Sustainable Financing Initiatives and Bank Performance : A Bibliometric Analysis

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Abstract

Purpose : A comprehensive examination of current developments in sustainability and bank performance has been necessitated by the increased attention that governments, regulators, and policymakers are giving to the environment, climate change, and sustainability. The paper aimed to conduct a bibliometric analysis of sustainable financing and banking performance and suggest a future research agenda.

Methodology : The study examined the well-known authors, journals, publications, and nations in sustainability and bank performance based on a bibliometric analysis of scientific papers obtained from the Web of Science and Scopus databases from 1989 to March 2023 using Vosviewer and Biblioshiny software.

Findings : The study concluded that sustainable financing and banking performance is an emerging research area. The review revealed that China was the most productive country in terms of publication. The review further showed that the research interest had expanded in developing countries from developed countries with huge collaboration opportunities. Additionally, green investment, credit, and innovation were more popular in recent research areas. The *Sustainability* Journal was a prominent journal in the area studied.

Practical Implications : The study served as a reference guide for managers, regulators, a concrete framework of recent trends and developments on sustainability and bank governments and academicians in their respective fields, as the research findings provided performance.

Originality : This is the first bibliometric study that, as far as we know, has identified contemporary patterns in bank performance and sustainability. In a similar vein, this study generated significant subjects regarding sustainability and bank performance by employing science mapping to track present trends and developments.

Keywords : **sustainable financing, bank performance, bibliometric analysis**

JEL Classification Codes : G2, G3, M2, M40

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The increasing public and stakeholder awareness of climate change and its threats, the trend toward more innovative technology, the expansion of national and international initiatives for sustainable practices, and the trend toward sustainability — all require financial institutions to prioritize triple-bottom-line performance over profit. According to Scheyvens et al. (2016), sustainable practices help banks not only mitigate the negative effects of climate change but also achieve triple-bottom-line performance, which both directly and indirectly increases financial sector stability and advances sustainable development goals. According to Bhegawati and Utama (2020), banks play a crucial role in the financial system by acting as a channel for capital to enter the economy. As such, the sustainability of the economy as a whole is impacted by the way banks operate. For instance, if banks invest in sustainable sectors like clean energy and sustainable transportation, it will help to achieve sustainable goals; on the contrary, if they invest in polluting firms, it will adversely impact the environment. In a similar vein, banks' long-term performance is more important since bank failures lead to financial crises.

Under these circumstances, banks' sustainable policies are crucial to their performance and call for in-depth study. Although there is enough literature on sustainable finance, sustainable finance, and its impact on bank performance has been a new issue in bibliometric analysis. Some researchers did a systematic literature review on sustainable banking (Galletta et al., 2022); however, they used only one data source, either Scopus (Mohanty et al., 2023) or Web of Science (Secinaro et al., 2021). This work makes use of publications found in the Web of Science and Scopus databases.

This paper helps to identify and map the existing literature on sustainable financing initiatives and bank performance by addressing the following research questions:

- Who are the prominent authors on sustainability and bank performance?
- Which are the prominent journals in this area and which is the most cited paper in the area?
- Which are the most productive countries, and what are their intellectual connection?
- What are the most used keywords and their co-occurrence?
- What is the intellectual connection among the researchers?
- What is the intellectual structure of sustainability and bank performance?

This paper helps regulators, managers, governments, and academicians to identify recent trends. If there is a disparity, they can use the recent patterns as a source for their corrective method. Additionally, the goal of this article is to pinpoint the main idea and how it relates to bank success.

Literature Review

Since sustainability is becoming more and more important, there have been numerous programs implemented all around the world to improve sustainable performance. Global efforts to mitigate the negative effects of climate change caused by human activity and promote sustainable development are exemplified by Bebbington and Unerman (2018), Kyoto Protocol 1997 (United Nations, 1998), Brundt Report, 1987 (Keeble, 1988), the Paris Agreement 2015 (United Nations, 2015a), and the United Nations Sustainable Development Goal 2030 (United Nations, 2015b).

Additionally, the financial institution was compelled to shift toward sustainable financing by government sector initiatives like the European Union's sustainable finance strategy and the Chinese Banking Regulatory Committee's green credit guidelines, as well as by regulatory bodies like the Global Alliance for Banking on

Values (GABV), the European Banking Authority, and the Banks for International Settlements (BIS) that focus on sustainable banking practices to lessen the effects of climate change (Galletta et al., 2022).

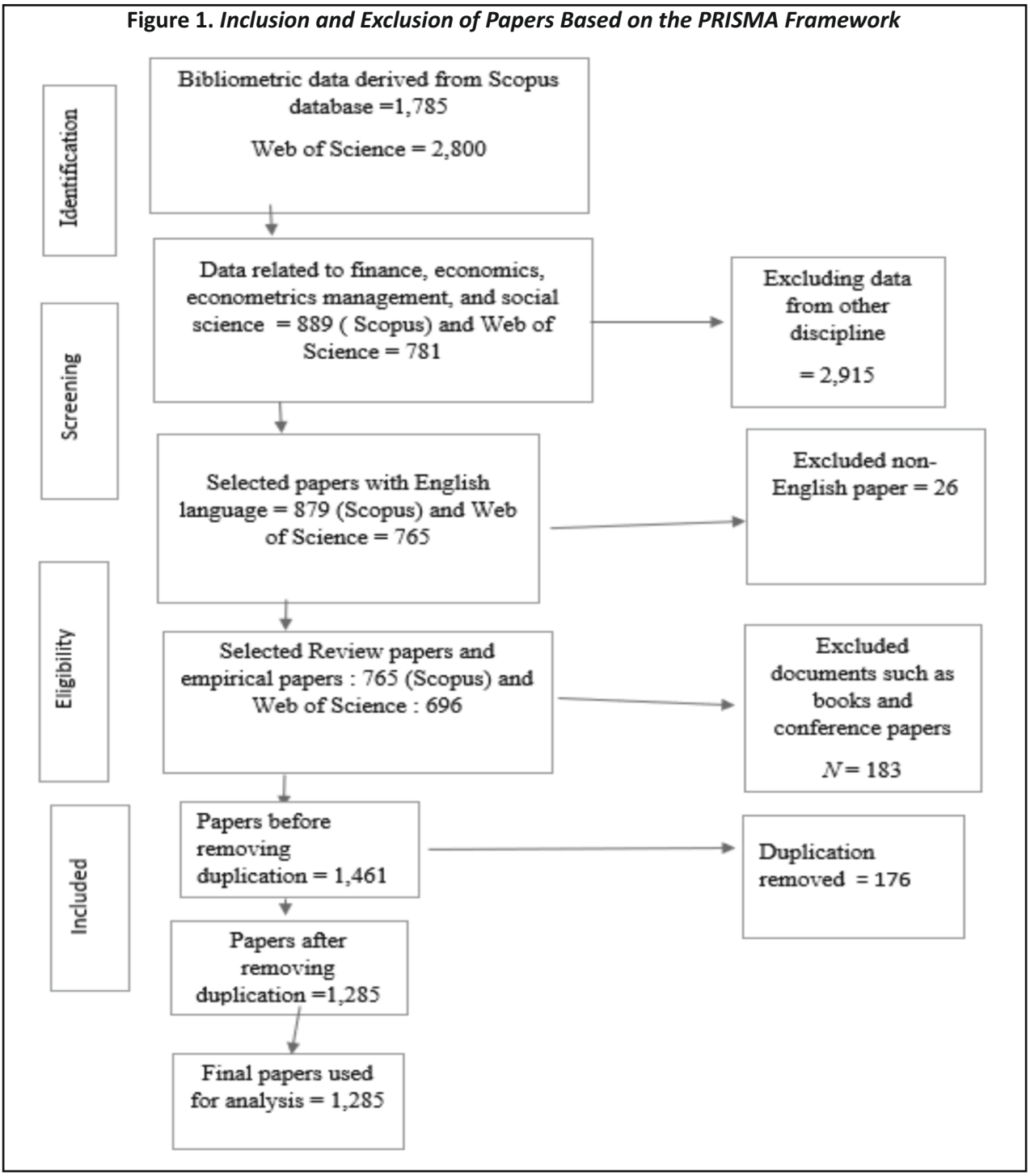
Likewise, empirical research is growing as the importance of sustainability grows. Singh et al. (2023) focused on the importance of social outreach for increasing the sustainability of microfinance institutions. Similarly, Jose et al. (2022) concluded that rules and policies must be updated to improve sustainable performance. Besides, Sharma et al. (2022) concluded that the importance of sustainable practices in banking is increased from the demand side, such as high customer demand to use green technology (Mora et al., 2021). Shetty and Ashalatha (2022) concluded that few companies realized the importance of sustainability reporting and reported among millions of companies in India. Joshi et al. (2018) reported poor reporting conditions in Malaysia too. However, Charumathi and Ramesh (2017) concluded that the increasing practice of sustainability reporting was started after the business reporting law was enforced and positively impacted firm performance in India. Santhi et al. (2024) focused on enforcing the environmental, social, and governance (ESG) framework to improve the performance of companies operating in India. In their research, Tara and Singh (2014) focused on the importance of green banking for protecting the environment. Past literature showed that green banking practices have a positive impact on bank performance in China (Odongo et al., 2023), Bangladesh (Hossain et al., 2023), and G20 countries (Bachtiar & Nainggolan, 2023). The rising concern about sustainable financing is in developed countries, as shown by several bibliometric studies (Galletta et al., 2022; Mehta et al., 2023; Singh et al., 2021); however, synthesized research on sustainable financing and bank performance is not explored.

Based on the abovementioned developments in regulation and growing interest in research, banks and financial institutions need to improve their performance by focusing on sustainability. Banks can do so by considering ESG factors as well as financial factors (Santhi et al., 2024) in their business (Brooks & Oikonomou, 2018). They can create green funds, deposits, and investments focusing on ESG issues, use less paper, and give priority to internet banking, mobile banking, and branchless banking (Zhang et al., 2023); spend less on transportation; and use environment-friendly infrastructure (Brühl, 2021). Some strategies for promoting sustainable banking practices include raising customer awareness of sustainability, utilizing microfinance, supporting empowerment initiatives, providing adequate employee training, abiding by prudential rules and regulations, and appropriately disclosing both financial and non-financial information (Jeucken, 2001).

Research Methodology

A literature review, which methodically synthesizes the body of knowledge on a given topic, provides researchers with valuable insights about what is already known about it (Zahari & Kaliannan, 2023), helps define future research avenues, and builds a theoretical framework (Paul & Criado, 2020). This study uncovered the latest trends and advancements in sustainable finance and financial institutions' performance by utilizing bibliometric analysis, a popular quantitative review technique, to identify trends and developments in a field and determine the future research agenda in that particular field. We used Scopus and Web of Science databases to collect the bibliometric data as they have a wide range of high-quality research papers (Alshater et al., 2023) with wider acceptability (Dinh et al., 2023). After database selection, we used a widely acceptable PRISMA technique (Preferred Reporting Items for Systematic Review and Meta-Analysis), which specifies a steps procedure to follow and report while extracting and recording bibliometric data to select relevant papers (Fauzi, 2023). Finally, we obtained 1,285 papers relevant to our study, which is an acceptable sample for the analysis as per Donthu et al. (2021). The process of bibliometric data collection is provided in Figure 1.

Figure 1. ***Inclusion and Exclusion of Papers Based on the PRISMA Framework***



Data Collection Methods

The study used reliable and valid data with scientific data extraction techniques. The keywords "green finance" OR "sustainable finance" OR "Sustainable financing" OR "sustainability" AND "performance" AND "ban*"

were used to search the bibliometric data at Scopus and Web of Science database on May 20, 2023. We utilized the criteria to narrow down the topics that were pertinent to our field after searching finance, business, management, and economics. In the third step, we picked articles and reviewed papers in English using a filter. The English language was chosen in order to undertake a thorough analysis using software that is friendly to the language, and articles and review papers were chosen because they offer accurate, thorough, and current information. At last, we combined the bibliometric data from Scopus and Web of Science and removed duplicates. The final data was used for the analysis. Details of the process are shown in Figure 1.

Data Analysis Method and Tools

When employing bibliometric analysis, two primary forms of analysis are typically carried out: Science mapping and performance analysis. Performance analysis uses volume analysis and citation analysis to find important papers, authors, sources, countries, etc., on a given topic; whereas, science mapping finds the connections between the themes and structures (Behl et al., 2022). This research used both types of analysis to identify the trends and development in sustainable finance and the performance of financial institutions.

For data analysis, we used Vosviewer, Biblioshiny, and Excel. Drawing tables to identify well-known sources, papers, and writers in terms of citation and H-index can be done with Excel (Lee et al., 2023). Vosviewer is free software used for network, cluster, and citation analysis (Sharma et al., 2024). Likewise, Biblioshiny, which works on the *R*-environment, has many analysis options, such as a word cloud, thematic map, and trending topics, while Vosviewer does not have such options (Dewamuni et al., 2023). As in earlier research, authors gain from analysis by integrating all software (Singhania et al., 2023).

Data Analysis and Results

Descriptive Analysis

Table 1 displays the descriptive findings that include an overview of the key details, document kinds, authors, and author partnerships. The period from 1989 to May 2023 saw the publication of 1,251 documents. It is clear from the results of co-authorship, age, growth rate, and citations per document that research on sustainability and bank performance is expanding, and more research in this field may be conducted in the future.

Table 1. ***Description of Main Information***

Description	Results
Summary of the Main Information	
Time period	1989:2023
Journals	528
Articles	1,285
Growth in production	12.91
The average age of documents (in years)	4.33
Average citations	16.17
References	37,567
Total key words	3,921
Authors' Information	
Total authors	3,316

Documents with a single author	148
Authors' Partnership	
Documents by a single author	157
Co-authors per doc	3.22
International collaboration (percentage)	20.78

Performance Analysis

We evaluate the performance of the top 10 authors, top 10 journals, top 10 documents, and top 10 nations in this study. The outcomes are given below.

Most Relevant Authors According to Publication

The number of papers published measures the authors' performance. The top 10 authors, according to the paper publication, are shown in Table 2.

Table 2 displays the top 10 reputable authors in terms of fractionalized articles and article publishing. Rahman M remains first in this area with a total of 11 publications and articles fractionalized percentage of 2.66. Similarly, the other top nine authors are shown in Table 2. The fact that well-known authors have written few works suggests that the area is young, according to the findings. Nonetheless, it is a developing pattern (Secinaro et al., 2021). The result is quite interesting, as Li Z remained in 10th position in terms of production on sustainability; however, she is a second productive author as her H-index is second highest after Rahman M.

Table 2. ***Top 10 Authors Based on Publication***

Authors	Country (Working)	Google Scholar H-Index	Affiliation	Articles	Articles Fractionalized
Rahman M	Bangladesh	100	Pure Earth	11	2.66
Weber O	Canada	43	York University	11	4.83
Ali S	Saudi Arabia	30	King Abdulaziz University	10	1.83
Hossain M	China	20	Jiangsu University	10	2.87
Islam M	Bangladesh	52	Patuakhali Science and Technology University	10	3.25
Liu Y	USA	62	Johns Hopkins University	10	1.79
Paul S	Australia	48	University of Technology	10	2.18
Zhang Y	China	21 (Scopus)	Ministry of Ecology and Environment	9	3.37
Chowdhury M	Australia	16	University of Technology	8	2.06
Li Z	Poland	75	Opole University of Technology	8	1.43

Relevant Sources

Relevant sources are ranked in the top 10 journals according to the volume of articles. This data makes it easy to choose the target journal to read the articles. The results of the most relevant journals are shown in Table 3.

The results in Table 3 show that *Sustainability* takes the first position, with 186 publications. *Sustainability* (Switzerland) is ranked second with 59 publications. Furthermore, *Frontiers in Psychology* is ranked as the tenth most popular journal with nine publications. The results show that leading journals are highly specialized in environmental sustainability, corporate governance, and business management. The results also depict that the

Table 3. *Most Relevant Sources*

Sources	Number of Papers	Scopus-Coverage	H-Index
Sustainability	186	2009-present	110
Sustainability (Switzerland)	59	2009-present	136
Journal of Cleaner Production	49	1993-present	268
Environmental Science and Pollution Research	37	1994-present	154
Business Strategy and the Environment	34	1912-present	131
Corporate Social Responsibility and Environmental Management	27	2003-present	96
Journal of Business Ethics	13	1982-present	229
Environment Development and Sustainability	12	1999-present	72
Finance Research Letters	11	2004-present	81
Frontiers in Psychology	9	2010-present	157

concept of sustainability is covered by other areas along with finance, showing research interest in popularity in other fields. A similar result was reached in a study conducted by Mohanty et al. (2023). Remarkably, the initial two journals are very new compared to other publications, but they actively engage in publishing, suggesting a growing interest in sustainability research.

Relevant Documents

Table 4 lists the most cited documents along with their average and total citations. In order to make the most popular documents useful for future research, it is helpful to identify them.

Table 4 shows that the paper of Hug et al. (2014) is the most prominent document, with 304 total citations and total citations per year of 30.4. Hug et al. (2014) focused on solar energy and green innovation, Taghizadeh-Hesary and Yoshino (2020) focused on strong government regulation and supervision of all financial institutions, and Hartarska and Nadolnyak (2007) stated on decentralizing activities to enhance the sustainable performance of financial institutions. Furthermore, Cucari et al. (2018) identified corporate social responsibility and corporate

Table 4. *Most Relevant Documents*

Paper	Total Citations (TC)	TC Per Year	Normalized TC
Hug et al. (2014). *Applied Energy*	304	30.4	8.24
Hartarska & Nadolnyak (2007). *Applied Economics*	254	14.94	3.5
Anisul Huq et al. (2014). *International Journal of Operations & Production Management*	200	20	5.42
Wang et al. (2018). *ACS Sustainable Chemistry & Engineering*	200	33.33	6.68
Cucari et al. (2018). *Corporate Social Responsibility and Environmental Management*	199	33.17	6.65
Moktadir et al. (2018). *Journal of Cleaner Production*	190	31.67	6.35
Blackman (2013). *Forest Policy and Economics*	184	14.15	6.54
Scholtens (2006). *Journal of Business Ethics*	178	9.89	2.26
Flammer (2021). *Journal of Finance Economics*	178	59.33	13.27
Casey & Grenier (2015). *Auditing: A Journal of Practice & Theory*	177	19.67	5.03

governance, Flammer (2021) shed light on green bonds, and Scholtens (2006) explored corporate social policy for achieving the sustainable performance of financial institutions. The authors provided evidence that green innovation, ethical behavior, strong governance, and sensible laws are necessary for banks to operate sustainably.

Country-Wise Production

The output split by country indicates which country has produced more studies on bank performance and sustainable finance. In the graphic, the area by country displays no output; whereas, the heavy grey color indicates massive production. The production strength of the countries is shown in Figure 2.

Figure 2 shows that research on sustainable finance and financial institution performance was mostly conducted in China (461 publications), followed by Italy (139 publications). Other countries were the UK (118 publications), USA (121 publications), Spain (115 publications), Australia (100 publications), Pakistan (91 publications), India (81 publications), Bangladesh (78 publications), and Malaysia (79 publications). The findings indicate that developed nations, followed by South Asian nations, have made greater efforts to be sustainable. In African nations, employment is still in short supply.

Furthermore, Figure 3 shows that the publication trend was negligible before 2015. The USA was the leading country according to the number of publications before 2015. The reason may be that the USA had an early awareness of climate-related issues, strong government support, an innovative culture, and an educated and aware public. The global agreement and concern about sustainability, such as the Paris Climate Change Agreement and the United Nations's commitment to sustainable development by adopting sustainable development objectives for 2030 in 2015, maybe the causes of the increase in publication since 2015. After 2016, China became the leading country in production (with 4,035 citations and 17.7 average article citations (AAC)). Other four countries named Italy (with 1,198 citations, 17.9 AAC), Spain (with 697 citations, 12.4 AAC), the United Kingdom (with 1,352 citations, 22.20 AAC), and the USA (with 1,747 citations, 17.4 AAC) were also competing on publishing on sustainability. The green credit strategy, which was put into place in 2007 and focused on investments and financing that are environmentally friendly, as well as infrastructure and energy regeneration, may be the reason for the rise in publications in China (Oyegunle & Weber, 2015). Similarly, strict rules and regulations in European countries from the governments, European Union, and European Banking Supervisory Authority showed the paths for investment in sustainable growth (Galletta et al., 2022), resulting in increasing research in Europe.

Figure 2. *Country-Wise Production*

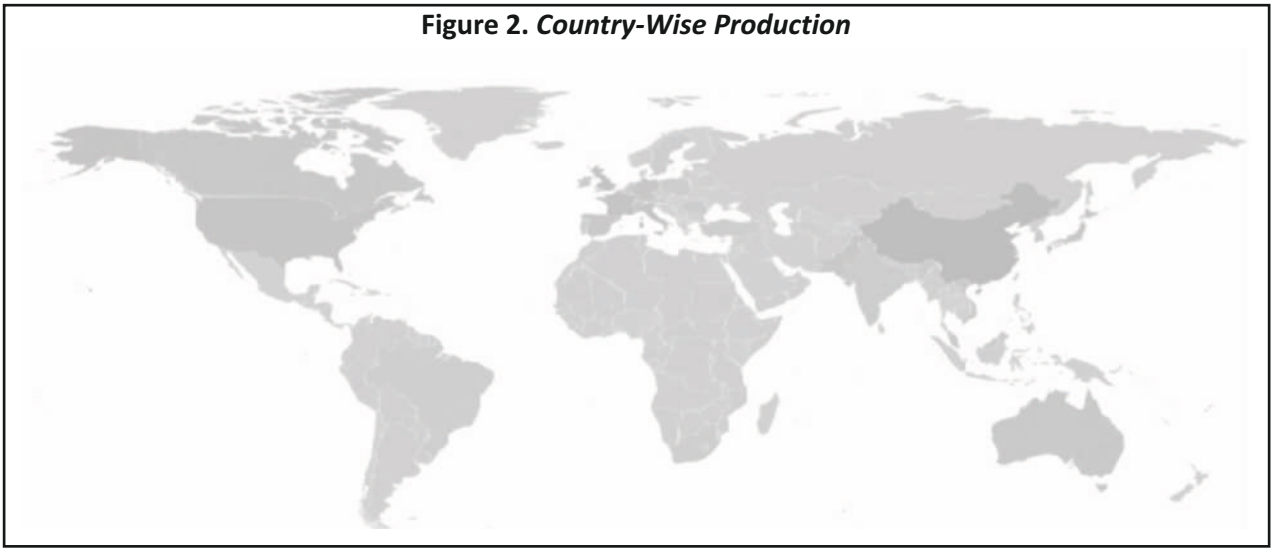
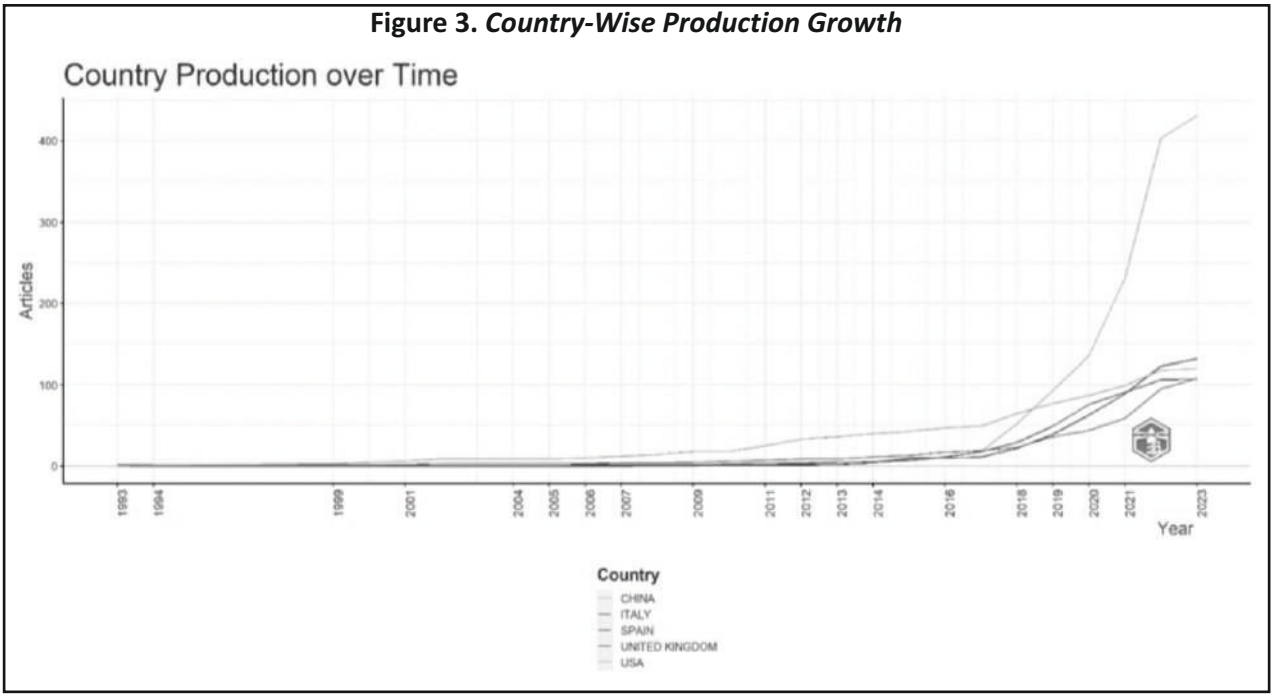


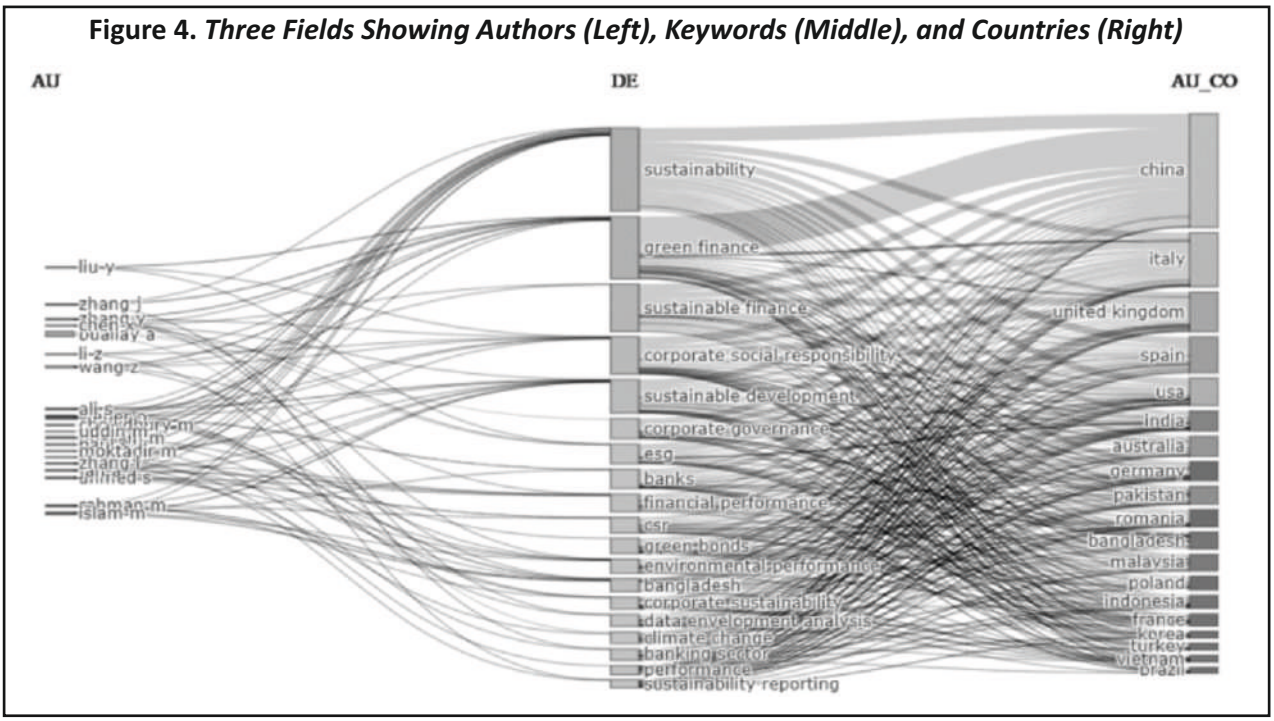
Figure 3. ***Country-Wise Production Growth***



Three Field Plot

Three field plots based on the Shankey diagram with top authors, keywords, and countries are shown in Figure 4. The height of the rectangles shows the number of occurrences of that term (Koo, 2021).

Figure 4. ***Three Fields Showing Authors (Left), Keywords (Middle), and Countries (Right)***



The association between the top 20 keywords used in the study, the top 20 countries engaging in sustainable finance and bank performance, and the notable 20 contributing authors are displayed in three field plots. The authors' names are shown on the left-hand side, keywords are in the middle, and the names of the countries are on the right. The results show that the frequently used keywords are green finance, sustainability, sustainable finance, and climate change. Additionally, the research is mainly happening in China, the United Kingdom, Germany, and the USA. Many authors are working on green finance, which is primarily popular in China. However, research was declining in other countries. The keyword: "sustainable development goals" is now moving upward in countries such as the USA, Canada, France, Germany, the United Kingdom, and China. In Figure 4, the size of the rectangles shows the popularity of a given country, keywords, and authors. It can be further inferred from the figure that developed and developing countries are mainly active in sustainable banking and financing research. The reasons are well-formulated policies, established institutions, sufficient budgets, and technology to achieve sustainability. Still, the least developed countries and authors from these countries are not producing and contributing to sustainability. The reason may be a lack of focus of the government, less innovative capacity, and poor infrastructure and budget (Regmi, 2022).

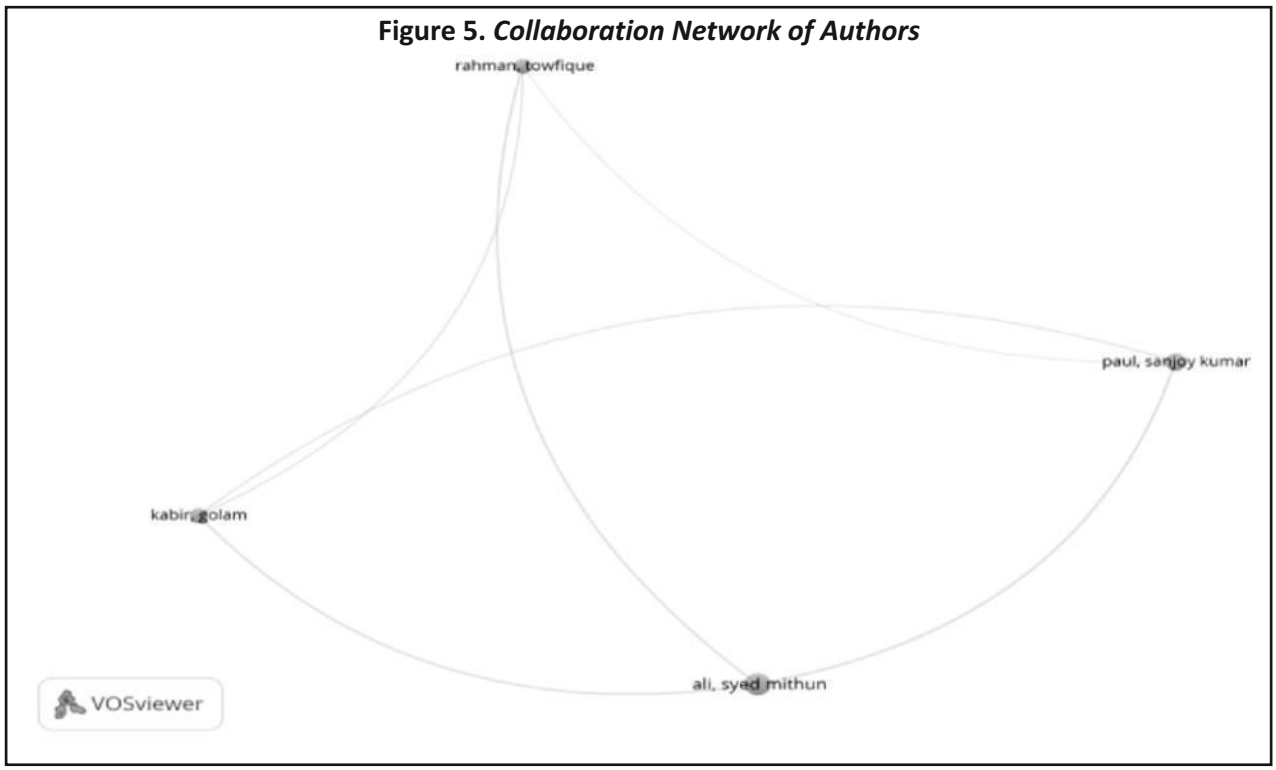
Science Mapping

The co-word analysis, trending topics, thematic map, author, country, and institution collaboration network are all displayed in this part. The findings are depicted in the following paragraphs.

Collaboration among Authors

Figure 5 presents the co-authorship network of authors having at least three documents. We found a total of 23

Figure 5. ***Collaboration Network of Authors***

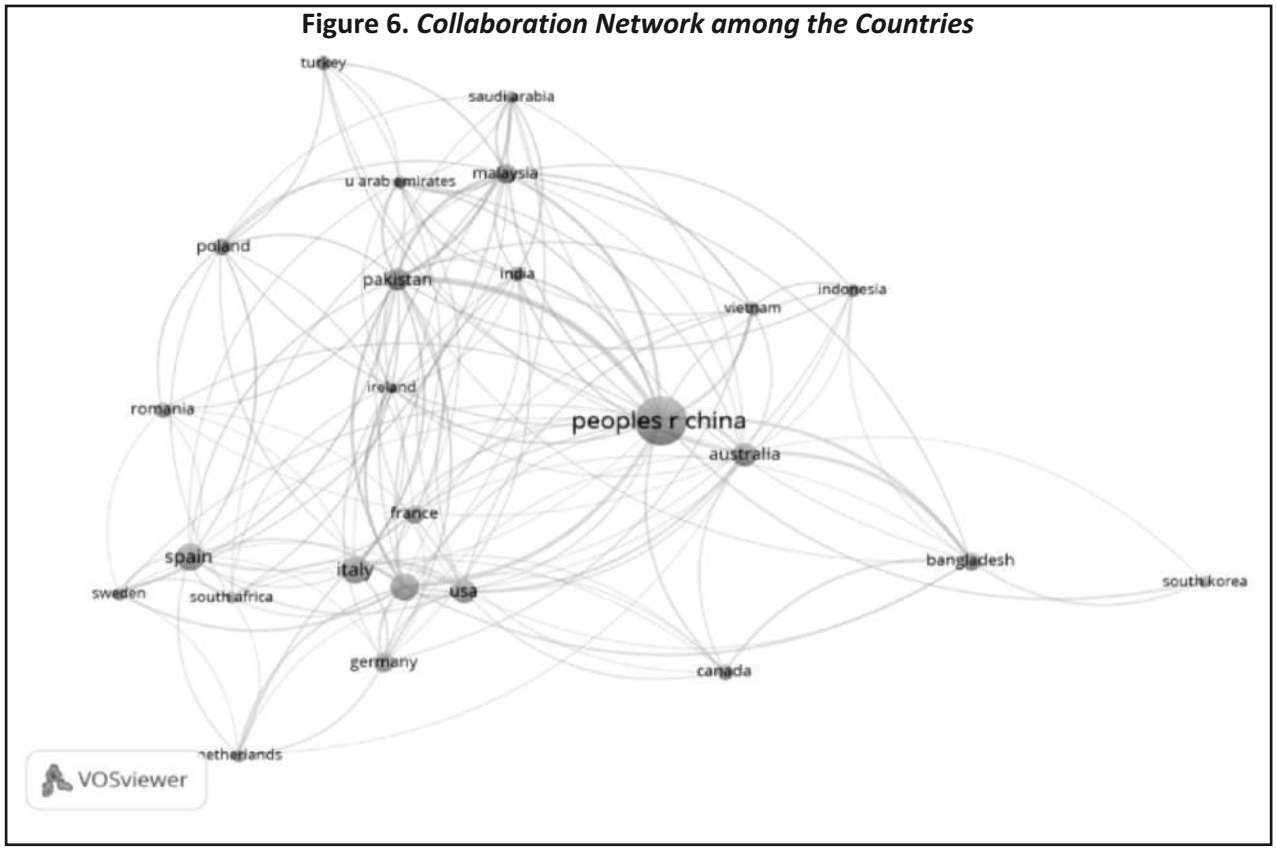


authors having at least three documents. Among them, only five authors have a collaboration network. Among these four authors, there is one cluster. Authors Ali Syed Mithun has eight documents with 496 citations; Paul Sanjay Kumar has five documents with 333 citations; Aracil Elisa has five documents with 177 citations; and Weber Olaf has eight with 417 citations. The authors' collaboration shows that sustainable banking finance is an emerging area. The less collaboration among the authors means the area is fertile for new researchers (Naeem et al., 2023).

Collaboration among Countries

Collaboration between countries with at least 10 documents with at least 120 citations is found between 25 out of 89 collaborating countries. The results (Figure 6) show that there are four groupings of countries. Out of all of them, China exhibits the highest level of cooperation. China usually collaborates with South Korea, Bangladesh, Australia, and Canada. Similarly, England collaborates with countries such as Germany, South Africa, Sweden, New Zealand, Italy, Spain, Sweden, and the USA. Finally, there is a third cluster in which the countries: India, Ireland, Malaysia, Saudi Arabia, Pakistan, Poland, Turkey, and the United Arab Emirates lie. In the fourth cluster, the countries Vietnam and Indonesia lie. Figure 5 shows that research collaboration is moving from developed to developing countries. Still, there is less research in most African and Asian countries. The majority of developed and emerging economies collaborate more, according to additional results (Mohanty et al., 2023).

Figure 6. ***Collaboration Network among the Countries***



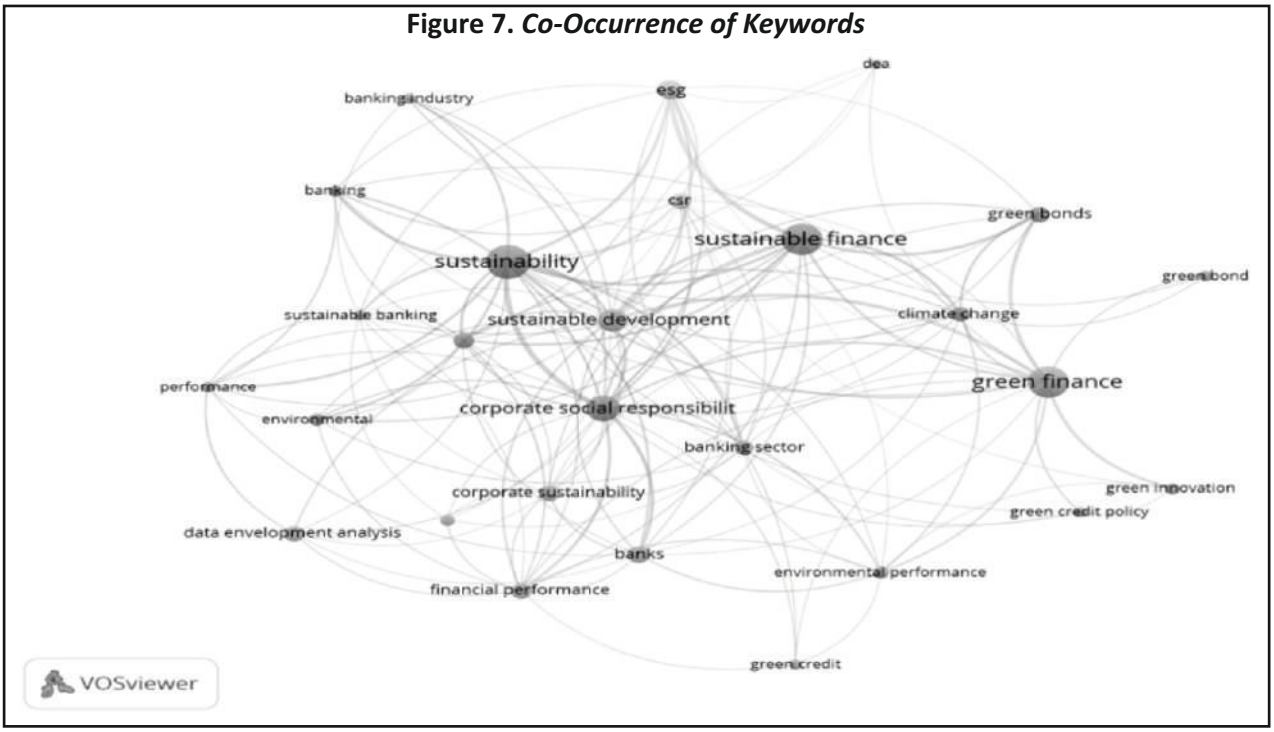
Co-Occurrence of Keywords

The co-occurrence of keywords indicates the pair of terms that occur together. The keywords on a cluster show a similar theme (Ellegaard & Wallin, 2015). This analysis is useful to identify intellectual development in the area. The size of the circle represents the number of papers in which the keyword co-occurred, the thickness of the line represents the strength of relationships of the keywords' co-occurrence, and the distance between the keywords shows the frequency of the co-occurrence of the keywords and their relationships (Koo, 2021). Figure 7 shows the co-occurrence of keywords. We chose a criterion of at least 10 times the keyword incidence for our study. A total of 30 of the 3,921 keywords match this analytic criteria. These terms can be divided into five groups.

The first cluster shows the relationship between corporate social responsibility, sustainability reporting, and sustainable practices on the performance of the banks. With seven words, this cluster focuses on creating sustainable value and focusing on society and transparency. This cluster is named sustainability and performance. Similarly, the second cluster focuses on the tools for achieving sustainable performance. This cluster has words such as green credit, green finance, and green innovation. This cluster is named as sustainable performance mechanism.

Likewise, the third cluster further stresses the importance of CSR on the sustainability of the banking industry. The fourth cluster focuses on recent developments in sustainable practices such as ESG, green practices, and climate finance and is named ESG and environmental sustainability. Finally, the fifth cluster shows that good governance is essential for the sustainable performance of the bank. The network analysis indicates that the terms "green finance," "climate change," and "sustainable finance" are most frequently used in the research. The results show that the items of each cluster are further connected with the items in other clusters. Overall, items of each cluster are further linked with other clusters, which evidences that the banking industry's performance depends upon sustainable financing, CSR activities, green innovation, and ESG practices (Xu et al., 2021).

Figure 7. *Co-Occurrence of Keywords*



Institution-Wise Collaboration

Institution-wise collaboration extends the scope and leverages resources, capabilities, and expertise to make the study more rigorous, intended to foster innovation in academia and broaden the network of academicians. The diagram presented in Figure 8 shows the academic collaboration among institutions around the globe.

Our results indicate that out of 598 organizations contributing to sustainable finance, only 29 institutions produced at least five documents. Among them, 11 universities have strong collaboration. Four clusters comprise these establishments. In Cluster One are the universities of Dhaka: RMIT University, Bangladesh University of Engineering and Technology, and Technology Sydney University. Similarly, the Central University of Finance and Economics, the University of Coll Dublin, and the University of Oxford fall into the second cluster. Jiangsu University and Nanjing University of Aeronautics and Astronautics fall in the third cluster. Moreover, the Central University of Economics and Business and the University of Electrical Science and Technology fall in the fourth cluster.

The majority of universities are from industrialized countries, with the exception of a few in emerging nations, according to the overall statistics. The fact that there are comparatively few connections between universities indicates the possibility for collaboration and research across academic institutions (Secinaro et al., 2021).

Trending Topic

This analysis helps to identify the trend of research and identify emerging topics in the researcher's research area. The results of the trending topic of sustainable finance and the performance of banks are shown in Figure 9.

The findings indicate that between 2011 and 2015, risk management and governance were the main areas of study due to the effects of the 2008 financial crisis, which was brought on by inadequate governance. Environmental performance, financial performance, and corporate responsibility were popular topics because of international agreements among the countries, such as the Paris Agreement and the United Nations Sustainable Development Goal 2030, to reduce the impact of climate change by reducing carbon emissions, taking care of ESG aspects, and improving financial performance. Figure 9 shows that green finance and sustainability, sustainable development, innovation, and green development were popular topics from 2021 (Naeem et al., 2023) due to the worldwide development of rules, regulations, and practices to implement sustainability, such as design

Figure 8. ***Institution-Wise Collaboration***

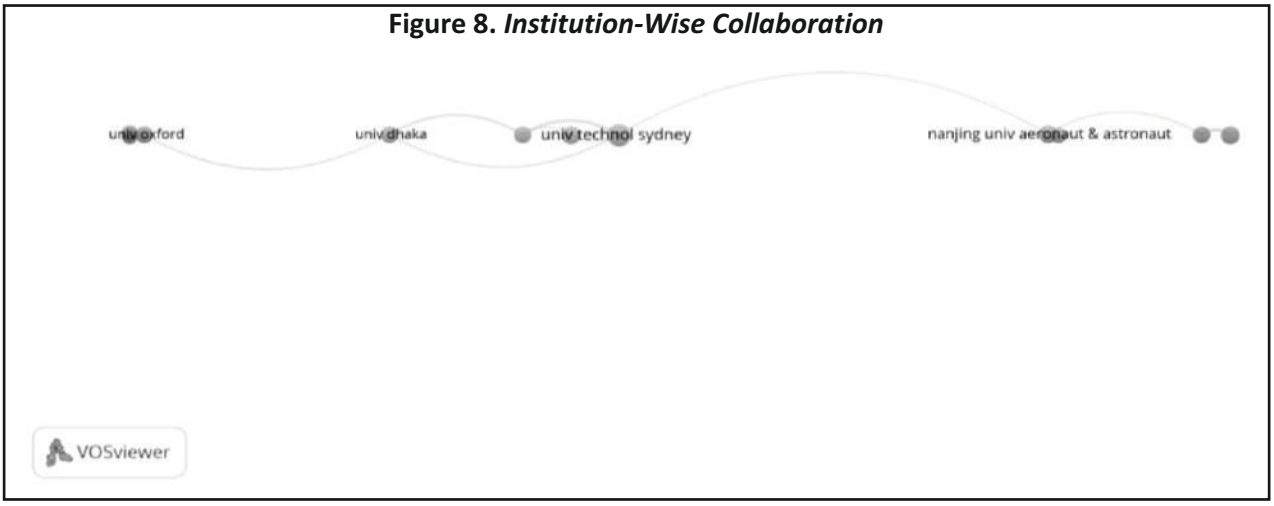
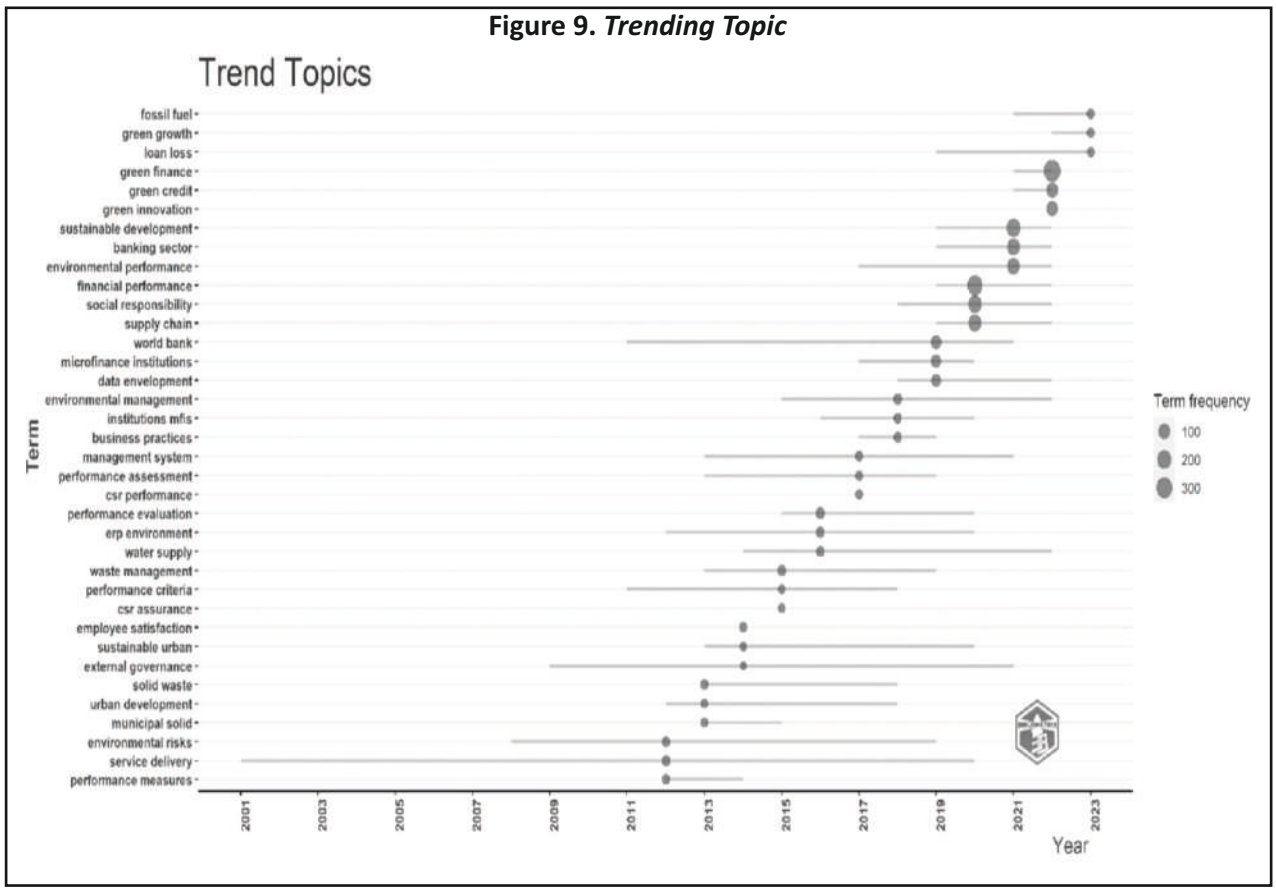


Figure 9. ***Trending Topic***



and utilization of European Taxonomy, historic improvement in the issue of green bonds in international markets, and worldwide agreement and commitment among the countries for green innovation, energy efficiency, and renewable energy production.

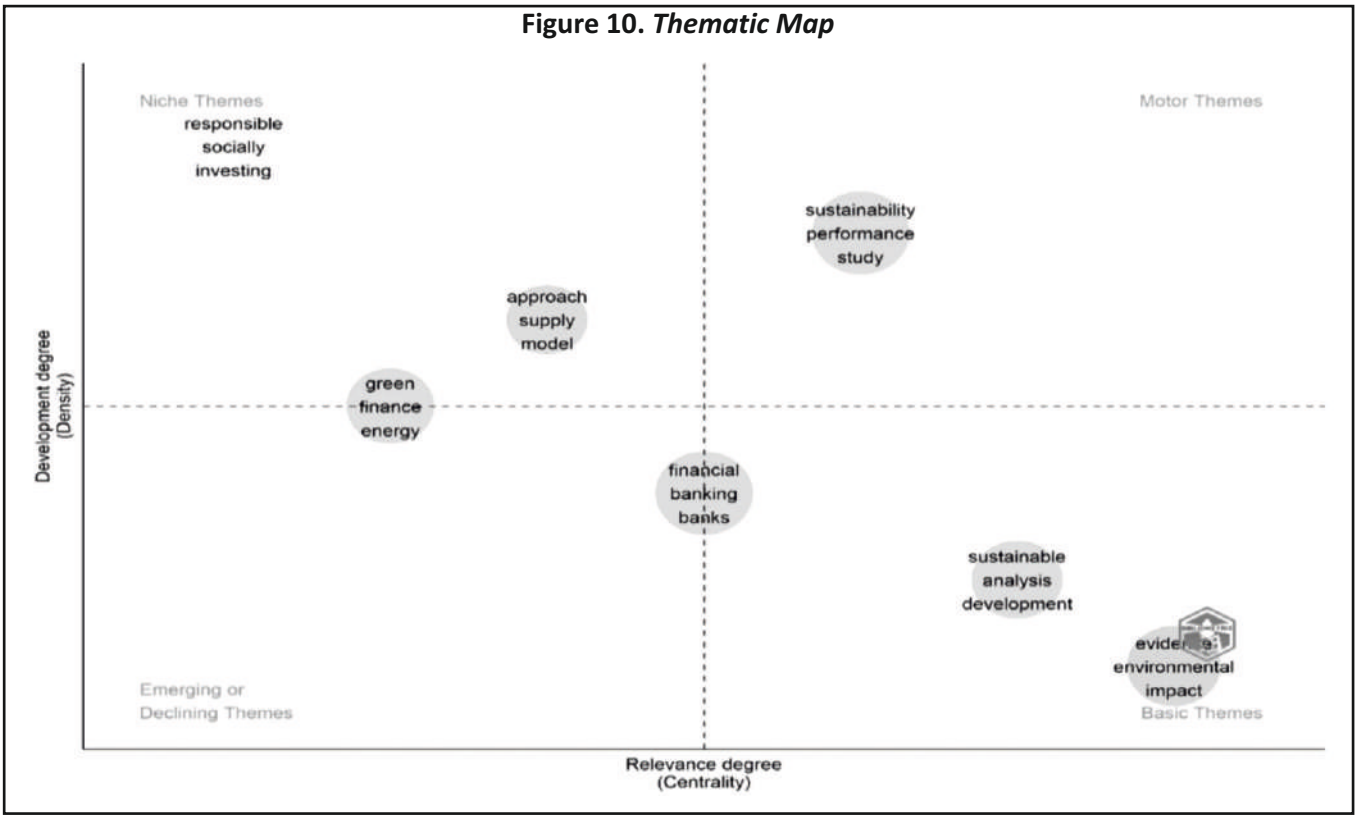
Thematic Map

A thematic map is used to identify the theme. As shown in Figure 10, the theme can be categorized into four quadrants in terms of the relevance of the theme and development degree. The theme is categorized into niche, emerging, basic, and motor themes. The fundamental subjects that exhibit great relevance and little development offer a wealth of opportunities for further study. The circle's size also indicates how many tasks have been completed in that region. The diagram indicates that sustainable development, environmental effects, and sustainable analysis are major areas of focus for scholars because of their significance and ongoing need for research.

Basic Theme Generated

We have explored three basic themes based on the network diagram, thematic map, and word cloud analysis. They are explained below in brief.

Figure 10. ***Thematic Map***



Corporate Social Responsibility (CSR) and Performance of the Bank

According to signaling theory, the current activities signal future returns (Bae et al., 2018). As banks are involved in CSR, it will enhance their intimacy with society, allowing them to identify social needs. Ramzan et al. (2021) argued that financial institutions can increase their social image and brand value through social responsibility practices. Recent research shows that CSR is the investment that will improve the firm's overall value. Belasri et al. (2020) argued that CSR activities help to improve efficiency. Siueia et al. (2019) argued that CSR gives long-term sustainability to financial institutions. Overall, CSR has a positive impact on the performance of banks.

Role of Green Investment on the Performance of the Bank

The performance of financial institutions is not only based on financial soundness but also depends on how they follow green investment in their operations. The study shows that green investment positively impacts financial institutions' performance in the long run. Green investment creates a positive image that motivates stakeholders to invest in those institutions (Lins et al., 2017). Besides, green investment provides a long-term rate of return in the future and reduces risk (Chen et al., 2022). Studies also support that organizations practicing green investment strategies are less impacted in crises (Makkar et al., 2023). Our results show that green investment and good governance (Santhi et al., 2024) enhance sustainable performance that leads to increased stakeholders' welfare.

Linkage of Banking Performance on Sustainable Development

Financial institutions' sustainable performance and development have a direct linkage (Kumar et al., 2020).

Sustainability depends on how well financial institutions channel the funds in an economy, as financial institutions are directly linked to all other sectors. If financial institutions channel funds focusing on ESG factors, they will divert funds to sustainable projects, helping to achieve sustainable development. Chiaramonte et al. (2022) explored that sustainable investment is the injection into financial institutions during a crisis period, which protects not only banks but also the economy. Furthermore, ESG activities help to reduce waste, minimize environmental hazards, foster inclusion, and improve efficiency, increase public trust, enhance employee loyalty and spirituality, promote ethical activities in an organization (Khan et al., 2022), ultimately improving the competitiveness of financial institutions according to stakeholders and resource-based theory (Zhang et al., 2023).

Implications

Theoretical Implications

The study finds that financial institutions need to follow sustainable practices to improve performance. In this regard, first, financial institutions can change their objectives of shareholders' value maximization to stakeholders' long-term wealth maximization, considering ESG factors. Second, financial institutions should divert their investments and lend to sustainable sectors such as green energy and environment-friendly infrastructure by creating green securities such as green bonds, green funds, and green stocks to be sustainable for the long term.

Practical Implications

The study has several practical implications. First, executives and financial managers of an organization can also focus their activities on ESG performance, green investment, and green innovation, as the organization's objective is changing from wealth maximization of shareholders to long-term sustainable wealth creation by considering sustainability issues. Second, the regulators and government can use this information for their policymaking by considering world trends regarding sustainability and sustainable finance. Third, collaboration between industry and university is essential for new knowledge generation and utilization, as less collaboration was shown. Fourth, although the agenda of sustainable financing for reducing carbon emissions and minimizing climate change impact is the agenda of the globe, only most developed and some developing countries are working on it. Thus, the least developed and least developing nations must investigate and concentrate on sustainable methods.

Conclusion

The basic thrust of the paper is to provide a detailed bibliometric analysis regarding the different issues related to sustainable financing practices and bank performance. We analyzed the author, document, source, country, and institution-wise scientific production found on the Web of Science and Scopus databases from 1989 to May 2023. The results show that the concept of sustainability has increased tremendously since 2015, although the publication started in 1989. Besides, the most prominent authors in this field started their publications after 2010. The concepts studied evolved from waste management and environmental regulation to corporate social responsibility, sustainable development, ESG performance, green innovation, green credit, and green investment. Furthermore, initially, the concept was popular in developed countries; however, it is now widespread in developing and emerging economies. Likewise, less collaboration among the authors showed future research potential and collaboration among the researchers to expand their research careers and publish in top-tier journals.

Although the research is limited to bibliometric data collected from Scopus and Web of Science databases, the research provides wider aspects of analysis for the first time, covering a large set of research papers. Future research can use data from more databases covering banks and other financial institutions. Furthermore, a systematic literature review, meta-analysis, and empirical analysis on the sustainable performance of banks and other financial institutions are suggested for future research.

Authors' Contribution

Prof. Amit Kumar Singh originated the concept and established a qualitative and quantitative framework to conduct the study. Mr. Ramkrishna Chapagain conducted a systematic review of reputable research papers, applying keyword filters to identify relevant concepts and codes for the study design. Dr. Rohit Kumar Shrivastav validated the analytical techniques with the guidance of Prof. Amit Kumar Singh. Mr. Ramkrishna Chapagain applied the research tools in consultation with Dr. Rohit Kumar Shrivastav. Dr. Rohit Kumar Shrivastav supervised the analysis and discussion, and Mr. Ramkrishna Chapagain wrote the conclusion based on the analysis and discussion. Prof. Amit Kumar Singh supervised the study.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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