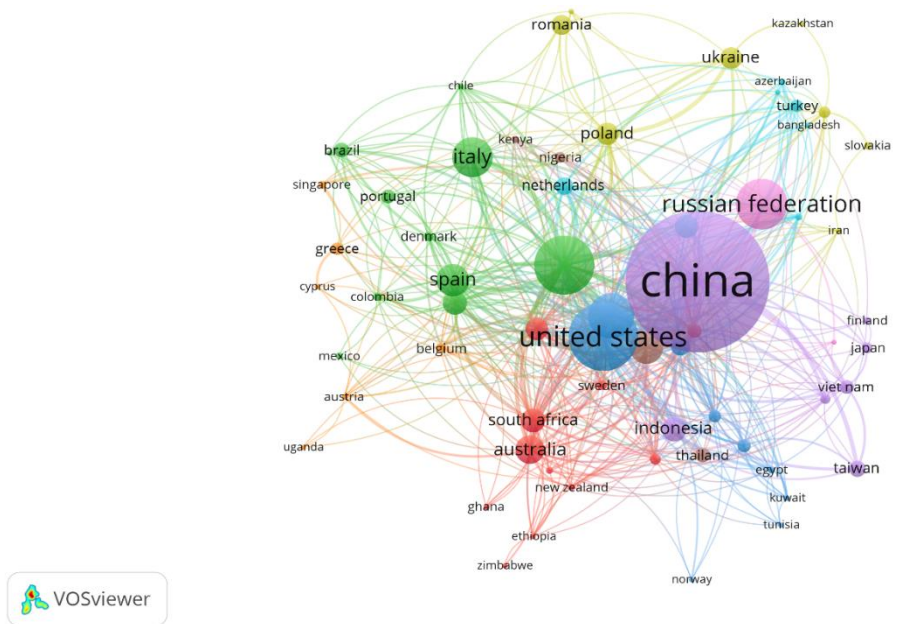


Figure 6 Bibliometric citation network by country.

RQ5: How do keyword co-occurrence patterns reveal trends and gaps in financial strategies for sustainable business transformation?

Keyword co-occurrence patterns, as illustrated in Figure 7, aid in identifying trends and gaps in research on financial strategies for long-term business transformation. In this bibliometric keyword network, more significant and more centrally positioned phrases such as "sustainable development," "investments," "risk management," and "governance approach" reflect dominating themes in the literature. The color-coded clusters reflect distinct research fields, demonstrating how financial strategies interact with issues such as corporate social responsibility (CSR), ESG (environmental, social, and governance) performance, and green economy efforts. Strongly connected keywords indicate widely investigated research themes, whereas less connected or solitary terms indicate developing or underdeveloped issues that warrant additional exploration (Zeng et al., 2024).

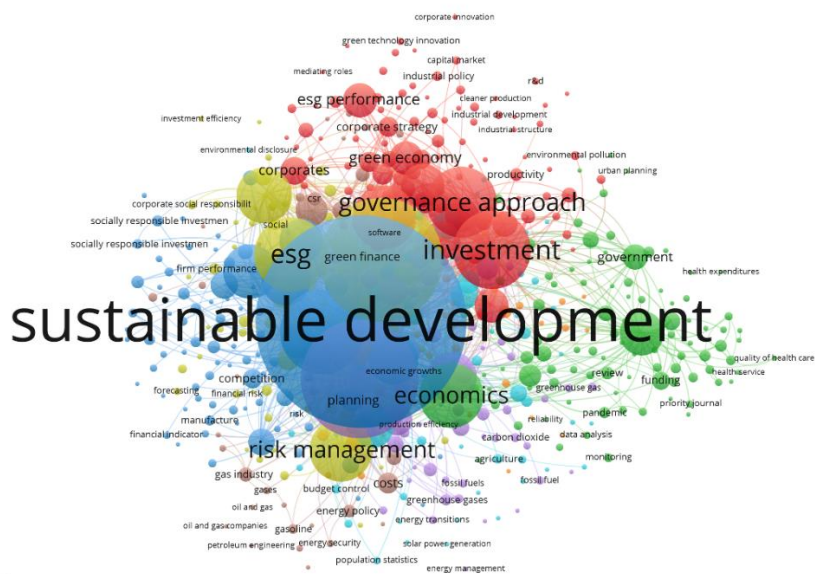


Figure 7 Visualization map of keyword co-occurrence.



Researchers can identify gaps and promising areas for further investigation by examining keyword co-occurrence patterns. While sustainability and governance techniques are well-researched, terms such as energy policy, data monitoring, or biodiversity investment strategies may appear in smaller clusters, indicating a lower emphasis on financial research (Rauf et al., 2024). Understanding these keyword patterns enables scholars and policymakers to focus on often overlooked but critical financial strategies, resulting in a more complete approach to long-term business transformation.

## 5. Discussion and Final Considerations

The growing importance of financial strategies for sustainable business transformation highlights a notable change in how companies pursue long-term growth amid environmental problems, economic disparities, and societal constraints (Ma et al., 2024). The bibliometric analysis indicates that sustainability has emerged as a primary priority in organizational financial strategies, accompanied by an expanding corpus of research. As global challenges such as climate change and resource depletion escalate, businesses recognize that sustainable finance practices are not merely ethical obligations but also essential for guaranteeing resilience and long-term profitability (Papa et al., 2024). The shift from a profit-centric approach to a sustainability-focused approach has led to the emergence of innovative financial instruments such as ESG integration, green bonds, and impact investment, which facilitate the alignment of financial results with overarching societal objectives. The increase in publications over the last decade demonstrates that researchers and practitioners are acknowledging the necessity of integrating these financial strategies into their business models, thereby establishing sustainability as a core component of corporate governance and investment strategies (Makridou et al., 2024).

Nonetheless, despite substantial advancements in the incorporation of financial instruments that facilitate sustainable business models, notable deficiencies persist in both research and practice. Bibliometric research has underscored the growing importance of small and medium-sized enterprises (SMEs) in the realm of sustainability finance, a subject that has yet little to be examined. Small and medium-sized enterprises (SMEs), which are frequently hindered by restricted resources and financial access, are essential for attaining sustainable development goals (SDGs). There is an immediate necessity for customized finance solutions that support these organizations in implementing sustainable practices while preserving their growth potential (Bella et al., 2024). Moreover, the effectiveness of regulatory frameworks in promoting sustainable economic practices and swift advancements in fintech and digital currencies, which are set to transform green investments, remain inadequately examined. The convergence of technology and sustainable finance signifies a promising frontier that may provide creative methods to amplify investments in sustainability and address global concerns more effectively (Kamarudin et al., 2024). Subsequent research must focus on these domains to establish a more inclusive and adaptive financial ecosystem that accommodates enterprises of all scales and promotes innovation in sustainability.

The results of this study indicate that the future of sustainable business transformation is significantly dependent on financial innovation, interdisciplinary collaboration, and a comprehensive approach that incorporates environmental, social, and governance factors into all aspects of corporate decision-making (Tran & Lu, 2023). The interdependent structure of the global economy requires policymakers, financial institutions, and industry leaders to collaborate in creating regulatory frameworks, financial instruments, and best practices that facilitate business success while positively impacting society and the environment (Munteanu & Ionescu-flag, 2024). As sustainable finance evolves, scholars and practitioners must be adaptable and proactive in addressing growing trends and gaps, including the role of SMEs and the incorporation of new technologies. Ultimately, enhancing financial methods for sustainable company transformation will necessitate collaborative efforts across sectors, and the insights obtained from bibliometric analyses such as these will be crucial in directing future research and practice.

## Acknowledgment

I want to express my gratitude to Arni Surwanti and all of the teams for their invaluable advice, guidance, and assistance in allowing the author to complete this work. I appreciate the time offered.

## Ethical Considerations

Not applicable.

## Conflict of Interest

The authors declare that they have no conflicts of interest.

## Funding

This research did not receive any financial support.

## References

- Alvarez-Perez, H. (2024). ESG disclosure and financial performance in debt market: Evidence from the oil and gas industry. *ARLA*, 37(4), 634–653. <https://doi.org/10.1108/ARLA-07-2024-0135>
- Arunkumar, O. N., & Divya, D. (2025). ESG efficiency analysis in the IT industry: A DEA-based approach. *Cogent Business & Management*, 12(1). <https://doi.org/10.1080/23311975.2025.2450092>
- Bella, R. L. F., Filho, W. L., Sigahi, T. F. A. C., Rampasso, I. S., Quelhas, O. L. G., Bella, L. F., Herm, G., & Marcondes, S. (2024). Small- and medium-sized enterprises: Trends and future perspectives for sustainability and digitalization in Germany. *Sustainability*, 16, 1–26.
- Benameur, K. B., Mostafa, M. M., Hassanein, A., Shariff, M. Z., & Al-Shattarat, W. (2024). Sustainability reporting scholarly research: A bibliometric review and a future research agenda. *Management Review Quarterly*, 74(2). <https://doi.org/10.1007/s11301-023-00319-7>
- Che, X., Song, C., & Li, J. (2024). How do corporate environmental, social, and governance (ESG) factors affect financial performance? *Sustainability (Switzerland)*, 16(23), 1–23. <https://doi.org/10.3390/su162310347>
- Ding, H., Han, W., & Wang, Z. (2024). Environmental, social and corporate governance (ESG) and total factor productivity: The mediating role of financing constraints and R&D investment. *Sustainability*, 16, 1–14.
- Gocher, T., Chan, W. L., Ramachandran, J., & Yee, A. S. V. (2024). Corruption in least developed countries and ESG (responsible) investment: Standard Chartered Bank in Nepal. *Journal of Financial Regulation and Compliance*, 32(3), 293–312. <https://doi.org/10.1108/JFRC-07-2023-0112>
- Kamarudin, K. A., Mohamad Ariff, A., Azmi, N. A., & Mohd Suffian, M. T. (2024). Nonlinear effects of board size and board independence on corporate sustainability performance: International evidence. *Corporate Governance (Bingley)*. <https://doi.org/10.1108/CG-12-2023-0544>
- Kanojia, S., & Kaur, S. (2024). Sustainable investment initiatives and the performance of stakeholders involved in multinational technology companies' supply chains: Linear or nonlinear effects? *Discover Sustainability*. <https://doi.org/10.1007/s43621-024-00767-5>
- Ma, L., Yuan, X., Lu, J., Li, Y., Gao, W., Yan, H., & Zhang, X. (2024). The ESG performance influence mechanism analysis—Based on empirical analysis. *PLoS ONE*, 19(5), 1–21. <https://doi.org/10.1371/journal.pone.0295548>
- Makridou, G., Doumpos, M., & Lemonakis, C. (2024). Relationship between ESG and corporate financial performance in the energy sector: Empirical evidence from European companies. *International Journal of Energy Sector Management*, 18(4), 873–895. <https://doi.org/10.1108/IJESM-01-2023-0012>
- Mishra, P., & Sant, T. G. (2024). Examine the level of environmental, social and governance disclosure in sustainability report – A study of the Indian banking sector. *International Journal of Innovation Science*, 16(2), 420–442. <https://doi.org/10.1108/IJIS-08-2022-0136>
- Munteanu, I., & Ionescu-Feleag, L. (2024). Financial strategies for sustainability: Examining the circular economy perspective. *Sustainability*, 16, 1–22.
- Naseer, M. M., Guo, Y., & Zhu, X. (2024). ESG trade-off with risk and return in Chinese energy companies. *International Journal of Energy Sector Management*, 18(5), 1109–1126. <https://doi.org/10.1108/IJESM-07-2023-0027>
- Nguyen, L. T. (2024). The relationship between corporate sustainability performance and earnings management: Evidence from emerging East Asian economies. *Journal of Financial Reporting and Accounting*, 22(3), 564–582. <https://doi.org/10.1108/JFRA-09-2021-0302>
- Oliver Yébenes, M. (2024). Climate change, ESG criteria and recent regulation: Challenges and opportunities. *Eurasian Economic Review*, 14(1). Springer International Publishing. <https://doi.org/10.1007/s40822-023-00251-x>
- Orr, S., & Jadhav, A. (2024). The effect of construction sustainability system interactions on financial performance: A sociotechnical perspective. *Engineering, Construction and Architectural Management*, 31(5), 1923–1946. <https://doi.org/10.1108/ECAM-12-2021-1134>
- Papa, M., Wiecek-Kosmala, M., Losa, A., & Swalek, A. (2024). The impact of ESG regulation on environmental decoupling: An exploratory study on Polish listed companies. *Sustainability*, 16, 1–11.
- Rangel, R., Bezerra, R., William, V., & Martins, B. (2024). Validation of challenges for implementing ESG in the construction industry considering the context of an emerging economy country. *Applied Sciences*.
- Rauf, F., Wanqiu, W., Naveed, K., & Zhang, Y. (2024). Green R&D investment, ESG reporting, and corporate green innovation performance. *PLoS ONE*, 19(3), 1–22. <https://doi.org/10.1371/journal.pone.0299707>
- Siu, J., & Lam, L. (2024). Barriers and strategies for green investments in environmental, social and governance: A seaport companies' study. *Management of Environmental Quality*, 35(6), 1193–1212. <https://doi.org/10.1108/MEQ-07-2023-0222>
- Tolstov, N. (2024). Determinants of sustainable innovation expansion strategy: The case study of companies from a declining industry. *Journal of Corporate Finance Research*, 18(1), 93–106. <https://doi.org/10.17323/j.jcfr.2073-0438.18.1.2024.93-106>
- Tran, T. H., & Lu, W. (2023). Sustainable investment initiatives and the performance of stakeholders involved in multinational technology companies' supply chains: Linear or nonlinear effects? *Kybernetes*, 53(11), 3977–4005. <https://doi.org/10.1108/K-02-2023-0195>
- van Eck, N. J., & Waltman, L. (2014). A bibliometric analysis provides a strong methodological approach to bridging this gap by carefully assessing the intellectual structure of research in sustainable finance, AI, and blockchain. In *Measuring Scholarly Impact*. [https://doi.org/10.1007/978-3-319-10377-8\\_13](https://doi.org/10.1007/978-3-319-10377-8_13)
- Wang, L., & Zhang, B. (2025). Research on the green investment of traditional energy enterprises and its effectiveness under environmental regulation. *Sustainability*, 17, 1–25.
- Zakaria, M., Laura, A., García, S., Antonia, M., & Benau, G. (2024). Influence of ESG among Jordanian fintech businesses: The moderating role of sustainable finance technology. *Discover Sustainability*. <https://doi.org/10.1007/s43621-024-00712-6>
- Zeng, L., Li, H., Lin, L., Juan, D., & Hu, J. (2024). ESG standards in China: Bibliometric analysis, development status research, and future research directions. *Sustainability*, 16, 1–24.