# Sustainable Finance: A Study of Bibliometric Analysis on Scopus Database and Future Research Directions

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### Abstract

Sustainable finance is among the most contemporary financial concepts for entrepreneurially addressing global economic issues. Sustainable finance provides a novel opportunity to maximize financial gains by leveraging social transformation. Sustainable finance also represents the inherent goal of prosocial decision-makers and financial development for substantial sustainability supporters. Sustainable finance can minimize risk while lowering expenses and increasing bank operating efficiency. This study attempts to develop a bibliometric map of worldwide sustainable finance articles indexed by Scopus. The research employed Biblioshiny, an R-Studio online application, as part of the Bibliometrix package. The software's algorithms discovered significant authors, nations, publications, articles, and themes. The Scopus database was mined for research data on 519 papers published between 1992 and 2022. This study contributes significantly by compiling the different literature on the topic, highlighting essential sources, authors, and documents, and facilitating the researcher in determining the potential research directions toward sustainable finance.

**Keywords:** Sustainable finance, Bibliometrics, Scopus, R-Studio, Biblioshiny.

## Introduction

Sustainability is essential to the financial, business, and entrepreneurial industries and companies. The global financial crisis 2008 adversely demonstrated that the implemented Basel II norms needed to be revised and capable of addressing current operational and financial problems(Sun W. et al., 2011). After three years, the BCBS introduced a new comprehensive framework for banking in the name of Basel-III after several meetings with the Board of Governors(BCBS-2013).

As a free-value discipline, the old neoclassical paradigm still dominates global financial thought (Ziolo M. et al., 2019). Most of the time, it is the job of higher education institutions, financial disciplines, and academic research to bring market participants and financial institutions in line with the long-term decisions needed to finance society and a sustainable

economy (Purnomo, A. et al.; 2021). One of the essential strategies for achieving a better and more sustainable financial future is sustainable finance in a corporation (Adam et al., 2018). Sustainable finance is the newest financial concept gaining significant attention and development (Cash, D., 2018). There are various interpretations of the term "sustainable" in the financial sector. Consequently, there has yet to be a global consensus over the meaning of sustainability. The origin of the word "sustainable" is the Latin word, which means to hold, survive with, and preserve (Amaechi K. et al., 2019). Sustainable finance is practiced by concepts incorporating investment creation, environmental concerns, and institutional issues promoting sustainable growth (Unpri.,2011). Sustainable finance functions similarly to traditional finance by incorporating social objectives into financial decision-making (Nadler, C., 2019). Sustainable finance provides a new opportunity to maximize financial gains by leveraging social transformation. Sustainable finance also represents the inherent goal of prosocial decision-makers and financial development for substantial sustainability supporters (Soppe, a., 2009). The advantages of adopting sustainable finance apps were not confined to environmentally friendly ones. Furthermore, sustainable finance can reduce risk, lower expenses, and improve bank operational efficiency (Biswas, N. 2011). In order to attain sustainable finance, the existing financial system will need to be reconstructed and modified to include sustainable development (Ziolo M. et al., 2019). For sustainable finance to be implemented, the human resources, institutions, and new financial literacy of financial institutions must be supported and developed. (Halimatussadiah, A., et.al.2018). The entrepreneurial spirit is necessary to realize sustainable financing. In scientific investigations, the paradigm of sustainable finances has yet to be conclusively established (Salzmann et al., 2013). Previous research on sustainable finance has often been restricted to one organization and one country (Purnomo A. et al., 2021). In addition, no studies on sustainable finance provide a global overview of publishing growth from year to year based on data from all world regions. No global studies examine sustainable finance and provide an annualized breakdown of the rise in publication volume. Furthermore, no studies evaluate the association between academics' institutional affiliations, authorship, and their impact on sustainable finance. This study uses a bibliometric overview to show the worldwide Scopusindexed papers on sustainable finance.

### **Research Methodology**

The study laid out the state of sustainable finance research published globally over the last 30 years. The data is analyzed using descriptive statistics on the documents' authors, sources, and other contributors. Network maps were created to help visualize the data and highlight the data's conceptual, intellectual, and social structure. (Ariaa & Cuccurullo, 2017). Organized representations of the database's indexed articles are necessary for bibliometric analysis. Scopus database information is retrieved utilizing document search services in December 2022 based on its classification of journals, coverage of publications, and compatibility with Bibliometrix from the R-studio program. Scopus information in . Bib format was retrieved to fulfill the software requirement. The study was conducted using bibliometric methods, data analysis, and visualization using the analyze search results feature on Scopus and the R studio application (Aria et al., C.; 2017).

This study looks for keywords related to sustainable finance that can be used to find papers in the Scopus database, which has 519 documents published worldwide between 1992 and 2022. The study collected data only through 2022, excluding 2023, so that the annual statistics acquired reflect the state of the study from January to December of a single year. The query command (TITLE-ABS-KEY) is used to retrieve data from Scopus ("sustainable finance"). Figure 1 illustrates the data mining process, which the researcher segmented into four parts. The first step involves identifying the initial data on sustainable finance, followed by the second step of filtering the original data. The researcher excludes data before 1992 and after 2022 in this stage. In the third phase, researchers assess the eligibility of the data using refinement criteria. Finally, the researcher incorporated 519 articles of literature into this analysis.





Description of the flow chart for the bibliometric study for sustainable finance

Table	1	Prelim	inarv	int	formatio	n ahout	t the	study	data
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Description			
MAIN INFORMATION ABOUT DATA			
Timespan	1992:2022		
Sources (Journals, Books, etc.)	263		
Documents	519		
Annual Growth Rate %			
Document Average Age			
Average citations per doc			
References	29965		

Description	Results
DOCUMENT TYPES	
Article	434
Book chapter	85
DOCUMENT CONTENTS	
Keywords Plus (ID)	836
Author's Keywords (DE)	1491
AUTHORS	
Authors	1122
Authors of single-authored docs	156
AUTHORS COLLABORATION	
Single-authored docs	170
Co-Authors per Doc	2.43
International co-authorships %	27.75

## **Results and discussions**

This part will explain the rising data results based on annual scientific production, country-based publications, country-based citations, citation-based journals, citation-based documents, and citation-based journals. Documents are based on authors, affiliations, co-occurrences, an author collaboration network, and corresponding authors in sustainable finance research.

Annually published documents on sustainable finance research Figure 2: annual scientific production.





The top ten countries in terms of research into sustainable finance are listed in Table 1. According to the analysis of the collected data, the number of publications in these ten nations accounts for 98.35 percent of all publications in all

In the field of management, there were 519 papers written about sustainable finance between 1992 and 2022. Figure 2 demonstrates an exponential increase in the number of publications, reaching a high of 153 in the year 2022., a regular trend from 1992 to 2016, and then an upward trend to 2022, with 153 publications in 2022, with an 18.28% annual growth rate, indicating a recent resurgence of interest in the field. More than fifty percent of all published articles will already have appeared between 2016 and 2022.

countries combined. The highest-scoring nations from Asia and the Western Hemisphere each contributed one-half of the total. The United States of America has published 77 papers, which places it in third place globally, behind Italy, which has published 84 papers, which places it in second place, and the United Kingdom, which has published 98 papers, which places it in first place globally. These three nations are spread over distinct regions: (1) the United Kingdom and Italy are considered to be the most successful countries in Europe; (2) the United States of America achieves the highest levels of success in both North and South America. Therefore, countries on every continent are participating in research on sustainable finance, and the United Kingdom is the most significant centre for research on sustainable finance.

Country	No. of Publication
UK	98
Italy	84
USA	77
China	57
Germany	51
Spain	49
Malaysia	42
Australia	41
France	40
India	37

#### Table 2. Top 10 countries with the most publication.

# Based on the Generation of Citations on Sustainable Finance by Countries

In all of the publications in sustainable finance, the United States of America garnered 397 citations, as shown in Figure 3. Following this, the United Kingdom received 246 citations, Germany received 220 citations, the Netherlands received 191 citations, China received 177 citations, Italy received 173 citations, Hong Kong received 167 citations, Spain received 159 citations, India received 157 citations, Malaysia received 133 citations, Sweden received 129 citations, Poland received 109 citations, Portugal received 98 citations, Switzerland received 70 citations, Brazil received 66 citations, Egypt received 62 citations, Australia received 60 citations, Austria received 53 citations, Luxemburg received 48 citations, and at last France received 42 citations.





#### Citation-based journals on sustainable finance

Table 2 shows the top ten journals on "sustainable finance" regarding cite score and SJR. The Scopus database contains these journals. The number of papers published in the journal, the ISSBN number, the Scopus citation score, the SJR indicator, and the number of articles published in the journal are all shown in Table 2. There is little doubt that highly reputed academic journals have published articles on making money in a way that is good for the environment.

Table 3. The most cited j	ournals and	editorial	chapters.
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Journal Title	ISSN	ISBN	Cite Score 2021	SJR 2021	Articles
Sustainability (Switzerland)	2071-1050		5.0	0.664	72
Journal Of Sustainable	2043-0795		4.5	1.241	
Finance and Investment					40
Journal Of Cleaner	0959-6526		15.8	2.444	
Production					13
Business Strategy and The	0964-4733		11.9	2.289	
Environment					10
De Gruyter Handbook of		9783110733488			
Sustainable Development					
and Finance					7
Qualitative Research in	1755-4179		2.4	0.832	
Financial Markets					7
Economics, Law, And	2199-8620		0.2		
Institutions in Asia Pacific					6
Finance Research Letters	1544-6123		9.3	2.53	6
Greener Management	0966-9671			0.102	
International					6
The Business Case for		9781138798724			
Sustainable Finance					6

# Citations based on documents related to sustainable finance

Figure 4 clearly shows that Hammer,C., has the most globally cited articles in the sustainable finance studies, with 138 worldwide citations., followed by Yip, A. with 138 global citations, Drempetic, S. with 110 global citations, Drempetic, M. with 104 global citations, Jeucken, M. with 82 global citations, Coniley, J. with 69 global citations, Sikora, A. with 68 global citations, Fatemi, A. with 65 global citations, Galaz, V. with 64 global citations, Raut, R. with 61 global citations, Pueyo, A. with 59 global citations, Pham, L. with 56 global citations, Rezende, C. with 52 global citations, Nabeeh, N. with 50 global citations, Nonasterolo, I. and Huijstee, M. with 47 global citations, Munoz-Torres, M with 43 global citations and Mengze, H. with 40 global citations.





# Table 3 shows the article's author with the digital object identifier, total citations, total citations per year, and normalised total citations.

Article Author	DOI	Total Citations	TC per Year	Normalised TC
Flammer C, 2021,	10.1016/j.jfineco.2021.01.010	138	69.00	19.36
Yip Awh, 2018,	10.1016/j.jclepro.2017.10.190	133	26.60	7.42
Drempetic S, 2020,	10.1007/s10551-019-04164-1	110	36.67	9.48
Aizawa M, 2010,	10.1177/1070496510371192	104	8.00	3.91
Jeucken Mha, 1999,	10.9774/gleaf.3062.1999.au.00005	82	3.42	4.10
Conley Jm, 2011,	10.1111/j.1467-9930.2011.00348.x	69	5.75	4.51
Sikora A, 2021,	10.1007/s12027-020-00637-3	68	34.00	9.54
Fatemi Am, 2013,	10.1016/j.gfj.2013.07.006	65	6.50	3.75
Galaz V, 2018,	10.1016/j.gloenvcha.2018.09.008	64	12.80	3.57
Raut R, 2017,	10.1002/bse.1946	61	10.17	6.40

#### Table 4. The top 20 globally cited articles.

## Author-based documents on sustainable finance

Weber, O. has the most publications in sustainable finance research, as shown in Figure 5, with five documents followed by Ahlström, H., with four documents; Cheba, K., with four documents; Chiu, I., with four documents; Forcadell, F., with four documents; Molocchi, A., with four documents; Sjåfjell, B., with four documents, Úbeda, F., with four documents, Volz, U., with four documents, Ziolo, M., with four documents, Aracil. E., with three documents; Ari, I., with three documents; Bak, I., with three documents; Cadman, T., with three documents; Chenet, H., with three documents; Chiappini, H., with three documents; Esposito, L., with three documents, Filipiak, B., with three documents, González-Ruiz, J., with three documents, Koc, M., with three documents.



# Figure 5. Documents based on the author's publications on Sustainable Finance

#### Affiliations-based document on sustainable finance

Figure 6 shows that the top 20 affiliations are working in sustainable finance, namely University College London with ten articles, Griffith University with nine articles, Stockholm Environment Institute with seven articles. Universidad Nacional De Colombia with six articles, Universidad Rey Juan Carlos with six articles, the University of Bologna with six articles, the University of Oslo with six articles, university of oxford with six articles. Bocconie University with five articles, Copenhagen Business School with five articles, Macquare University with five articles, Universita Cattolica Del Sacro Cuore with five articles, University Kebangsaan Malaysia with five articles, the University of Loodz with five articles, University of London with five articles, University of Waterloo with five articles, Fundan University with four articles, Hamad Bin Khalifa University with four articles, Ilma University with four articles.





# **Co-occurrence-based Documents on sustainable** finance

The proposed framework for the research area was created by the Bibliometrix software using multiple correspondence analysis, as shown in Figure 7. Greenacre, M., & Blasius, J. (2006) state that multiple correspondence analysis offers both graphical and numerical analysis of multivariate nominal data. After being generated for the keyword and unit of study using the various options (Having 42 nodes, automated arrangement, and normalization via association using Louvain's clustering), the co-occurrence network of the keyword is presented as a graph. The terms classified as "Keyword Plus" were created by a computer algorithm using frequently occurring terms from document titles and reference lists. They are recommended because they summarise the substance of papers more fully and precisely (Garfield & Sher, 1993; Zhang et al., 2016). The results revealed three red, blue, and green clusters (Figure 10), as depicted in color. Different colors denote distinct clusters; proximity implies relatedness; words denote the vertex; and the node's size is influenced by its occurrence in the cluster.

#### Figure 7. based on Co-occurrence Network.



#### Author collaboration network

Figure 8 represents the collaboration network in sustainable finance research generated by the author's R studio application. This network was made up of 13 different building patterns. The minimum number of documents required for each author was two. Thus, the criteria were met by 156 writers out of 1122. Figure 8 depicts thirteen types of collaboration patterns amongst researchers in sustainable finance research.

Figure 8. author collaboration network



#### Corresponding author's country

The country of the associated authors is shown in Figure 9 and Table 4. The corresponding author is the author who sends the manuscript to the journal editor and handles all correspondence with him; his e-mail address is usually listed on the first page of the publication, serving as a contact author for other academics who are interested in the topic. Within the Top 3, we find Italy in first place, with 35 articles published where the corresponding author was an Italian researcher, followed by the United Kingdom in second place, with 31 published papers and 21 corresponding UK-based writers. Germany is third, with 24 papers and 24 corresponding authors from Germany. Italy, the United Kingdom, Germany, and China have the highest rates of international collaboration. However, Italy ranks first in terms of the volume of communication writers, whereas Romania, surprisingly, has no international collaborations; similarly, Poland, Switzerland, and Denmark have much scientific output but no intracollaboration.

Figure.9 The countries of the corresponding author with intra-country (SCP) and inter-country (MCP) collaboration.



 Table 5. List the countries with the intra-country (SCP) and inter-country (MCP) collaboration.

Country	Articles	SCP	MCP	Freq
ITALY	35	30	5	0.08
UNITED KINGDOM	31	21	10	0.071
GERMANY	24	22	2	0.055
CHINA	21	10	11	0.048
SPAIN	19	16	3	0.044
USA	19	12	7	0.044
MALAYSIA	15	8	7	0.034
INDIA	14	10	4	0.032
POLAND	13	12	1	0.03
AUSTRALIA	12	10	2	0.028
FRANCE	11	8	3	0.025
NETHERLANDS	6	3	3	0.014
PORTUGAL	6	1	5	0.014
SWEDEN	6	3	3	0.014
CANADA	5	3	2	0.011
ROMANIA	5	5	0	0.011
SWITZERLAND	5	4	1	0.011
DENMARK	4	3	1	0.009
HONG KONG	4	2	2	0.009

#### **Conclusion and suggestions**

According to the results of this study, graphs and trends have shown that the number of articles about sustainable finance on a global scale is growing at a speedy rate. With a peak of 153 articles in 2022, the results demonstrate enormous publication growth. With 98 documents, the United Kingdom enormously contributed to publications in sustainable finance research. The USA was the nation that contributed the most to the production of publications in the field of sustainable finance, with 397 citations. University College London was the most productive affiliation in the publication of sustainable finance research, with ten articles. O. Weber was the author of five documents and one of the highest publications in sustainable finance research. Research articles were the most often published document type, accounting for 434 documents (53.6 percent). The journal Sustainability (Switzerland) produced the most vearly documents in worldwide publications on sustainable finance research, with 72 documents. The most cited publications were the works of Flammer, C., in 2021, entitled "Corporate Green Bonds," with 216 citations. Thirteen collaborative groups were working on research related to sustainable finance. This study proposes a convergence reference frame classification focused on sustainable finance research that defines the body of knowledge in terms of knowledge contributions.

Understanding the history of research to understand common issues and circumstances and research gaps with practical repercussions allows one to identify crucial components in the sustainable finance industry. With this information, new research can be initiated to solve gaps and expand field-specific knowledge. Also, the most researched topics show how important sustainable finance is to practicing finance and banking.

#### **Trends and Future Directions for Research**

Aside from keyword co-occurrence analysis, understanding the popularity of specific subjects and themes over the last seven years is also very interesting. On the one hand, an annual growth rate of 18.28 percent reflects a recent upsurge of interest in sustainable finance. The primary focus of this paper was a bibliometric examination of sustainable finance, and Figures 10 and table 6 highlight some trending issues for future research.

Figure 10. keyword co-occurrence of the trend of the topic.



## Limitations of the study

Despite its significance, this study contains numerous problems:

The study is based on bibliometric data from the Scopus database; however, the database's shortcomings also limit the study's universality.

Multiple papers and journals may be indexed in the Web of Science but not in Scopus. This study does not apply to them. We urge future research to rely on other databases, such as ERIC, Science Direct, DOAJ, and JSTOR.

The study conducted a retrospective visual analysis from 1992 to 2022.

Therefore, we suggest that future research incorporate some temporal analysis to trace the development of trends in sustainable finance. Table 6. list of areas for further research.

S. No	Keywords	Frequency
1	sustainable finance	225
2	sustainability	42
3	esg	41
4	sustainable banking	41
5	sustainable development	39
6	climate change	31
7	green finance	25
8	green bonds	22
9	sustainable development goals	22
10	corporate social responsibility	18

# References

Adam, N. D., & Adhariani, D. (2018). Sustainable finance for sustainability: A case study analysis. *E3S Web of Conferences*, 74, 1–7. https://doi.org/ 10.1051/e3sconf/20187408007

Aizawa, M., & Yang, C. (2010). Green credit, green stimulus, green revolution? china's mobilisation of banks for environmental cleanup. *Journal of Environment and Development*, 19(2), 119–144. https://doi.org/10.1177/1070496510371192

Alam, S. M. S., Chowdhury, M. A. M., & Razak, D. B. A. (2021). Research evolution in banking performance: a bibliometric analysis. *Future Business Journal*, *7*(1), 1–19. https://doi.org/10.1186/s43093-021-00111-7

Amaeshi, K., Muthuri, J. N., & Ogbechie, C. (2019). Incorporating sustainability in management education: An interdisciplinary approach. In *Incorporating Sustainability in Management Education: An Interdisciplinary Approach*. https://doi.org/10.1007/ 978-3-319-98125-3

Aracil, E., Nájera-Sánchez, J. J., & Forcadell, F. J. (2021). Sustainable banking: A literature review and integrative framework. *Finance Research Letters*, *42*(January). https://doi.org/10.1016/j.frl.2021.101932

Aracil, E., Nájera-Sánchez, J. J., & Forcadell, F. J. (2021). Sustainable banking: A literature review and integrative framework. *Finance Research Letters*, 42,

101932. https://doi.org/10.1016/j.frl.2021.101932

Aria, M., & Cuccurullo, C. (2017). bibliometrix: An Rtool for comprehensive science mapping analysis. *Journal of Informetrics*, *11*(4), 959–975. https://doi.org/10.1016/j.joi.2017.08.007

Biswas, N. (2011). Sustainable Green Banking Approach: The Need of the Hour. *Business Spectrum*,  $I_{r}(1)$ , 32–38.

Cai, R., & Guo, J. (2021). Finance for the environment: A scientometrics analysis of green finance. *Mathematics*, 9(13). https://doi.org/ 10.3390/math9131537

Cash, D. (2018). Sustainable finance ratings as the latest symptom of 'rating addiction.' *Journal of Sustainable Finance and Investment*, 8(3), 242–258. https://doi.org/10.1080/20430795.2018.1437996

Cheng, C., Hua, Y., & Tan, D. (2019). Spatial dynamics and determinants of sustainable finance: Evidence from venture capital investment in China. *Journal of Cleaner Production*, *232*, 1148–1157. https://doi.org/10.1016/ j.jclepro.2019.05.360

Conley, J. M., & Williams, C. A. (2011). Global banks as global sustainability regulators?: The equator principles. *Law and Policy*, *33*(4), 542–575. https://doi.org/10.1111/j.1467-9930.2011.00348.x

Drempetic, S., Klein, C., & Zwergel, B. (2020). The Influence of Firm Size on the ESG Score: Corporate Sustainability Ratings Under Review. *Journal of Business Ethics*, *167*(2), 333–360. https://doi.org/ 10.1007/s10551-019-04164-1

Fabregat-Aibar, L., Barberà-Mariné, M. G., Terceño, A., & Pié, L. (2019). A bibliometric and visualisation analysis of socially responsible funds. *Sustainability* (*Switzerland*), *11*(9). https://doi.org/10.3390/su11092526

Fatemi, A. M., & Fooladi, I. J. (2013). Sustainable finance: A new paradigm. *Global Finance Journal*, 24(2), 101–113. https://doi.org/10.1016/j.gfj.2013.07.006

Flammer, C. (2021). Corporate green bonds. *Journal of Financial Economics*, *142*(2), 499–516. https://doi.org/10.1016/j.jfineco.2021.01.010

Galaz, V., Crona, B., Dauriach, A., Scholtens, B., & Steffen, W. (2018). Finance and the Earth system – Exploring the links between financial actors and nonlinear changes in the climate system. *Global Environmental Change*, *53*(January), 296–302. https://doi.org/10.1016/j.gloenvcha.2018.09.008

Garfield, Eugene. (2006). The History and Meaning of the Journal Impact Factor. JAMA: *the journal of the American Medical Association*. 295. 90-3. 10.1001/jama.295.1.90.

Greenacre, M., & Blasius, J. (Eds.). (2006). Multiple Correspondence Analysis and Related Methods (1st ed.). *Chapman and Hall/CRC*. https://doi.org/ 10.1201/9781420011319

Halimatussadiah, A., Farahmita, A., Machmud, Z., Siregar, A. A., Iskandar, S. D., & Sholihah, N. K. (2018). Bankers' perception on the Implementation of sustainable finance in Indonesia. *E3S Web of Conferences*, 74, 1–6. https://doi.org/10.1051/e3sconf/20187401002

Hoang, A., Phan, K. Van, & Solanki, V. K. (n.d.). *Research Trends on Business Process Management in Higher Education and Recommendations for Vietnam. 17*(1), 1–21. https://doi.org/10.4018/IJITWE.315609

Koblinsky, M., Moyer, C. A., Calvert, C., Campbell, J., Campbell, O. M. R., Feigl, A. B., Graham, W. J., Hatt, L., Hodgins, S., Matthews, Z., McDougall, L., Moran, A. C., Nandakumar, A. K., & Langer, A. (2016). Quality maternity care for every woman, everywhere: a call to action. *The Lancet*, *388*(10057), 2307–2320. https://doi.org/10.1016/S0140-6736(16)31333-2

Lagoarde-Segot, T., (2019). Sustainable finance. A critical realist perspective. *Research in International Business and Finance*, 47(April), 1–9. https://doi.org/10.1016/j.ribaf.2018.04.010

Lanzara, F. (2021). Islamic finance and Sustainable Development Goals. A bibliometric analysis from 2000 to 2021. *European Journal of Islamic Finance*, *18*(April), 1–19. https://doi.org/10.13135/2421-2172/5765

Lengyel, P. (2022). *A Bibliometric study on the Sustainable Economic growth*. 1–18.

Lobont, O. R., Purcarița, R., Vatavu, S., & Costea, F. (2021). A Bibliometric Mapping of the Research Trends of Public Governance and Entrepreneurship Framework. *Postmodern Openings*, *12*(1Sup1), 35–53. https://doi.org/10.18662/po/12.1sup1/270

Nadler, C., & Breuer, W. (2019). Cultural finance as a research field: an evaluative survey. *Journal of Business Economics*, *89*(2), 191–220. https://doi.org/10.1007/s11573-017-0888-y

Pasko, O., Chen, F., Oriekhova, A., Brychko, A., & Shalyhina, I. (2021). Mapping the literature on sustainability reporting: A bibliometric analysis grounded in scopus and web of science core collection. *European Journal of Sustainable Development*, 10(1),  $3 \ 0 \ 3 - 3 \ 2 \ 2$ . https://doi.org/10.14207/ejsd.2021.v10n1p303

Pulgarín, A., Eklund, P., Garrote, R., & Escalona-Fernández, M. I. (2015). Evolution and structure of "sustainable development": a bibliometric study. *Brazilian Journal of Information Science: Research Trends*, 9(1), 24.

Purnomo, A., Sari, A. K., Susanti, T., Mannan, S. S. A., & Lumentut, T. M. B. A. (2021). Sustainable finance study of bibliometric overview. *IOP Conference Series: Earth and Environmental Science*, *729*(1), 1–14. https://doi.org/10.1088/1755-1315/729/1/012124

Purnomo, A., Sari, A. K., Susanti, T., Mannan, S. S. A., & Lumentut, T. M. B. A. (2021). Sustainable finance study of bibliometric overview. *IOP Conference Series: Earth and Environmental Science*, *729*(1). https://doi.org/10.1088/1755-1315/729/1/012124

Purnomo, A., Septianto, A., Rosyidah, E., Khan, H. A. U., & Purnama, P. A. (2021). Green manufacturing literature during three decades: A scientometric approach. *IOP Conference Series: Earth and Environmental Science*, 729(1). https://doi.org/10.1088/1755-1315/729/1/012046

Raut, R., Cheikhrouhou, N., & Kharat, M. (2017). Sustainability in The Banking Industry: A Strategic Multi-Criterion Analysis. *Business Strategy and the Environment*, 26(4), 550–568. https://doi.org/ 10.1002/bse.1946 Saeed-Ul-Hassan, Haddawy, P., Kuinkel, P., & Sedhai, S. (2011). A bibliometric study of research activity in sustainable development. *Proceedings of ISSI 2011 -13th Conference of the International Society for Scientometrics and Informetrics*, 2, 996–998.

Saleem, M. (2021). Green Finance for Sustainable Development : a Bibliometric Review of Current Status, Development and Prospects. 04(04), 1–9.

Salzmann, A. J. (2013). The integration of sustainability into the theory and practice of finance: an overview of the state of the art and outline of future developments. *Journal of Business Economics*, *83*(6), 555–576. https://doi.org/10.1007/s11573-013-0667-3

Sekar S., Solayappan, A., Srimathi J., Raja, S., Durga S., Manoharan, P., Hamdi, M., & Tunze, G. B. (2022). Autonomous Transaction Model for E-Commerce Management Using Blockchain Technology. *International Journal of Information Technology and Web Engineering*, 17(1), 1–14. https://doi.org/ 10.4018/ijitwe.304047

Sikandar, H., Bahru, J., Haiyat, M. U., & Kohar, A. (2022). Systematic Literature Review and Meta-Analysis A Bibliometric Analysis of Green Innovation Research. *Systematic Literature Review and Meta*. http://slr-m.com/index.php/home

Sikora, A. (2021). European Green Deal – legal and financial challenges of the climate change. *ERA Forum*, *21*(4), 681–697. https://doi.org/10.1007/s12027-020-00637-3

Singh, K. B., & Singh, A. (2019). University autonomy and sustainable finance: A case of royal university of Bhutan. *International Journal of Innovative Technology and Exploring Engineering*, 8(9 Special Issue 3), 1 4 3 7 - 1 4 4 4. https://doi.org/ 10.35940/ijitee.I3306.0789S319

Soni, A., Jain, A., & Kaur, B. (1873). a Bibliometric Analysis of "Effect of Artificial Intelligence on Customer Satisfaction in Banking Sector." *Www.Irjmets.Com* @International Research Journal of Modernization in Engineering, 03, 1873–1883. www.irjmets.com Soppe, a. (2009). Sustainable finance as a connection between corporate social responsibility and social responsible investing. *Indian Management Research Journal*, *1*(2004), 13–23.

Sun, W., Louche, C., & Pérez, R. (2011). Finance and sustainability: Exploring the reality we are making. In *Critical Studies on Corporate Responsibility, Governance and Sustainability* (Vol. 2). Emerald Group Publishing Ltd. https://doi.org/10.1108/S2043-9059(2011)0000002007

Syamsul Bahri, M. (2021). Revisiting Concept and Development of Sustainability Reporting in Banking Research: A bibliometric Approach. 3(1). http://journals.smartinsight.id/index.php/EII

UNPRI. (2011). Principles for Responsible Investment in Farmland. UNPRI Report, September,1.https:// www.unpri.org/Uploads/z/b/u/pri\_ar2018\_761642.pdf %0Ahttp://www.unpri.org/publications/

Weaver, P., Jansen, L., Grootveld, G. Van, Spiegel, E. Van, & Vergragt, P. (2000). *Technology Development The Changing*.

Yang, X., Majid, A. Z. A., Tiantian, M., & ... (2021). Ten Decades of Research on Sustainability of Product Design: a Bibliometric Analysis of Trends a Cross Regions. *International Journal of ...*, 25(6), 1–18. https://search.proquest.com/openview/2504ddea10ad2 115e1b14729d6473c0b/1?pq-origsite=gscholar% 5C&cbl=29727

Yip, A. W. H., & Bocken, N. M. P. (2018). Sustainable business model archetypes for the banking industry. *Journal of Cleaner Production*, *174*, 150–169. https://doi.org/10.1016/j.jclepro.2017.10.190

Zhang, C., Fang, Y., Chen, X., & Congshan, T. (2019). Bibliometric analysis of trends in global sustainable livelihood research. *Sustainability (Switzerland)*, *11*(4). https://doi.org/10.3390/su11041150

Ziolo, M., Filipiak, B. Z., Bak, I., & Cheba, K. (2019). How to design more sustainable financial systems: The roles of environmental, social, and governance factors in the decision-making process. *Sustainability (Switzerland)*, *11*(20). https://doi.org/ 10.3390/sul1205604