EXPLORING THE CONCEPTUAL FLOW AND UNVEILING THE FUTURE THEMATIC LANDSCAPE IN GREEN BANKING LITERATURE: A BIBLIOMETRIC ANALYSIS

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Abstract

Purpose: This study aims to present the bibliometric analysis on the Green Banking to determine the potential trends and mapping future research agenda.

Design/Methodology/approach: Bibliometric analysis has been employed to conduct the Systematic Literature Review (SLR). The SCOPUS database is used to gather data and for formulation of research question, PICo methodology has been applied with Seven-Step-Methodology (SSM) to implement the framework the bibliometric analysis.

Findings: This study reviews a total of 89 documents to determine how green banking has been evolved between 2012 and 2022. For conducting systematic review with accuracy, VOSViewer software has been used and results are reveled through both performance analysis and science mapping. Further, Network mapping results identify different themes and drops light on the explored and unexplored themes of Green Banking.

Originality/value: Following the arguments presented in the prior literature, this research involved contributions that gives future research agenda for further and potential research direction.

Keywords: Green Banking, Systematic Literature Review, Bibliometric Analysis, Thematic Analysis, VOSViewer

Paper Type: Literature Review

1. INTRODUCTION

The human actions have an adverse effect on the surrounding ecosystem. Several researchers investigated the damages done to the natural resources through industrialization and urbanization (Bukhari et al., 2020). There are now various criteria for judging countries, companies, and organisations as a result of the increased interest in the environment. (Sarma and Roy, 2020). However, the major agent for this is the banking sector that influence the businesses by providing investments (Nath et al., 2014). Over the years, banking business has realized its accountability and responsibility towards avoiding the continuous degradation of resources (Bukhari et al., 2020; Gulnur Muradoglu, 2010; Käufer, 2011) and trying to work for the protection of the environment to attain sustainability. Since sustainable corporate behavior is becoming an increasingly prominent aspect of business, banks are also becoming more responsive in adopting sustainable banking practices (Kumar and Prakash, 2020; Rahman et al., 2013; Weber 2012). In banking sector, financial institutions were drawn into sphere of influence due to the perilous need for environmental sustainability. A new idea known as "Green Finance" was born in response to these uncertainties. The concept of "Green Finance" is broad in terms and green banking is considered as its core element (Sarma and Roy, 2020). On the contrary, green finance mainly concentrates on the financing and proposing the projects whereas green banking aims to protect the environment before financing a project (Ahmad et al., 2013; Khairunnessa et al., 2021). Green banking merely not only concentrate on paperless transactions and where bank put its money. In green banking, the "Green" component denotes the bank's environmental performance and commitment to environmental responsibility (Rahaman et al., 2015; Rifat et al., 2016). Therefore, 'Green Banking' refers to banking

practices that promote sustainable operations and environmentally responsible finance practices (Babiak and Trendafilova, 2011; Rifat et al., 2016).

Previous studies have emphasized on certain aspects of green banking. Some researchers concentrated on the incorporation and implementation of green banking (Bukhari et al., 2020; Rifat et al., 2016), while others have investigated the concept's acceptance among diverse stakeholders like customers and bankers (Ellahi et al., 2021; Bouteraa et al., 2021; Nath et al., 2014; Sharma and Choubey, 2022). The literature on green banking is quite unstructured and lacks a comprehensive representation of the phenomenon. It is necessary to present the existing research on green banking in a unified way to extend future research in this domain. Although, few researchers have attempted to present the mapping of research concerning green banking in a unified manner, yet a systematic representation of the literature is still lying in the black box. For example, Nath et al (2014) summarize the green rating obligations imposed by the World Bank's social and environmental standards, the RBI, measures undertaken by both public and private sector banks in India to implement green banking practices, and major initiatives for green banking adoption. Another study, conducted by Khairunnessa et al (2021) examine the formation of green banking in Bangladesh, with a particular emphasis on authorities and the role of financial reforms in developing green financial system. The findings of the study discovered that a major role is played by central bank of Bangladesh in implementing green policies and regulations. However, there have been no prior literatures emphasized on the sort of research that is presently being undertaken in the subject of green banking. The researchers noted few bibliometric studies in the topic of green banking so far. However, Saram and Roy (2020) have reviewed literature systematically by conducting bibliometric analysis in which they have identified the various aspects of green banking, including the conceptual, model, legal, stakeholder, green performance, and financial aspects. The findings of this study give a general perspective of the results which was not unified. Therefore, in the area of green banking, it is essential to – (a) explore research trends based on average citations and number of publications; (b) identify the frequently themes; and (c) suggest the future research agenda in order to pave the way for further theoretical development in this area.

To address these issues, this study attempts to visualize and demonstrate the literature (Zainuldin and Lui, 2021) on green banking to scrutinize the frequently occurring themes and propose an agenda for future research. Our bibliometric analysis is based on the 89 published research articles ranging from 2012 to April 2022, which were retrieved from SCOPUS database. The study is a timely presentation of the state-of-the-art of the intellectual structure concerning 'green banking' that has achieved significant scholarly interests and is now moving towards becoming an evolving field. The study has provided a picture of major contexts, authors, key themes, and most researched and less-researched themes concerning green banking, to the best of the researchers' knowledge. Hence, our study contributes to this advancement by presenting major contributions in green banking in terms of significant nations/countries, major keywords, significant themes, and the research areas. In addition, the authors also pave the outline for setting the future research agenda for the field of green banking. The results of this study present several theoretical and managerial implications. Firstly, the findings would benefit the future researchers in detecting the trends and unexplored themes that leads to further studies. Secondly, it would help in practical interest. The managers would utilize this study for advancing the operations and managing business process. Meanwhile, it would allow the policymakers to identify the problems and provide the guidelines for proper implementation of green banking. Finally, understanding broad scope of

green banking, it would benefit the publishers and editors to encourage green banking in their respective journals.

The remaining paper is organized as follows. The research approach utilized to carry out this study is covered in Section 2. The findings and their interpretation are examined in Section 3. Further, Section 4 comprehends future agenda in light with the key findings of the research. Section 5, highlights the study's limitations. Finally, Section 6 summarizes and concludes the study whilst presenting the implications.

2. METHODOLOGY
2.1. Research Protocol

It is possible to think of a systematic literature review (SLR) as a procedure for critically collecting, evaluating, and interpreting relevant studies (Davis et al., 2014; Liberati et al., 2009). It involves a well-defined search technique, a well-identified research question, data extraction, and data presentation (Ahmad et al., 2020; Briner and Denyer, 2012; Kitchenham et al., 2009). Earlier in banking sector the review was conducted through Traditional Literature Survey (TLS) (Ahmad et al., 2020; Jia, 2016; Kumar and Gulati, 2014; Paradi and Zhu, 2013). Researchers has identified SLR method more effective than the TLS method as it is more reliable and chances of frauds and errors are minimal (Denyer and Tranfield, 2009; Mangala and Soni, 2022). Therefore, in banking sector as well SLR method is used by researcher to identify the gaps and for increasing the quality of research (Alkhowaiter, 2020; Jafar, 2021; Singh and Jayaram, 2021). Accordingly, this research is also conducted through SLR method and applied a seven-step SLR methodology (see Figure 1) (Sharma et al., 2020) to reach out on a conclusion.
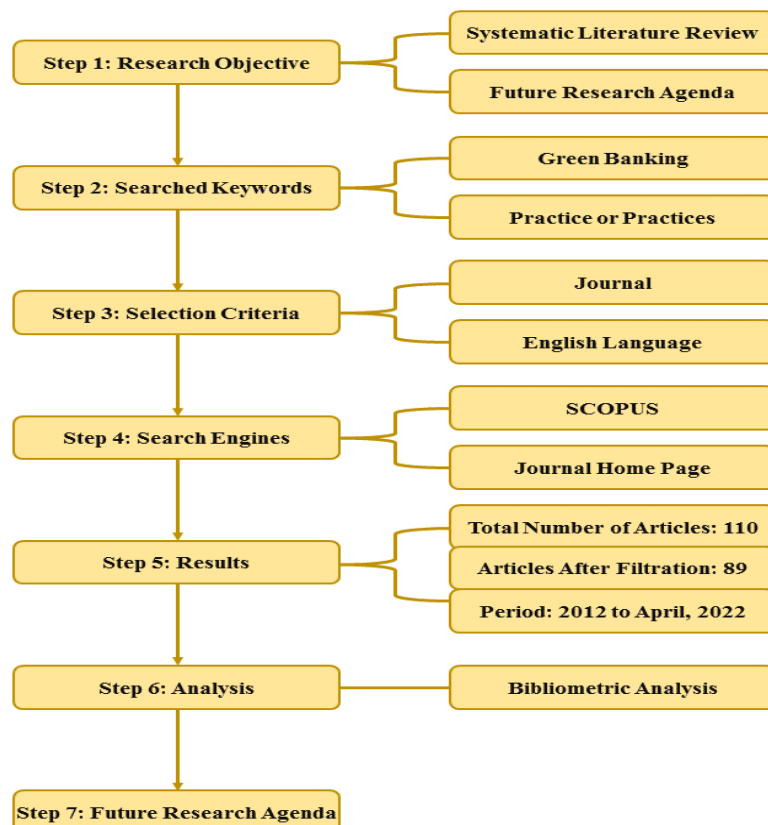

Figure 1. Seven-Step Methodology (Sharma et al., 2020)

2.2. Formulation of Research Question

This study's research question is formulated based on PICo methodology. PICo is a tool to advance researchers in the formulation of research question. It comprises of three elements where (P) stands for Population, (I) stands for Interest and (Co) stands for Context (Mustaffa et al., 2021). Accordingly, to formulate a research question, the three components used in this research were green banking (Population), thematic practices (Interest) and worldwide (Context). Hence, after combining these three components, the proposed research question identified as "How Green Banking thematic practices trend evolved worldwide?"

2.3. Inclusion Criteria

Analysis of the research is structured so that each step is taken steadily. In the first step, the data was searched in an electronic database that is SCOPUS. The database selection was made by keeping in view that SCOPUS database contains abstracts and citations from peer-reviewed journals and provide a comprehensive overview in every field of research (Elsevier, 2022). Researchers found it as a reliable source with broader coverage (Mustaffa et al., 2021; Zainuldin and Lui, 2021). After that, based on research questions, thematic keywords were identified and run down in the SCOPUS database that resulted in documents relevant for this study. Towards last step, there was no time frame selected for this study but the results give data of the last decade which helped this study to find out the recent work in this field.

2.4. Search Criteria

The search strategy is guided by the research question formulated and application of inclusion criteria (Al-Jayyousi et al., 2022). The themed keywords searched for the study were "Green Banking" and "Practice" or "Practices". In SCOPUS database the following string was run, initially searched the documents on Green Banking using string "[TITLE-ABS-KEY TITLE-ABS-KEY ("Green Banking")] then clubbed Green Banking with Practice or Practices, [(TITLE-ABS-KEY ("Green Banking") AND TITLE-ABS-KEY ("Practice" OR "Practices"))]" which resulted in final 110 documents in total.

2.5. Exclusion Criteria

After completion of search criteria, the initial sample was further evaluated to provide more relevant and specific research articles. All the books, book chapters, conference proceedings, extended abstracts and editorials were excluded, only green banking literature which focuses on peer-reviewed journal articles were included. Further duplicates were removed and English language limit was selected to provide a comprehensive review. The sample which was initially 110 articles, after exclusion criteria reduced to final 89 articles.

2.6. Analysis Criteria

To systematically objectify the literature content, the review of the literature is conducted but it has a shortfall to extract out the hidden content in the literature (Tranfield et al., 2003). To settle this problem, a quantitative measure is used which is known as bibliometric analysis (Benckendorff, 2009; Zainuldin and Lui, 2021). Bibliometric analysis is identified as a technique of analysis to uncover unexplored literature, finding gaps and generating themes related to research field (Bhatnagar and Sharma, 2022; Donthu et al., 2021; Ingale and Paluri, 2022; Zainuldin and Lui, 2021). Generally, this technique is divided into two parts. The first one is Evaluative Technique, in which descriptive data is explained and the second one is Relational Technique in which co-word and co-citation analysis is done for the thematic generation (Benckendorff, 2009; Benckendorff and Zehrer, 2013). However, analysis will not

be completed without application of a software. In research field, bibliometric analysis can be conducted through different software tools such as Gephi, Leximancer, Bibliometrix, VOSViewer, etc (Donthu et al., 2021). Considering this particular study, VOSViewer is considered to be an appropriate tool to analyze the results. The tool is user-friendly and helpful in creating clusters and designing networks (Sharifi, 2021; Zainuldin and Lui, 2021), which is required to accomplish the objective. Therefore, this study is conducted through bibliometric analysis and the software VOSViewer version 1.6.18 is used to present and interpret the results.

3. FINDINGS AND INTERPRETATION

3.1. General Information

In this study there are 89 documents with an average of 5.798 citation per document. These are written by 196 researchers connected with 176 institutions located in 36 different countries and published in 63 journals with 4347 references cited (see Figure 2).
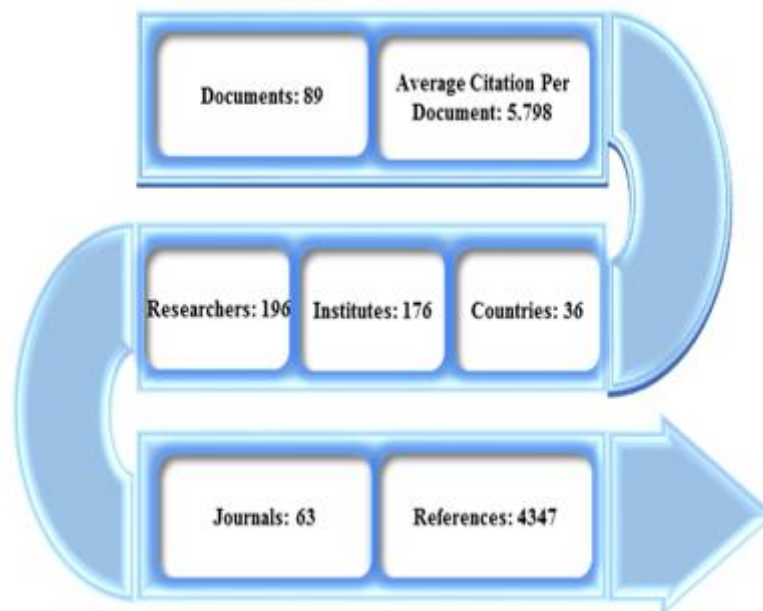

Figure 2: Representation of General Results

3.2. Publications Trend

This study identifies a total of 89 studies from the year 2012 to April 2022. The rising edge pattern shown in the Figure 3, represent the pattern of studies on green banking. The trend comprises of mainly two stages. The first stage is unevenly distributed (from 2012 to 2018) because that is the adoption stage of green banking. After 2018 the trend tends to grow which is considered as the growth stage of green banking literature. The peak of year 2022 is yet not reached its maximum as the data has been available till April, 2022. However, the overall annual growth rate of the green banking literature stood up to 28.21%. Therefore, it can be stated that research on green banking is moving upwards and shaping the banking activities through literature contribution.
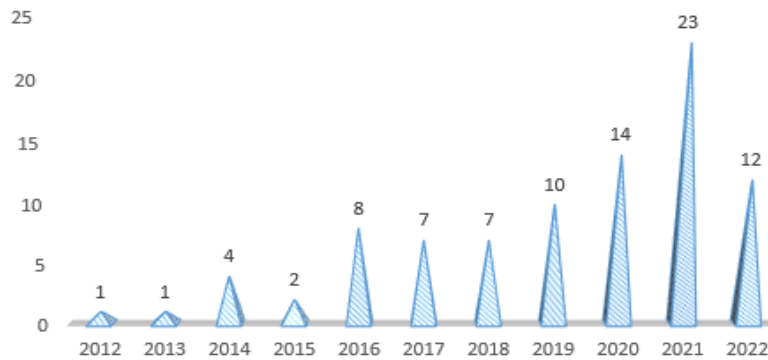
Figure 3: Publications Trend (per year)

3.3. Influential Documents

The document with the most citations demonstrates its influence within the field. The results in Table I, reveals the top ten documents on green banking in terms of highest number of citations. Out of total 89 documents, the analysis includes documents with minimum fifteen citations. In which 29.21% have never been cited and 53.93% received citation below ten. Through this analysis, it is found that the study "What drives green banking disclosure? An institutional and corporate governance perspective" (Bose et al., 2018) received the most references defining the role of corporate governance in green banking disclosures. Following it, the second highest cited article "CSR, co-creation and green consumer loyalty: Are green banking initiatives important? A moderated mediation approach from an emerging economy" (Sun et al., 2020) found green banking initiative as a mediator, which would strengthen the CSR and customer loyalty.

Table I: Top ten cited documents in the field of Green Banking

Rank	Title and Author(s)	Citations
1	What drives green banking disclosure? An institutional and corporate governance perspective (Bose et al., 2018)	59
2	CSR, co-creation and green consumer loyalty: Are green banking initiatives important? A moderated mediation approach from an emerging economy (Sun et al., 2020)	29
3	Green banking for environmental sustainability-present status and future agenda: Experience from Bangladesh (Zhixia et al., 2018)	29
4	Analysis of environmental accounting and reporting practices of listed banking companies in Bangladesh (Kaium Masud et al., 2017)	26
5	Exploring green banking performance of Islamic banks vs conventional banks in Bangladesh based on Maqasid Shariah framework (Julia and Kassim, 2020)	24
6	Is green regulation effective or a failure: Comparative analysis between Bangladesh Bank (BB) green guidelines and global reporting initiative guidelines (Masud et al., 2018)	20
7	Does green banking performance pay off? Evidence from a unique regulatory setting in Bangladesh (Bose et al., 2021)	18
8	Integrating the notion of sustainable development in banking: Analysing historical and conceptual framework (Kumar et al., 2020)	18
9	Assessing the relevance of green banking practice on bank loyalty: The mediating effect of green image and bank trust (Ibe-enwo et al., 2019)	17
10	Green financing and bank profitability: Empirical evidence from the banking sector in Bangladesh (Julia and Kassim, 2016)	15

3.4. Eminent Authors

The Table II, lists the green banking authors who have had the most impact. The sample consists of total 196 authors out of which fifteen authors has been selected on the basis of citations received. The criteria of selection of authors includes minimum two documents and ten citations. These fifteen authors contribute total 56 documents in this study. The first two authors Bose and Khan have received highest citations, with an average of 27.00 citation per document and contributed six documents. Followed by Kim, J.D. (46 citations), Julia, T. (45 citations) and Kassim, S. (45 citations). The authors not included are still in the evolving stage and growing stage. However, during the previous 10 years, these fifteen authors have demonstrated their potential in the field of green banking.

Table II: Top cited authors in the field of Green Banking

Rank	Authors	TD	TC	AC
1	Bose, S.	03	81	27.00
2	Khan, H.Z.	03	81	27.00
3	Kim, J.D.	02	46	23.00
4	Julia, T.	04	45	11.25
5	Kassim, S.	04	45	11.25
6	Nisha, N.	08	37	04.62
7	Iqbal, M.	06	32	05.33
8	Rifat, A.	05	27	05.40
9	Miah, M.D.	03	24	08.00
10	Kumar, K.	02	22	11.00
11	Prakash, A.	02	22	11.00
12	Bukhari, S.A.A.	05	17	03.40
13	Hashim, F.	05	17	03.40
14	Burhanudin, B.	02	14	07.00
15	Hasan, R.	02	14	07.00
Note(s)	TD: Total Documents; TC: Total Citations; AC: Average Citation (per document)			

3.5. Influential Journals

Table III, shows the top five journals publishing articles regarding green banking. The study identified that 89 studies has been published in 63 peer-reviewed journals in last one decade. The criteria of analysis include journals with minimum two documents and ten citations. These top five journals contributed almost 26.97% of publication in the green banking topic.

The data revealed that the "Sustainability (Switzerland)" and "Environment Development and Sustainability" has published six articles on the green banking topic in the last decade but former one is considered to be most influential journal as it got most citations i.e., 102 with an average of 17.00 citation per document. The "International Journal of Green Economics" has published most number of articles i.e., eight articles in last decade with an average of 03.62 citation per document. Furthermore, "Journal of Islamic Marketing" and "Prabandhan: Indian Journal of Management" both have published two articles with an average of 15.00 and 06.00 citation per document respectively.

Table III: Top Journals for Green Banking

Rank	Journals	Articles	TC	AC
1	Sustainability (Switzerland)	06	102	17.00
2	Environment Development and Sustainability	06	52	08.67
3	Journal of Islamic Marketing	02	30	15.00

4	International Journal of Green Economics	08	29	03.62
5	Prabandhan: Indian Journal of Management	02	12	06.00
Note(s)	TC: Total Citations; AC: Average Citation (per document)			

3.6. Influential Countries

The collection represents the documents published by each nation and Table IV, describes the impact of each country in contrast with highest number of citations. For the analysis, sample revealed total 36 countries, which are working on the green banking topic. The analysis criteria include countries with minimum three documents and fifty citations. Though, these top six countries have contributed 78 documents out of 89 in the sample.

It is found that both Bangladesh and Malaysia have published nineteen documents which is not the highest number in the collection but received maximum number of citations which is 167 and 88 respectively with an average of 08.79 and 04.63 citation per document. Though, Australia's publication is minimum in this collection but it gained an average of 27.00 citation per document which is the highest among all. This is followed by China which has published seven documents with an average of 10.86 citations per document. It is clearly from the table that maximum number of publications are from India but the average citation is around 03.57, which is least in the set. Moreover, Pakistan has published nine documents with an average of 07.11 citation per document in the last decade.

Table IV: Top countries publishing in the field of Green Banking

Rank	Countries	TD	TC	AC
1	Bangladesh	19	167	08.79
2	Malaysia	19	88	04.63
3	Australia	03	81	27.00
4	China	07	76	10.86
5	India	21	75	03.57
6	Pakistan	09	68	07.55
Note(s)	TD: Total Documents; TC: Total Citations; AC: Average Citation (per document)			

3.7. Influential Institutions

The study includes 176 organisations from 36 countries. For the analysis the institutions have been selected with minimum two documents and ten citations, which choses out top six institutions in the world working on green banking topic (as shown in Table V).

The results expose that the institutions from South Korea "College of Business Administration, Inha University and Department of Sustainability Management, Inha University" are the most influential institutes, both with 23.00 citations per document. They are followed by "Discipline of Accounting and Finance, University of New Castel" and "Discipline of Accounting and Finance, University of Canberra" from Australia with 11.00 citations per document each. The institute in Malaysia, "Graduate School of Business, Universiti Sains Malaysia" has published four documents which is maximum of all but the average citation per document is minimum in the collection i.e., 04.00. The "Department of Economics and Finance, University of Nizwa" from Oman received 07.00 citations per document. Hence, these six institutions have produced fourteen documents in the last decade, which is almost 15.73% of total publications.

Table V: Top institutions working on Green Banking topic

Rank	Institutions	Country	TD	TC	AC
1	College of Business Administration, Inha University	South Korea	02	46	23
2	Department of Sustainability Management, Inha University	South Korea	02	46	23
3	Discipline of Accounting and Finance, University of New Castel	Australia	02	22	11
4	Discipline of Accounting and Finance, University of Canberra	Australia	02	22	11
5	Graduate School of Business, Universiti Sains Malaysia	Malaysia	04	16	04
6	Department of Economics and Finance, University of Nizwa	Oman	02	14	07
Note(s)	TD: Total Documents; TC: Total Citations; AC: Average Citations (per year)				

3.8. Most Relevant Keywords

To develop the science of mapping, the co-word analysis is used to classify the relationships between research domain (He, 1999). Co-word means co-occurrence of keywords that form a discipline of homogenous articles (Lu and Wolfram, 2012). In this study total 424 keywords have been found and the sample reduced by applying minimum three number of occurrences, which quoted eleven keywords. The top 10 keywords, as determined by the total link strength, are shown in Table VI and the Figure 4, shows the network links of 31 keywords which include most influential and emerging ones. Accordingly, the three themes have been created: Green Banking with Sustainability, Banking with Green Economy and Corporate Social Responsibility with Green Banking Initiatives.

The theme "Green Banking" which is mainly a core of the study has the highest number of link strength and the chain evolve itself towards the sustainability which leads to the sustainable banking development. The last keyword "Green Financing" is also related to this theme. In fact, green banking can foster environmental and social practices that will help in attaining sustainability (Khatun et al., 2021). Moreover, this study has also identified that in this particular theme maximum studies are of Bangladesh origin, which is sixteen in number (e.g., Iqbal et al., 2021; Nisha, 2020).

The second theme "Banking" is followed by the highest one in total link strength. The "Green Economy" can be combined with banking (Laskowska, 2018) to strengthen the theme. Banking is an integral part of the economy and for the economic development of a nation a strong banking network must be there. The traditional type of banking is shifting towards the green banking which will create environmentally friendly economy. Hence, the source of green financing influences the banks' environmental performance which will help in attaining the sustainable economic development (Zhang et al., 2022).

The final theme "Corporate Social Responsibility (CSR)" is combined with an emerging theme- "Green Banking Initiatives". According to Sun et al. (2020) by combining green banking initiatives and CSR, banks can develop core strategies in their business. Further, a qualitative analysis of Indian banking sector reveals that the 60% of customers believe that green banking has helped in enhancing banks' green brand reputation (Sharma and Choubey, 2022).

Table VI: Top ten keywords

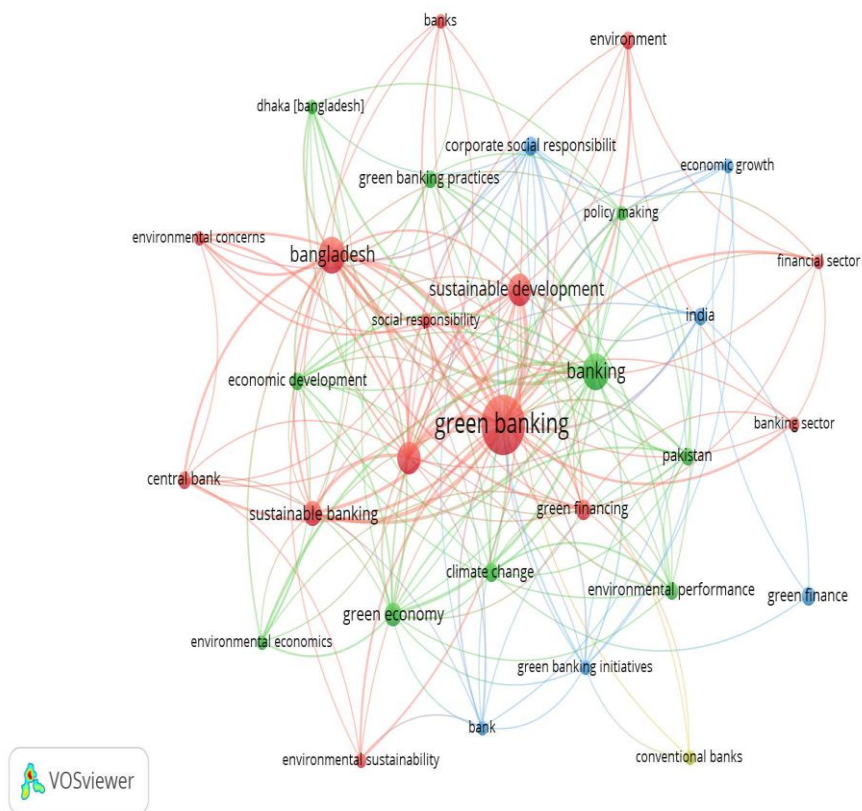| Keywords	Occurrence	Total Link Strength
Green Banking	47	104
Banking	18	69
Bangladesh	17	60
Sustainability	14	58
Sustainable Development	14	43
Sustainable Banking	8	32
Green Economy	7	29
Corporate Social Responsibility	5	22
Economic Development	4	19
Green Financing	6	19

Figure 4: Network of all keywords

3.9. Most Cited References

The co-citation analysis provides the better understanding of the theoretical foundation concerning a research topic or an area. It is used to generate themes and reveal the state-of-the-art references of a specific research (Liu et al., 2015; Rossetto et al., 2018). In co-citation references, a network is formed when two publications are inter-linked and appear together in a different publication's reference list. For the present study, the analysis has been carried out on the sample which has initially 4347 cited reference documents and further reduced to 49 with minimum three citations condition that resulted in 185 total citations.
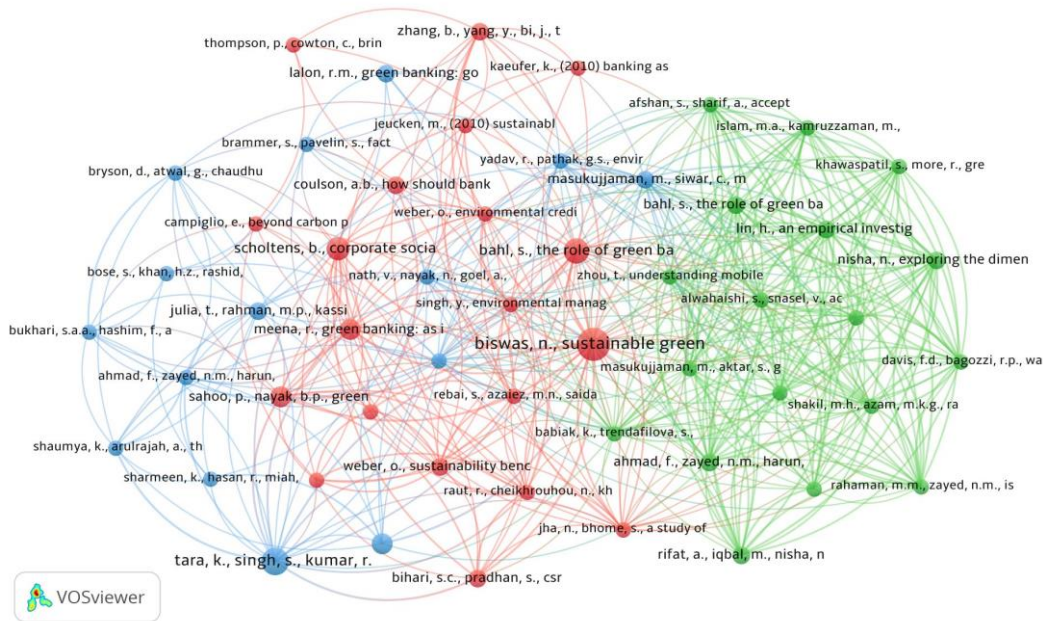
Figure 5: Network of co-cited documents

Based on the analysis, a network of linkages portrayed (see Figure 5), represent three clusters. The clusters have been evolved stage by stage (see Table VII), where cluster one stands for Green Banking Adoption, cluster two stands for Technological Changes and cluster three stands for Strategies and Policy Formulation. Among these clusters, the most frequent references are Biswas (2011), Tara et al. (2015), Bahl (2012) and Scholtens (2009).

Table VII: Clustering results of most cited references (number of citations in parenthesis)

Cluster 1: Green Banking Adoption	Citations
Biswas, 2011	11
Bahl, 2012	07
Scholtens, 2009	06
Meena, 2013	05
Sahoo and Nayak, 2007	05
Bihari and Pradhan, 2011	04
Coulson, 2009	04
Weber, 2005	04
Zhang et al., 2011	04
Campiglio, 2016	03
Jeucken, 2010	03
Jha and Bhome, 2013	03
Kaeufer, 2010	03
Raut et al., 2017	03
Rebai et al., 2016	03
Singh, 2015	03
Thompson and Cowton, 2004	03
Weber, 2012	03
Weber et al., 2008	03
Weber et al., 2010	03
Cluster 2: Technological Changes	
Ahmad et al., 2013	04
Bahl, 2012	04
Lin, 2011	04
Nisha, 2016	04

Rifat et al., 2017	04
Afshan and Sharif, 2016	03
Alwahaishi and Snásel, 2013	03
Babiak and Trendafilova, 2011	03
Luarn and Lin, 2005	03
Masukujjaman and Aktar, 2013	03
Rahaman et al., 2015	03
Sanakulov and Karjaluoto, 2015	03
Shakil et al., 2014	03
Venkatesh and Zhang, 2010	03
Zhou, 2011	03
Cluster 3: Strategies and Policy Formulation	
Tara et al., 2015	08
Bhardwaj and Malhotra, 2013	05
Julia et al., 2016	04
Lalon, 2015	04
Masukujjaman et al., 2016	04
Ahmad et al., 2013	03
Bose et al., 2018	03
Brammer and Pavelin, 2008	03
Bryson et al., 2016	03
Bukhari et al., 2020	03
Nath et al., 2014	03
Sharmeen et al., 2019	03
Shaumya and Arulrajah, 2017	03
Yadav and Pathak 2013	03

The adoption of green banking was emphasized by the references in cluster 1. Green banking means reduction of carbon footprint and emission, internally and externally in the banking business (Bahl, 2012; Meena, 2013). Biswas (2011) which is most cited reference among all the clusters mentioned that adopting green banking will help with operations and reduce the chances of errors and frauds, in addition to being good for environment. But while adopting new things there are several risks and banking sector is more associated with risks. However, some studies suggest that, this can be achieved if risks related to credit and environment are effectively managed (Weber et al., 2008; Weber et al., 2010).

The second cluster reveals the changing scenario through technological changes. Studies in this cluster suggest that banks should discard conventional or commercial banking and move towards green banking to ensure sustainability (Ahmed et al., 2013). To achieve this, banks have to make changes in their operations by taking into account the customers' perception. Therefore, if presently everything is accessible through mobiles and internet then banking business should also accept these changes. Afshan and Sharif, (2016) and Lin (2011) observed that in financial services mobile banking is important and it influences the customer behavior. Also, a study by Nisha (2016) captures customers' perception and suggests services that ensure customers' privacy while doing transactions.

The third cluster of studies talk about the strategies and policy formulation in regard to green banking. The opening of the cluster is made by Tara et al., (2015). This study discusses about the guidelines and laws pertaining to the environment and green banking. Mainly, this study highlights the guidelines and laws under Equator Principles, Carbon Disclosure Projects, United Nation Financial Programme-Financial Initiatives and International Financial Corporation. According to Bukhari et al., (2020) there are mainly three dimensions: Environment, Social and Governance to draw the road map of the green banking. Sharmeen et al., (2019) establish a green compliance index in accordance with Bangladesh bank guidelines which found Islamic banks are much more efficient than traditional ones. Moreover, Brammer

and Pavelin, (2008) emphasised on the environmental disclosures and environmental audit. Bose et al., (2018) provides insights into the governing guidance and reveals that corporate governance positively affects the green banking disclosure. Also, the results give directions to the policy-makers and government.

3.10. Most Cited Authors

The analysis of co-citation primarily stimulated by the choice of authors to map (Dzikowski, 2018). Initially, we obtained total 5758 authors as a total sample, after applying the condition of authors with minimum fifteen citations', we finally obtained 43 authors, who has been cited 963 times. Based on this, a network of co-cited authors has been created (see Figure 6) and four cluster was made out of it (see Table VIII). Each cluster has authors with citations received in parenthesis. Nisha, N (50 citations), Weber, O (45 citations), Masukujjaman, M (37 citations) and Bose, S (35 citations) are the authors who are most often quoted together when discussing green banking.

Table VIII: Cluster resulting from the most cited authors (number of citations in parenthesis)

Clusters	Author(s)
Cluster 1 (294)	Weber, O. (45)
	Bahl, S. (25)
	Singh, S. (25)
	Bihari, S.C. (21)
	Hossain, M. (21)
	Kumar, R. (20)
	Scholtens, B. (20)
	Tara, K. (20)
	Jeucken, M. (18)
	Sahoo, P. (17)
	Nath, V. (16)
	Nayak, N. (16)
	Biswas, N. (15)
	Goel, A. (15)
Cluster 2 (259)	Bose, S. (35)
	Khan, H.Z. (31)
	Amran, A. (24)
	Islam, S. (24)
	Hashim, F. (22)
	Julia, T. (21)
	Kassim, S. (19)
	Miah, M.D. (18)
	Bukhari, S.A.A. (17)
	Hair, J.F. (17)
	Rashid, A. (16)
	Shaumya, K. (15)
Cluster 3 (266)	Nisha, N. (50)
	Masukujjaman, M. (37)
	Iqbal, M. (27)
	Islam, M.A. (25)
	Hossain, M.Z. (23)
	Rifat, A. (20)
	Davis, F.D. (19)
	Venkatesh, V. (18)
	Alam, S.S. (17)
	Aktar, S. (15)
	Zayed, N.M. (15)

In cluster one, authors are from different domains. This includes authors working in the field of Sustainable Finance (Olaf Weber, Sanjeet Singh, Suresh Chandra Bihari, Marcel Jeucken), banking accounting and finance (Sarita Bahl), Managerial accounting and corporate governance (David F. Larcker, Mohammed Hossain), Green Finance and Economics (Nurul Mohammad Zayed, Kanak Tara, Pravakar Sahoo) and International Banking (Bert Scholtens).

Cluster two represent authors working on CSR and Corporate Governance (Sudipta Bose, Azlan Amran, Fathyah Hashim, Afzalur Rashid), Sustainable Finance (Habib Zaman Khan, Taslima Julia, Syed Asim Ali Bukhari, K. Shaumya), Islamic Banking and Finance (Salina Kassim, Mohammad Dulal Miah) and Marketing (Joseph F. Hair).

The third and the last cluster includes set which represent authors from Islamic Banking and Finance (Nabila Nisha, Afrin Rifat, M. Zubair Hossain), Sustainable Finance (Masukujjaman, M), Social Entrepreneurship (Mehree Iqbal, M. Ahmed Islam), Operational Management (Viswanath Venkatesh, Fred D Davis), Marketing (Syed Shah Alam), Accounting and Finance (Aklima Akter), Finance and Economics (Nurul Mohammad Zayed)
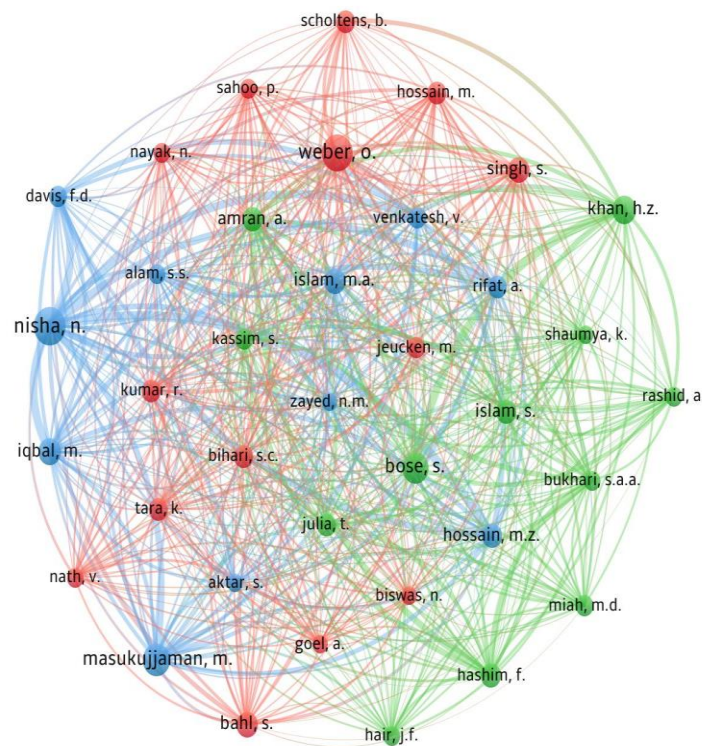

Figure 6: Network of co-cited authors

3.11. Most Cited Journals

Data retrieved from the 89 documents, the sample, demonstrates a total of 2319 co-cited documents. To establish a relationship, a cut-off point has been taken at a minimum of fifteen citations and results revealed seventeen most co-cited journals. Out of which three clusters has been made (see Table IX) and Figure 7 depicts how these clusters are inter-linked to each other. Also, on the basis of authors elaboration each cluster is marked with different disciplines like multi-disciplinary, digitalization and business economics.

Table IX: Cluster resulting from the most cited journals (number of citations in parenthesis)

Clusters	Journals
Cluster 1: Multi-Disciplinary (462)	Journal of Business Ethics (95) Business Strategy and the Environment (70) Journal of Cleaner Production (67) Sustainability (66) Accounting, Auditing and Accountability Journal (35) Corporate Social Responsibility and Environmental Management (34) Journal of Islamic Marketing (25) Social Responsibility Journal (21) Asia Pacific Journal of Management (19) Academy of Management Journal (15) Strategic Management Journal (15)
Cluster 2: Digitalization (119)	International Journal of Bank Marketing (35) Computers in Human Behaviour (21) Journal of Business Research (20) MIS Quarterly (16)
Cluster 3: Business Economics (35)	Ecological Economics (19) Business Spectrum (16)

The most eminent and frequently co-cited journals are from cluster one: multidisciplinary and are those which mainly consider environment and social factors. These include Journal of Business Ethics (95 citations), Journal of Cleaner Production (67 citations), Business Strategy and the Environment (70 citations) and Sustainability (66 citations). Further, this cluster also includes journals of accounting and finance like Accounting, Auditing and Accountability Journal (35 citations) and related to management and marketing like Journal of Islamic Marketing (25 citations) and Asia Pacific Journal of Management (19 citations).

Cluster two represent the journals that are promoting digitalization. Digitalization here means, promoting the banking activities or providing services that are digital in nature or internet based. The journals included in this set are International Journal of Bank Marketing (35 citations), Computers in Human Behaviour (21 citations), Journal of Business Research (20 citations) and MIS Quarterly (16 citations).

The business economics journals are represented in the cluster three which includes Ecological Economics (19 citations) and Business Spectrum (16 citations). This last cluster has least overall citations which means scanty work in the field of business economics.
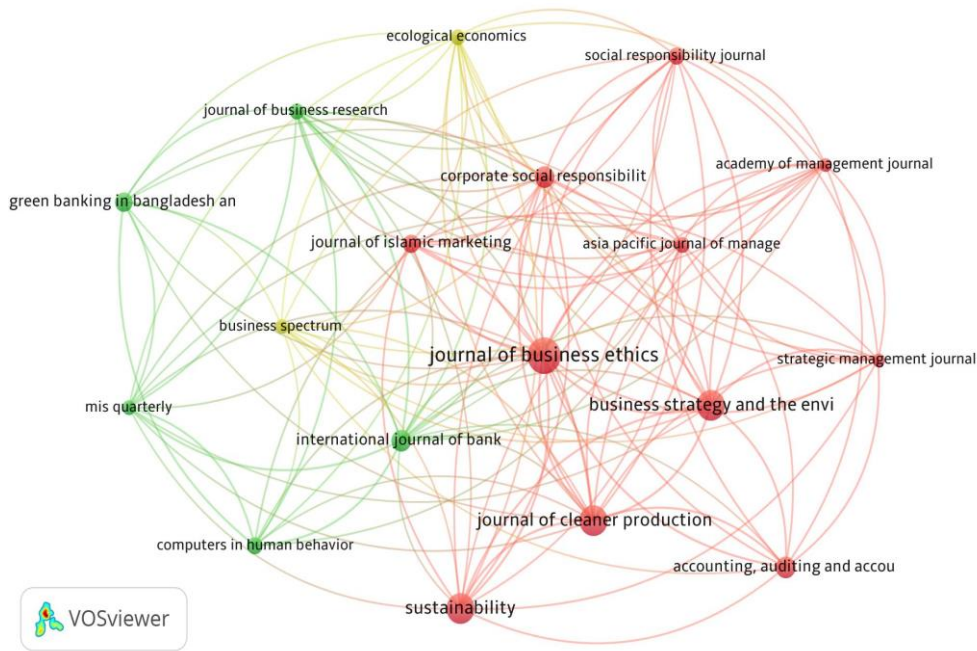
Figure 7: Network of co-cited journals

4. FUTURE RESEARCH AGENDA

To propose a research agenda, this study has used the results revealed from the co-word analysis. Initially, 424 keywords were found but after applying the limit, sample reduced to 31 keywords. After further distillation led the authors to derive major themes. These major themes are grouped into three categories: Scant Keywords, Developing Keywords and Emerged Keywords (see Figure 8). The categories are discussed in following detail:
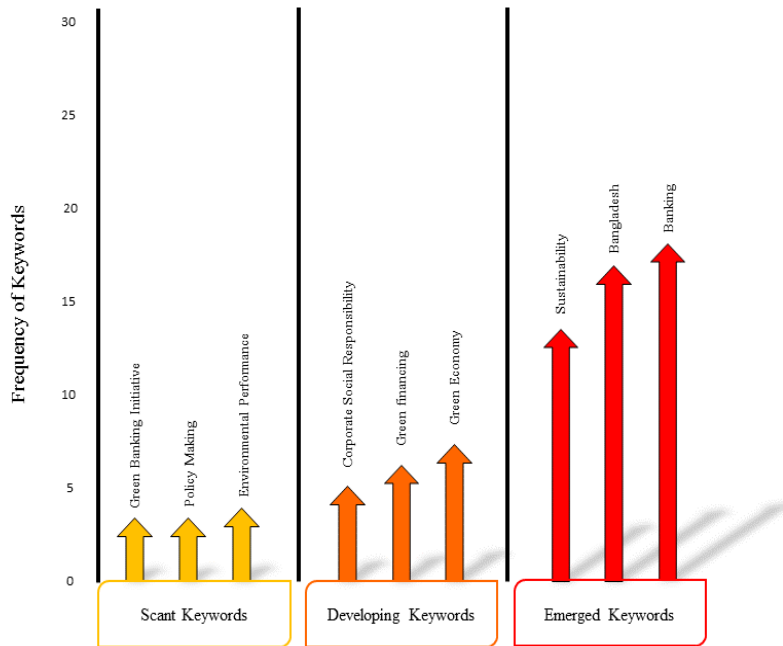

Figure 8: Suggested future research agenda

(1) Scant Keywords

Scant keywords are those which are beginning to be explored. In banking sector, green banking itself is not much explored field till now (revealed in publication frequency). Therefore, researchers can explore the topic and findings can be made more relevant by exploring the scant keywords. In this group, three keywords are selected by the authors: Green Banking Initiative, Policy Making and Environmental Performance. The data revealed that there are only three studies on green banking initiative (Naveenan et al., 2021; Sharma and Choubey, 2022; Sun et al., 2020), which mainly focus on the customers perception. There are studies that are conducted to determine the effects of green banking practices on environmental performance (Chen et al., 2022; Rehman et al., 2021; Sharmeen et al., 2019), which revolve mainly around the banking transparency and disclosure. Further, green banking strategies have been advocated by many researchers in their studies (Nath et al., 2014) but still some countries are lacking in a concrete policy making. It shows that western countries' research impact on this topic is limited.

(2) Developing Keywords
This category of keywords has more frequency than the previous one. As evidence by their usage, these keywords are considered by the researchers in developing stage of research field. This group consist of three keywords: Corporate Social Responsibility, Green Financing and Green Economy. These keywords are the subject of research and researchers have explored it in a general way but few in relation to green banking. The green banking and corporate social responsibility, if considered together, come under the green banking which leads to the green economy. But there are separate studies on these keywords and recommendations have been given accordingly. Hence, there is need to depict the concept of green banking in the framework of these keywords, so that a broader view can be created.

(3) Emerged Keywords
This group of keywords has the highest frequency. These keywords are decidedly used by the researchers in this domain. The key keywords are: Sustainability, Bangladesh and Banking. Specifically, researchers in Bangladesh have undertaken studies and recommended adoption strategy for green banking (Rifat et al., 2016; Zhixia et al., 2018). In banking sector, China as well as Bangladesh have recommended guidelines for the adoption and strengthening the green banking. To provide strength to the financial policy China has adopted 'Green Credit Policy' (Dong et al., 2020) and Bangladesh has implemented 'Green Guidelines' (Masud et al., 2018). Furthermore, green banking offers sustainable actions that banks can take to improve their profits through a number of eco-friendly initiatives (Zheng et al., 2021). To accomplish sustainable development, necessary framework of cost-effective regulations and economic instruments must be in place to allow markets to function optimally.

5. LIMITATIONS OF THIS STUDY
This study is conducted in a systematic way to present the analysis of the research work carried out in the area of green banking. Although the authors provided contributions to the current work, there are still some limitations. The primary limitation of this study is use of single database (SCOPUS) for getting existing research work. This can be resolved by using other sources like Web of Sciences, Google Scholar etc. This will help in understanding the problem universally and researchers can get better picture of domain. Moreover, this study specifically used bibliometric analysis for systematic literature review that has revealed the status-quo researches on the green banking. This can be expanded through application of other methodologies which will help in knowledge building and proposing a relevant model.

6. CONCLUSION AND IMPLICATIONS

The systematic literature review has been utilized to provide future trajectories for the development of green banking domain. After intensive and comprehensive screening, the study analysed 89 relevant publications from the SCOPUS database focusing on the usage of green products in the banking ecosystem. The research on the green banking remains constant before 2018 but escalated exponentially afterwards due to increase in attention paid by researchers and academicians towards sustainability aspect of green banking. Moreover, this review also provides valuable knowledge development regarding the performance analysis of authors, sources, countries and affiliations to provide dynamic structure of the future research agenda.

The results indicate following, (a) "What drives green banking disclosure? An institutional and corporate governance perspective" is the most productive publication with fifty-nine citations, focusing on the role of corporate governance in disclosure for green banking. (b) The study found that S. Bose is the most prominent author with average citation of twenty-seven and contributed three publications to the domain. (c) Subsequently, Sustainability (Switzerland) published six articles at the seventeen-average citation per document that is considered to be the most influential journal in this particular field. (d) Furthermore, the majority of existing research is conducted in Asia and Australia, indicating a dearth of research from the Europe, North and South America, and Africa continents. (e) South Korea institute, "College of Business Administration, Inha University" is considered to be the most influential affiliation with an average citation of twenty-three. (f) Co-word analysis, which means co-occurrence of keywords, created three main themes: Green Banking with Sustainability, Banking with Green Economy and Corporate Social Responsibility with Green Banking Initiative. (g) To understand the theoretical foundation, three themes formed that represent the literature flow, that is initially started from Green Banking Adoption, then Technological Changes to finally Strategies and Policy Formulation. (h) The co-citation analysis indicated that authors in cluster one including green banking adoption theme is more impactful than the remaining other two clusters. (i) Further, co-citation analysis is applied on source of publication which represents that majority of published work is from Multi-Disciplinary journals and followed by Digitalization and Business Economics journals.

Themes has been generated through authors elaboration on the basis of keyword analysis and this resulted in proposed future research agenda for the research community. This study brings out major themes which are grouped into three categories: Scant Keywords, Developing Keywords and Emerged Keywords, that will advance the researchers in gathering knowledge about the topic. Hence, this study offers significant contribution to the literature and brings forth two main implications: Theoretical and Managerial.

(1) Theoretical Implication

This study will give knowledgeable inputs to the researchers about the green banking. The systematic literature review findings will empower the researchers to recognize scope, trend and boundaries of research in this domain. Consequently, researchers may use findings to know the prominent authors, sources and institutes for prominent collaborations. The indicated trend will enhance the interest among the researcher community. Moreover, the suggested future research agenda through keyword analysis will give future researchers an opportunity of exploration.

(2) Managerial Implication

Findings of this research could be useful for practical purposes as well. The study can help managers and other practitioners in the banking sector grasp the broad potential of green

banking to advance operations and manage business processes. It further revealed that western countries are lacking in adoption and formulation of strategies in this domain. Therefore, the findings may help in identifying and investigating into the factors, and inspire policymakers to develop suitable procedures for adoption of green banking. Additionally, the editors and publishers of the journals learn about the extent of green banking and can attempt to integrate it in their own journals as well.

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