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A Systematic Literature Review Study on Green Banking in India

Priyanka Oza

Assistant Professor& Research Scholar, IES's MCRC and Research Scholar, University of Mumbai

Dr Neeraj Dixit

Professor & PhD Research Guide, IES's Management College & Research Centre

Abstract: The growing emphasis on sustainable development has positioned the banking sector as a critical enabler of environmentally responsible economic growth. In response to increasing environmental concerns and regulatory pressures, green banking has emerged as a strategic approach through which financial institutions integrate sustainability principles into their operations, lending practices, investment decisions, and risk management frameworks. Given the expanding body of research in this domain, a comprehensive synthesis of the existing literature is essential to understand the evolution, trends, and future directions of green banking research. Accordingly, this study conducts a systematic literature review (SLR) complemented by bibliometric analysis to examine the intellectual structure and research dynamics of green banking, with particular emphasis on the Indian context. Using publications indexed in the Dimensions database, a total of 644 documents published between 2014 and 2022 were analysed employing VOS viewer and Bibliometrix. The findings indicate a substantial growth in scholarly output over the review period, with research activity accelerating significantly during 2021–2022. Bibliometric mapping reveals prominent research themes related to sustainability, environmental responsibility, green finance, and sustainable banking practices, while co-authorship and citation networks identify influential authors, collaborative patterns, and leading knowledge contributors. Furthermore, the review highlights emerging research streams and identifies critical gaps within the Indian green banking literature, particularly concerning empirical validation, customer adoption behaviour, performance outcomes, and policy effectiveness. By providing a comprehensive overview of the field's intellectual landscape, this study contributes to the growing discourse on sustainable finance and offers valuable implications for researchers, banking practitioners, and policymakers seeking to advance the adoption and effectiveness of green banking initiatives.

Keywords: Green Banking; Sustainable Banking; Sustainable Finance; Bibliometric Analysis; Systematic Literature Review; India; Environmental Sustainability.

Introduction

The increasing severity of climate change, resource depletion, and environmental degradation has transformed sustainability from a peripheral concern into a strategic priority for governments, businesses, and financial institutions worldwide. In this context, green finance has emerged as a critical mechanism for mobilizing capital toward environmentally sustainable projects and facilitating the transition to a low-carbon economy. Green finance encompasses a broad range of financial products, services, and investment activities that support renewable energy, energy efficiency, sustainable infrastructure, biodiversity conservation, climate adaptation, and other environmentally beneficial initiatives (Ozili, 2022; Zhang et al., 2023).

The banking sector occupies a pivotal position within the green finance ecosystem because of its role as a financial intermediary that influences investment decisions and capital allocation. Consequently, green banking has gained prominence as an approach through which banks incorporate environmental and social considerations into their operational practices, lending decisions, investment portfolios, and risk management frameworks. Unlike traditional banking, green banking seeks to align financial performance with environmental sustainability objectives, thereby contributing to long-term economic resilience and sustainable development (Weber, 2017; Buallay et al., 2024).

In recent years, scholarly interest in green banking has expanded considerably. Existing studies have examined the determinants of green banking adoption, customer perceptions of green banking services, environmental risk management practices, and the relationship between green banking initiatives and financial performance. Recent evidence suggests that the integration of sustainability principles can enhance banks' reputation, improve stakeholder trust, strengthen risk management capabilities, and contribute to long-term value creation (Thapliyal et al., 2025; Wani, 2024). Nevertheless, findings remain fragmented, particularly in emerging economies where regulatory frameworks and institutional contexts differ significantly from those of developed markets.

India has emerged as an important case for studying green banking due to its dual challenge of sustaining economic growth while meeting ambitious climate commitments. The country's commitment to achieving net-zero emissions by 2070 and fulfilling the Sustainable Development Goals has accelerated the development of sustainable finance policies and green investment initiatives. Regulatory institutions have increasingly recognised the importance of mobilising financial resources toward environmentally sustainable activities. In a significant policy development, the Reserve Bank of India (RBI) introduced the Green Deposit Framework in 2023, enabling banks and deposit-taking financial institutions to mobilise funds specifically for environmentally sustainable projects while enhancing transparency and reducing the risk of greenwashing. The framework identifies eligible sectors such as renewable energy, clean transportation, energy efficiency, climate adaptation, and biodiversity conservation, thereby fostering a more structured green finance ecosystem in the country.

Simultaneously, the Securities and Exchange Board of India (SEBI) has expanded the sustainable finance architecture by promoting green debt securities and proposing new instruments such as sustainability-linked bonds, social bonds, and green securitisation products. These initiatives reflect a broader shift toward integrating environmental, social, and governance (ESG) considerations into India's financial system and capital markets.

Despite these developments, green banking research in India remains relatively dispersed and lacks a comprehensive synthesis of its intellectual structure, thematic evolution, and emerging research directions. Existing reviews largely focus on conceptual discussions or specific banking practices, while limited attention has been paid to mapping the overall knowledge landscape using systematic and bibliometric approaches. Addressing this gap, the present study undertakes a systematic literature review and bibliometric analysis of green banking research, with particular emphasis on the Indian context. By identifying influential publications, thematic clusters, collaboration patterns, and emerging research streams, the study contributes to a deeper understanding of the evolution of green banking scholarship and provides insights for researchers, practitioners, and policymakers seeking to advance sustainable finance in India.

Objectives of the study

Green banking has emerged as an important area of research in response to the growing emphasis on sustainable development and environmentally responsible financial practices. Although the volume of research in this field has increased considerably over the years, the literature remains fragmented, particularly in the Indian context. Therefore, there is a need to systematically examine the existing body of knowledge to understand how the field has evolved and to identify areas that require further scholarly attention.

In this context, the present study aims to:

- To understand the concept, evolution, and growing significance of green banking within the broader framework of sustainable finance.
- To review and synthesise the existing literature on green banking and sustainable banking practices published across different geographical contexts.
- To identify the major themes, research trends, and areas of focus that have shaped the development of green banking research over time.
- To examine the contribution of leading authors, institutions, and countries in advancing the field of green banking.
- To analyse the current status of green banking research in India and highlight areas that remain insufficiently explored.
- To identify research gaps and suggest potential directions for future research that can contribute to the advancement of green banking theory, practice, and policy

Green Banking initiatives in India

The Indian banking sector has witnessed a gradual shift towards environmentally sustainable banking practices over the last decade. Initially, green banking initiatives were largely focused on reducing the environmental footprint of banking operations through measures such as paperless transactions, energy-efficient infrastructure, digital banking services, and resource conservation. Over time, however, the scope of green banking has expanded to encompass sustainable lending, environmental risk assessment, green financing, and climate-related financial disclosures.

Among Indian banks, the State Bank of India (SBI) emerged as one of the earliest adopters of green banking practices. The bank introduced Green Channel Counters (GCCs) to promote paperless banking and invested in renewable energy projects, including wind energy generation for captive use. SBI has also offered green home loans for environmentally certified buildings, thereby encouraging sustainable construction practices (Abraham, 2020; Prabhu, 2021). Similarly, Bank of Baroda, Punjab National Bank, Union Bank of India, and other public sector banks have undertaken initiatives such as energy audits, green building adoption, renewable energy installations, and financing of environmentally sustainable projects.

Private sector banks have also contributed significantly to the green banking movement. HDFC Bank has incorporated environmental and social considerations into its lending decisions through its Social and Environmental Risk Management System (SEMS). ICICI Bank has promoted fuel-efficient vehicles through preferential financing schemes and supported environmental conservation initiatives through strategic partnerships. Kotak Mahindra Bank has focused on reducing paper consumption through digital banking and e-statements, while IndusInd Bank has implemented solar-powered ATMs and sustainability programmes aimed at environmental conservation. YES Bank has emerged as one of the leading advocates of sustainable finance in India through its active financing of renewable energy projects and promotion of climate-conscious banking practices.

The evolution of green banking in India has been significantly influenced by regulatory and policy developments. Recognising the increasing importance of climate-related financial risks, the Reserve Bank of India (RBI) has progressively encouraged financial institutions to incorporate sustainability considerations into their business strategies and risk management frameworks. A major milestone in this direction was the introduction of the Green Deposit Framework in 2023, which provides a structured mechanism for regulated entities to mobilise deposits specifically for financing environmentally sustainable projects. The framework seeks to improve transparency, standardisation, and accountability while minimising the risk of greenwashing in the banking sector (RBI, 2023).

Parallelly, the Securities and Exchange Board of India (SEBI) has strengthened the sustainable finance ecosystem through regulations governing green debt securities and sustainability-related disclosures. The introduction of the Business Responsibility and Sustainability Reporting (BRSR) framework has enhanced transparency by requiring listed entities to disclose environmental, social, and governance (ESG) performance indicators. More recently, SEBI has expanded the scope of sustainable finance by proposing frameworks for sustainability-linked bonds, social bonds, and other thematic debt instruments, thereby facilitating greater capital mobilisation towards sustainable development objectives (SEBI, 2023; SEBI, 2024).

Despite these advancements, the adoption of green banking practices across Indian banks remains uneven. While large public and private sector banks have introduced dedicated sustainability frameworks and green financing initiatives, many institutions continue to focus primarily on operational-level interventions such as digitalisation and paper reduction. Furthermore, the integration of environmental risk assessment into mainstream credit appraisal and investment decision-making remains at a relatively early stage compared with global best practices.

Existing empirical evidence suggests that green banking can contribute to improved corporate reputation, enhanced stakeholder trust, better risk management, and long-term value creation. However, there remains limited evidence regarding the actual impact of green banking initiatives on environmental outcomes, financial performance, customer behaviour, and climate-risk mitigation within the Indian banking sector. Consequently, significant opportunities exist for future research to evaluate the effectiveness of green banking practices, examine their contribution to sustainable development goals, and assess the role of regulatory interventions in accelerating the transition towards sustainable finance.

The growing emphasis on ESG integration, climate risk management, sustainable lending, and green financial products indicates that green banking in India is evolving from a compliance-driven approach to a more strategic and business-oriented sustainability framework. As the sector continues to mature, banks are expected to play an increasingly important role in channelising financial resources towards environmentally responsible investments and supporting India's broader climate and sustainability commitments.

Research Methodology

This study employs a systematic literature review (SLR) approach, complemented by bibliometric analysis, to investigate the evolution of green banking research and identify key themes, influential contributors, and emerging research directions. The use of an SLR enables a structured and transparent review of the literature while minimising selection bias and improving reproducibility (Tranfield et al., 2003; Snyder, 2019). Bibliometric techniques further facilitate the quantitative assessment of publication patterns, collaboration networks, and thematic structures within the field.

Data Source

The bibliographic data used in this study were obtained from the Dimensions database. Dimensions was selected because of its extensive coverage of peer-reviewed journal articles and its compatibility with bibliometric software packages such as VOSviewer and Bibliometrix. Given the interdisciplinary nature of green banking, which encompasses finance, sustainability, environmental management, and public policy, Dimensions provides an appropriate platform for capturing a broad range of relevant scholarly contributions (Hook et al., 2018).

Search Strategy

The literature search was conducted using the keywords "green banking" and "sustainable banking". These terms were searched across publication titles, abstracts, author keywords, and source titles to maximise retrieval of relevant studies. The search was designed to be sufficiently broad to capture the diverse terminology used in the sustainable finance literature while maintaining relevance to the objectives of the study.

Screening and Selection Process

The initial search yielded 1,082 records. To ensure the quality and relevance of the dataset, a multi-stage screening process was followed.In the first stage, non-scholarly and non-peer-reviewed publications, including books, book chapters, book references, news articles, and other non-academic documents, were excluded. Duplicate records were subsequently identified and removed, resulting in 1,012 unique publications.

In the second stage, the titles and abstracts of all retrieved records were reviewed to determine their relevance to green banking, sustainable banking, and environmentally responsible financial practices. Publications belonging to unrelated disciplines and those not directly addressing banking, sustainability, or green finance issues were excluded.

In the final stage, full-text screening was undertaken wherever necessary to confirm eligibility. Publications lacking adequate bibliographic information, articles unrelated to the study objectives, and non-English publications were removed from the sample. Following the screening process, a final dataset of 644 publications was retained for analysis.

Data Cleaning and Preparation

The selected records were exported in CSV format and subjected to data cleaning prior to analysis. This process involved standardising author names, consolidating keyword variations, correcting inconsistencies in journal titles, and removing indexing errors. Data cleaning is an important step in bibliometric studies because inconsistencies in metadata can affect the accuracy of citation networks, co-authorship analysis, and keyword mapping (Van Eck &Waltman, 2010).

Bibliometric Tools and Analytical Approach

The cleaned dataset was analysed using VOS viewer and Bibliometrix, two widely used tools in bibliometric research. VOSviewer was employed to construct and visualise co-authorship networks, keyword co-occurrence maps, citation structures, and country collaboration networks. These visualisations helped identify the intellectual structure of the field and the relationships among key research themes (Van Eck &Waltman, 2014).

Bibliometrix, an open-source package developed in R, was used to perform descriptive and performance analyses, including annual publication trends, source analysis, country productivity, influential authors, citation patterns, and thematic evolution. The package facilitates transparent and reproducible bibliometric analysis and is increasingly used in systematic reviews across management and finance disciplines (Aria &Cuccurullo, 2017).

Research Framework

The overall research process consisted of four stages: (i) identification of relevant studies through keyword-based database searches, (ii) screening and eligibility assessment, (iii) data cleaning and preparation, and (iv) bibliometric analysis and interpretation. This structured approach enabled a comprehensive assessment of the evolution of green banking research and the identification of emerging themes, research gaps, and future directions for scholarly investigation.

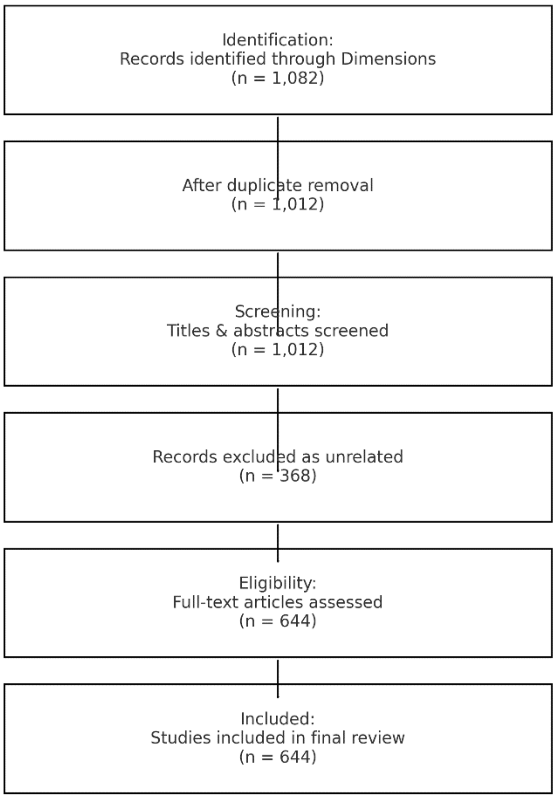

Figure 1: PRISMA Flowchart of Research Methodology

Data Analysis

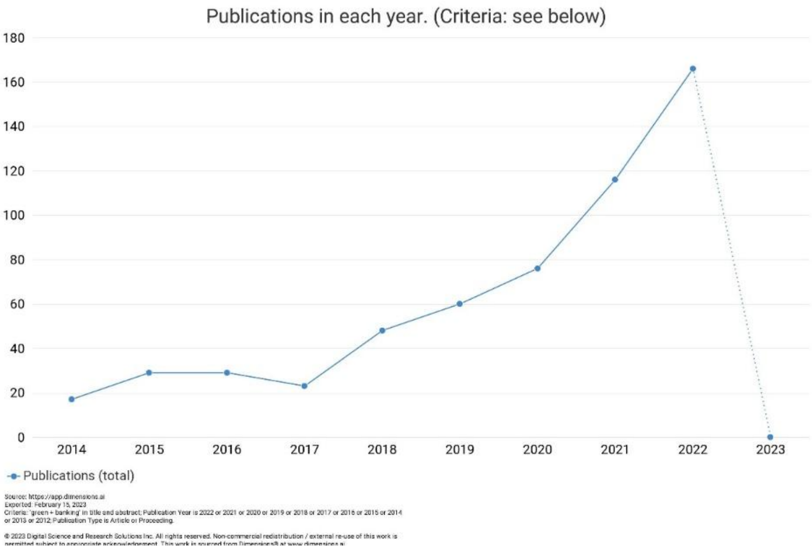

Figure 2 – Publications in each year from 2012-2022

Figure 2 presents the annual publication trend in green banking research between 2014 and 2022. The results indicate a steady increase in scholarly output over the study period, reflecting the growing importance of sustainability and environmentally responsible banking practices within the Indian financial sector. Publication activity remained relatively modest during the initial years, with 18 publications in 2014 and 30 publications in 2015. However, a noticeable acceleration in research output is observed from 2020 onwards. The number of publications increased substantially to 115 in 2021 and further to 168 in 2022, representing the highest annual output during the study period.

The sharp rise in publications during the later years may be attributed to increased awareness of climate change, the growing emphasis on sustainable development, regulatory initiatives promoting green finance, and the expanding role of banks in supporting environmental objectives. The findings suggest that green banking has evolved from a relatively niche area of inquiry to an increasingly important research domain, attracting significant attention from academics, practitioners, and policymakers. The upward trend also highlights the growing recognition of green banking as a critical component of India's sustainable development agenda.

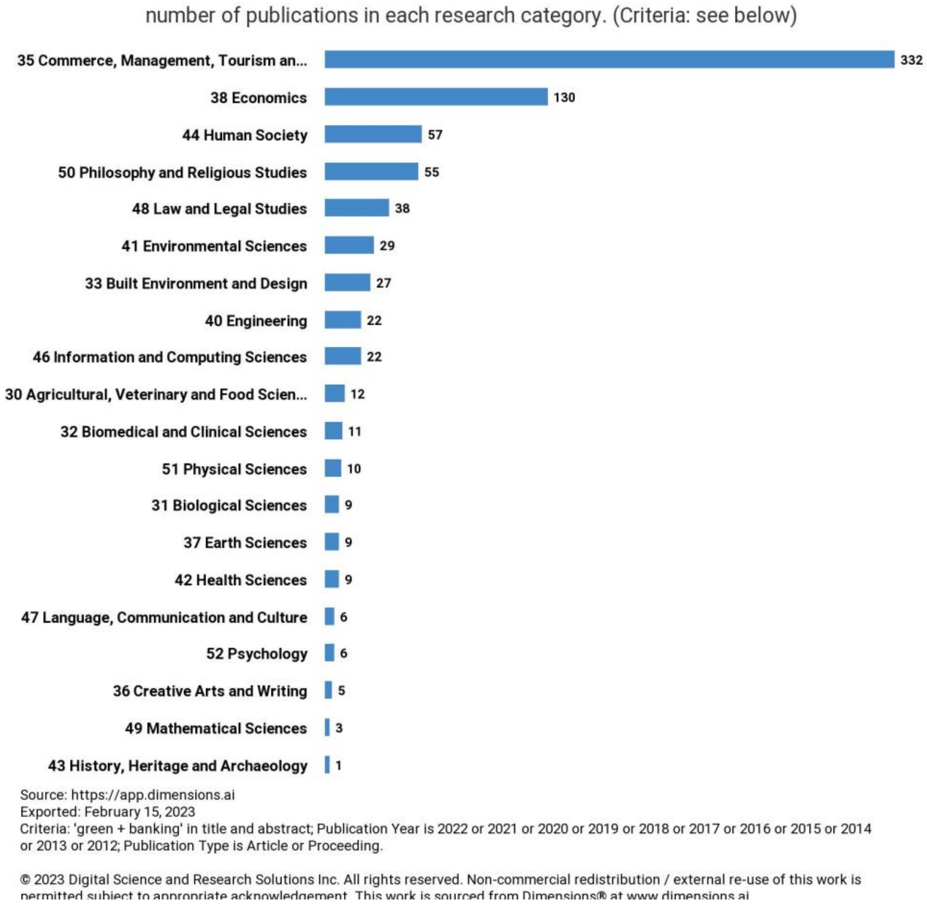

Figure 3 – Number of publications in each research category from 2012-2022

Figure 3 illustrates the distribution of publications on green and sustainable banking across the major research categories indexed in the Dimensions database. As journals may be classified under multiple subject areas, the percentages are not mutually exclusive and reflect the interdisciplinary nature of the field.The findings reveal that the largest proportion of publications belongs to the Commerce, Management, and Tourism category, accounting for 40.48% of the total research output. This is followed by Economics (24.9%) and Human Society (22.9%), indicating that green banking has predominantly been examined through managerial, economic, and societal lenses. The prominence of these categories highlights the growing recognition of sustainability as a strategic concern that extends beyond environmental considerations to encompass business performance, economic development, stakeholder engagement, and social responsibility.

The distribution of publications further demonstrates that green banking is an inherently multidisciplinary area of research, drawing contributions from diverse fields including management, finance, economics, environmental studies, public policy, and social sciences. Such interdisciplinary engagement reflects the complex nature of sustainability challenges and the evolving role of financial institutions in addressing environmental and social concerns.

An examination of publication outlets also reveals the importance of ethics and sustainability-oriented journals in shaping the field. The Journal of Business Ethics accounts for 13.45% of the total publications, making it one of the most influential sources of research on green and sustainable banking. Its prominence suggests that issues relating to environmental responsibility, corporate sustainability, and ethical decision-making have become central themes within the literature.

In contrast, publications classified within the Finance category account for only 13.9% of the total output. This relatively modest representation indicates that, although green banking has attracted considerable attention within management and sustainability research, its integration into mainstream finance scholarship remains comparatively limited. The finding points to a potential research opportunity for finance scholars to further explore the implications of green banking for financial performance, risk management, investment decisions, and sustainable value creation.

Overall, the results highlight the interdisciplinary evolution of green banking research and suggest that future studies are likely to benefit from greater integration between sustainability, ethics, and finance perspectives.

Sr. No	Name Organization, Country	Publications	Citations	Citations mean
1	DervisKirikkaleli European University of Lefke, Cyprus	62	2894	46.68
2	Muhammad QaiserShahbaz Beijing Institute of Technology, China	45	4643	103.18
3	Tomiwa Sunday Adebayo Cyprus International University, Cyprus	41	2004	48.88
4	Yogesh Kumar Dwivedi Swansea University, United Kingdom	38	3668	36.53
5	Satish Kumar Malaviya National Institute of Technology Jaipur, India	35	901	25.84
6	Aviral Kumar Tiwari Indian Institute of Management Calcutta, India	35	2012	57.49
7	Patrick S Madigan Heythrop College, University of London, United Kingdom	34	0	-
8	Chien-Chiang Lee Nanchang University, China	33	1080	32.73
9	SerhatYüksel Istanbul Medipol University, Turkey	31	932	30.06
10	Hasan Dinçer Istanbul Medipol University, Turkey	31	342	30.09

Table 1 – Most productive authors on Green Banking

Table 1 presents the ten most productive authors contributing to the literature on green banking and sustainable banking, based on publication output, citation count, and average citations per publication. The results indicate a geographically diverse authorship structure, with significant contributions originating from Asia, Europe, and emerging research economies.Among the identified scholars, DervisKirikkaleli of the European University of Lefke, Cyprus, emerges as the most prolific author, contributing 62 publications during the study period. However, publication volume does not necessarily translate into greater scholarly influence. Muhammad QaiserShahbaz of the Beijing Institute of Technology, China, demonstrates the highest citation impact, accumulating 4,643 citations and an average of 103.18 citations per publication. This suggests that his work has exerted a particularly strong influence on subsequent research within the broader domains of sustainable finance, environmental economics, and green banking.

Other highly influential contributors include Tomiwa Sunday Adebayo, Yogesh Kumar Dwivedi, and Aviral Kumar Tiwari, all of whom exhibit a combination of strong publication productivity and substantial citation impact. Their contributions have helped shape discussions surrounding sustainability, environmental responsibility, financial development, and green finance, which constitute important foundations for contemporary green banking research.

The analysis also highlights the growing contribution of Indian scholars to the field. Satish Kumar and Aviral Kumar Tiwari are among the most productive authors identified in the dataset, reflecting the increasing academic interest in sustainability-oriented banking and finance research within India. Their presence among the leading contributors indicates that Indian researchers are playing an increasingly visible role in advancing the discourse on green banking and sustainable financial systems.

A comparison of publication and citation metrics further reveals considerable variation in scholarly impact among the most productive authors. While some researchers have achieved high citation visibility despite relatively fewer publications, others exhibit substantial publication output but comparatively lower citation performance. This finding suggests that research influence is determined not only by productivity but also by the relevance, quality, and academic reach of published work.

Overall, the results demonstrate that green banking research is supported by a globally dispersed network of scholars, with contributions spanning multiple disciplines, including banking, finance, sustainability, environmental economics, and management. The concentration of highly cited authors within these interconnected domains further underscores the multidisciplinary nature of the field.

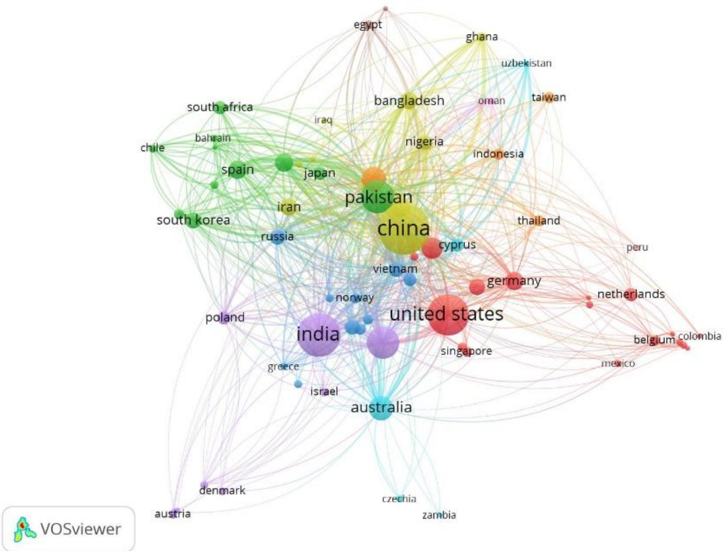

Figure 4 – Country wise citation analysis

Figure 4 presents the country-wise citation network generated using VOSviewer. In the visualisation, each node represents a country, while the size of the node reflects the number of citations received by publications originating from that country. The connecting lines indicate citation relationships among countries, and different colours represent clusters of countries exhibiting similar citation patterns and intellectual linkages. The analysis resulted in seven distinct clusters, highlighting the global and interconnected nature of research on green and sustainable banking.

Two key indicators generated by VOSviewer are Links and Total Link Strength (TLS). Links represent the number of direct connections a country has with other countries in the citation network, while TLS measures the overall strength of these connections. Higher TLS values indicate stronger integration within the global research landscape and greater influence on the development of the field.

The results reveal that China occupies the most prominent position within the network, characterised by a large node size and strong citation linkages with other countries. This finding suggests that Chinese researchers have made substantial contributions to the literature and have significantly influenced the intellectual development of green and sustainable banking research. China's central position may be attributed to the country's increasing emphasis on green finance, sustainable development, and environmental policy initiatives over the past decade.

The analysis further highlights the growing contribution of Asian countries to the field. India (TLS = 1365), Pakistan (TLS = 578), and Malaysia (TLS = 370) exhibit strong citation linkages and considerable integration within the international research network. Their prominent positions indicate increasing scholarly engagement with issues relating to sustainable finance, environmental responsibility, and green banking practices. The strong connectivity among these countries also reflects the growing importance of sustainability-oriented financial research within emerging economies.

Overall, the country-level citation network demonstrates that research on green banking is increasingly global in scope, with Asian countries playing a particularly influential role in shaping contemporary academic discourse. The findings further suggest that knowledge creation in this field is supported by extensive cross-country interactions and intellectual exchange.

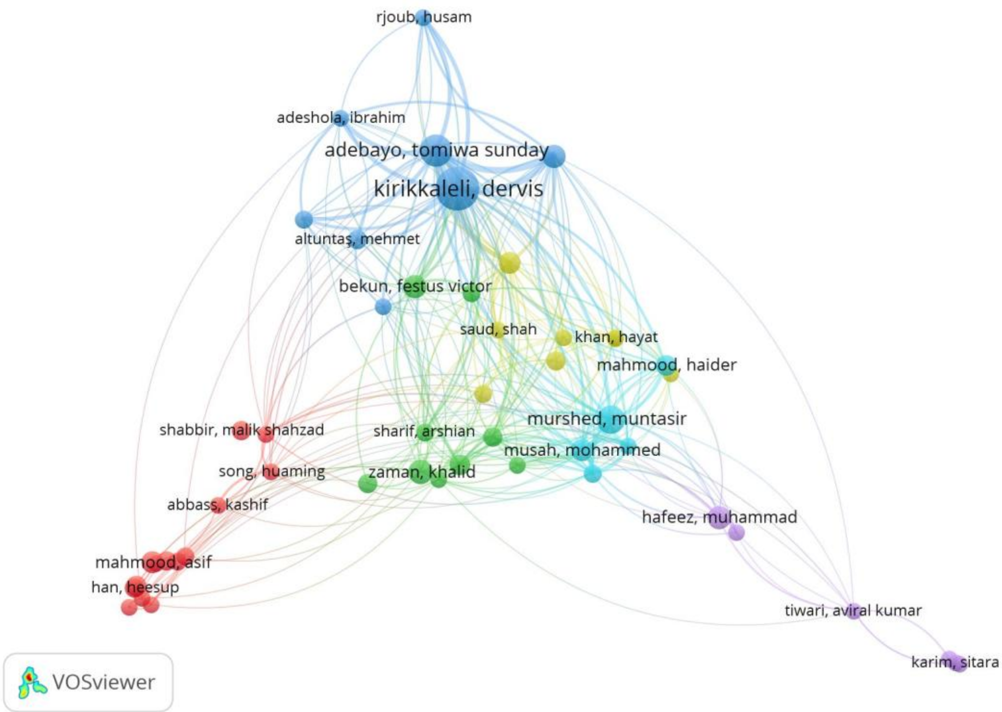

Figure 5 – Author-wise citation analysis

Figure 5 illustrates the author citation network generated through VOSviewer. Citation analysis provides insights into the intellectual structure of a research field by identifying authors whose work has exerted significant influence on subsequent studies. In the network visualisation, nodes represent authors, node size reflects citation impact, and connecting lines indicate citation relationships among researchers. The analysis resulted in six distinct clusters, representing groups of authors whose work is frequently cited together and who contribute to related thematic areas.

To ensure the inclusion of authors with a meaningful presence in the literature, a minimum threshold of two publications and two citations was applied. This filtering criterion helped eliminate peripheral contributors and enabled a clearer representation of the core intellectual network.

The visualisation indicates that DervisKirikkaleli occupies a central position within the citation network, characterised by extensive citation linkages with other researchers. His prominence suggests that his work has played an important role in shaping discussions related to green finance, sustainability, environmental economics, and sustainable banking. The strong connectivity associated with his node reflects both scholarly influence and integration within the broader research community.

The presence of multiple clusters further highlights the multidisciplinary nature of green banking research. The network incorporates contributions from scholars working in areas such as banking, finance, sustainability, environmental studies, economics, and management. The clustering pattern suggests that while distinct research streams have emerged within the literature, they remain interconnected through shared concepts and common research interests.

Overall, the author citation network reveals a well-connected intellectual structure in which a relatively small group of highly cited scholars has played a significant role in advancing the field. At the same time, the existence of multiple clusters indicates the continued diversification of research themes and perspectives within green banking scholarship.

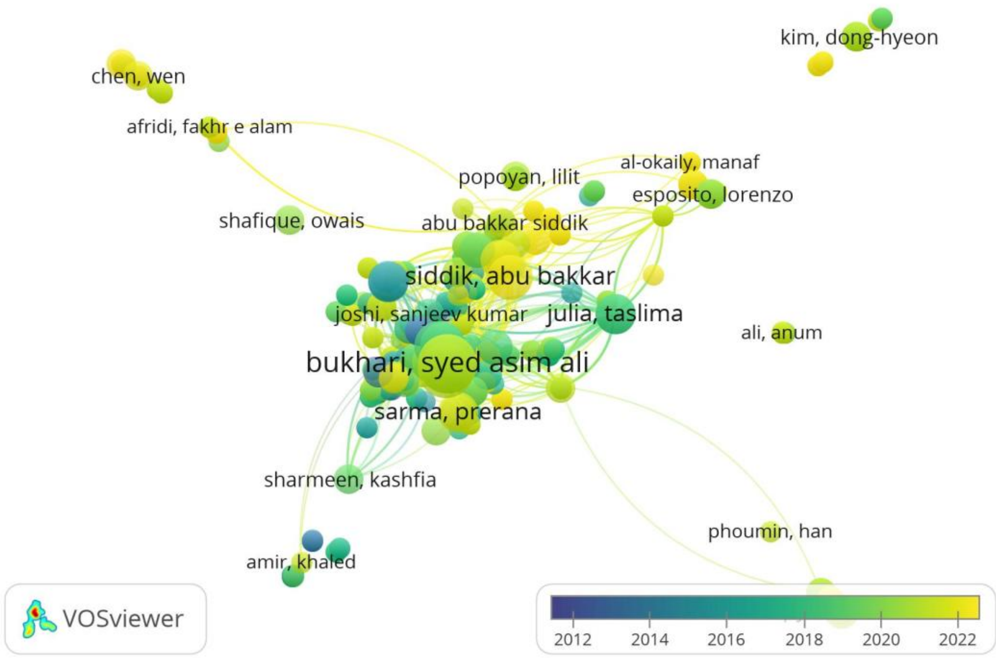

Figure 6 – Author co-citation analysis

Author co-citation analysis (ACA) is one of the most widely used bibliometric techniques for examining the intellectual structure of a research field. The method is based on the frequency with which two authors are cited together in subsequent publications. A higher co-citation frequency indicates that the authors' work is perceived by the scholarly community as conceptually related or influential within a common research stream. Consequently, ACA helps identify the foundational scholars, dominant theoretical perspectives, and knowledge clusters that underpin a particular field of study.

Figure 6 presents the author co-citation network generated from the selected publications. The network comprises 254 authors, with node size representing the frequency of co-citations and the links between nodes indicating the strength of co-citation relationships. Larger nodes and stronger linkages signify authors whose work has exerted considerable influence on the development of green banking and sustainable finance research.

The analysis identifies Olaf Weber (206 co-citations), Sudipta Bose (180 co-citations), AzlanAmran (177 co-citations), and ClaesFornell (168 co-citations) as the most frequently co-cited authors within the network. Their prominence suggests that their contributions have provided important theoretical, methodological, and empirical foundations for subsequent research in areas such as sustainable finance, environmental performance, corporate sustainability, stakeholder responsibility, and green banking practices.

The co-citation network also highlights the international nature of the field, with influential authors originating from diverse geographical regions. This finding indicates that the development of green banking research has been shaped by a globally dispersed scholarly community rather than by a single dominant country or institution.

Further insights emerge from the analysis of betweenness centrality, which measures the extent to which an author serves as a bridge connecting different clusters within the network. Authors with higher centrality scores play a crucial role in integrating diverse research streams and facilitating knowledge diffusion across thematic areas. Among the authors analysed, Olaf Weber exhibits the highest betweenness centrality (4.65), followed by Sudipta Bose (1.50) and AzlanAmran (0.70). Their positions within the network suggest that their work connects multiple strands of research and has contributed significantly to the intellectual cohesion of the field.

Overall, the author's co-citation analysis reveals a well-developed intellectual structure supported by a relatively small group of highly influential scholars. The presence of distinct yet interconnected clusters suggests that green banking research has evolved through the integration of perspectives from finance, sustainability, environmental management, corporate governance, and stakeholder theory, reflecting the multidisciplinary character of the field.

Keyword	Frequency
Corporate social responsibility	125
Bank	59
Banking sector	34
Sustainable banking	21
Corporate sustainability	19
Ethical banking	12
Ethics	11

Table 2 – Most frequent keywords

A keyword analysis was conducted to identify the dominant themes and conceptual focus areas within the selected body of literature. Consistent with established bibliometric practices, keywords were treated as indicators of the primary topics addressed in each publication (Cobo et al., 2011; Choi et al., 2011). Both author-provided keywords and database-generated keywords were included to ensure comprehensive thematic coverage. Before analysis, a data-cleaning and standardisation process was undertaken to improve consistency and reliability. Abbreviations were expanded, synonymous terms were merged, and variations in spelling and formatting were standardised. As a result, the initial set of 712 keywords was refined to 423 unique keywords, which formed the basis for subsequent analysis.

Table 2 presents the most frequently occurring keywords in the dataset. The results indicate that Corporate Social Responsibility (CSR) is the most dominant keyword, appearing 125 times, followed by Bank (59 occurrences) and Banking Sector (34 occurrences). The prominence of CSR suggests that much of the literature examines green banking within the broader context of corporate responsibility, stakeholder expectations, and sustainable business practices. This finding highlights the close relationship between environmental responsibility and the social obligations of financial institutions.

Keywords such as Sustainable Banking (21 occurrences) and Corporate Sustainability (19 occurrences) further indicate that researchers increasingly view green banking as part of a wider sustainability agenda rather than as an isolated banking initiative. These themes reflect growing scholarly interest in the role of banks in promoting sustainable development, supporting environmentally responsible investments, and integrating sustainability considerations into business strategy.

The appearance of Ethical Banking (12 occurrences) and Ethics (11 occurrences) underscores the importance of ethical considerations within the literature. These keywords suggest that discussions of green banking frequently extend beyond environmental concerns to include issues such as transparency, accountability, responsible lending, and stakeholder welfare. This trend reflects the growing expectation that financial institutions should contribute not only to economic development but also to social and environmental well-being.

Overall, the keyword analysis reveals that the literature on green banking is strongly rooted in the broader concepts of corporate social responsibility, sustainability, and ethical business conduct. The findings suggest that research in this area has evolved from a narrow focus on environmentally friendly banking operations towards a more comprehensive examination of the strategic, social, and ethical dimensions of sustainable finance. This evolution highlights the increasingly important role of banks in advancing sustainability objectives and supporting the transition towards a more environmentally responsible economy.

Key findings and conclusion

This study systematically reviewed the literature on green banking and sustainable banking published between 2014 and 2022 using a combination of bibliometric and content-based analyses. By examining publication trends, research categories, influential authors, citation networks, co-citation structures, and keyword patterns, the study provides a comprehensive overview of the intellectual development of the field and identifies emerging directions for future research.

The findings reveal a substantial increase in scholarly interest in green banking during the latter part of the study period. While research output remained relatively modest in the initial years, publication activity accelerated considerably from 2020 onwards, reaching its highest levels in 2021 and 2022. This growth coincides with heightened global attention towards climate change, sustainable development, ESG integration, and responsible finance. The COVID-19 pandemic further reinforced discussions on resilience, sustainability, and the role of financial institutions in supporting environmentally and socially responsible economic recovery (Saeed et al., 2021; Sharma et al., 2022).

The bibliometric analysis further indicates that green banking research is highly multidisciplinary in nature. The majority of publications are concentrated within the fields of commerce, management, tourism, economics, and social sciences, highlighting the broad relevance of sustainability-related banking practices. The prominence of journals such as the Journal of Business Ethics suggests that ethical responsibility, stakeholder accountability, and corporate sustainability remain central themes within the literature. In contrast, mainstream finance journals continue to demonstrate relatively lower engagement with green banking research, indicating opportunities for future work exploring the financial implications of sustainability-oriented banking practices.

The country-wise citation analysis highlights the significant contribution of Asian countries, particularly China, India, Pakistan, and Malaysia, to the development of green banking scholarship. The strong citation linkages among these countries reflect growing regional interest in sustainable finance and environmental responsibility. Similarly, the author and co-citation analyses reveal a globally interconnected intellectual structure supported by a relatively small group of influential scholars whose work has shaped contemporary understanding of sustainable banking, environmental finance, and corporate sustainability.

Keyword analysis demonstrates that corporate social responsibility, sustainability, ethical banking, and corporate sustainability constitute the dominant conceptual foundations of the field. This finding suggests that green banking has evolved beyond environmentally friendly operational practices and is increasingly viewed as a strategic mechanism through which financial institutions can contribute to broader sustainability objectives. The literature reflects growing recognition that banks play a critical role in mobilising capital towards environmentally responsible investments, managing climate-related risks, and supporting sustainable economic development.

Despite the growing body of research, the review indicates that the Indian literature on green banking remains at a relatively early stage of development. Much of the existing research focuses on awareness, adoption, perceptions, and policy initiatives, while comparatively limited attention has been devoted to examining the long-term financial, operational, and risk management implications of green banking practices. Given India's commitment to sustainable development and net-zero transition objectives, further empirical research is required to evaluate the effectiveness of green banking initiatives and their contribution to environmental and economic outcomes.

Overall, the findings suggest that green banking has emerged as an important and rapidly evolving area of research. As sustainability concerns continue to influence regulatory frameworks, investor expectations, and business strategies, the role of banks in facilitating sustainable development is expected to become increasingly significant. Consequently, green banking is likely to remain a prominent area of academic inquiry and policy discussion in the years ahead.Given the rapid expansion of sustainability-related banking research after 2022, there is a need for updated bibliometric investigations that capture recent developments in ESG reporting, climate finance, green bonds, sustainable lending practices, and evolving regulatory frameworks.

Practical and Policy Implications

The findings of this study have important implications for policymakers, banking practitioners, researchers, and financial regulators. First, the review highlights the growing importance of integrating environmental and sustainability considerations into banking operations, lending decisions, and investment strategies. Banks can utilise the insights from existing research to strengthen environmental risk assessment frameworks and develop innovative green financial products.

Second, the study provides policymakers and regulators with an overview of the evolving research landscape, which may assist in designing policies that encourage sustainable financing and support national sustainability objectives. In the Indian context, the findings are particularly relevant given the increasing emphasis on ESG disclosures, sustainable finance frameworks, and climate-related risk management.

Third, the study identifies key thematic areas that have received considerable scholarly attention and highlights underexplored areas requiring further investigation. These insights may assist researchers in developing future studies that contribute to both theory and practice in sustainable banking and finance.

Limitations and Future Research Directions

Like all review studies, this research is subject to certain limitations. First, the analysis is based exclusively on publications indexed in the Dimensions database. Although Dimensions provides extensive coverage of scholarly literature, relevant studies indexed exclusively in other databases such as Scopus, Web of Science, or Google Scholar may not have been captured.

Second, only English-language publications were included in the analysis. Consequently, potentially relevant studies published in other languages were excluded, which may introduce language bias.

Third, the study primarily relies on bibliometric techniques. While bibliometric analysis is effective in identifying publication trends, influential contributors, and intellectual structures, it does not provide an in-depth qualitative assessment of the theoretical and methodological contributions of individual studies.

Fourth, the review is restricted to publications indexed between 2014 and 2022. Although the field of green banking has witnessed significant developments in recent years, particularly in relation to ESG integration, climate-risk management, sustainable finance regulations, and net-zero commitments, studies published after 2022 were not included in the analysis. Consequently, the findings may not fully capture the most recent developments and emerging research trends in the field. Future studies may extend the review period to incorporate newer publications and provide a more updated understanding of the evolving green banking landscape.

Future research may address these limitations by incorporating multiple databases, conducting systematic content analyses of highly cited studies, and undertaking comparative investigations across countries and banking systems. Additional research is also required to examine the financial performance implications of green banking, climate-risk integration in lending decisions, customer adoption of green banking services, and the effectiveness of regulatory initiatives promoting sustainable finance in emerging economies such as India.

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