

# Exploring the Arising Corona Virus Research in the Field of Banking Area: A Bibliometric Approach

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**Abstract:-** Global public health security is seriously threatened by the introduction of a new coronavirus in December 2019, which has resulted in an increase in cases that have been confirmed worldwide. The worldwide financial market has been significantly impacted by the COVID-19 epidemic's rapid spread, which has also exposed the world economy to entirely unknown risks and resulted in massive investment losses. The current study uses bibliometrics, which is a quantitative examination of citations in published papers, to build a citation graph—a network that represents the citations of various papers. Additionally, Bibliometric networks were created and visualized using VOS software, and Biblioshiny software was used to analyze the outcomes. A bibliometric study of “covid- 19” and “banking sector” research will be conducted in this article, along with an examination of current literature and a thorough review. The goal of this investigation is to present a thorough bibliometric study of banking and COVID-19. The main theme of our analysis was on learning about the fundamental aspects of banking and covid-19, such as how many articles were published throughout the research period, what kinds of documents were generated, how many citations authors obtained, etc.

**Keywords:-** Covid-19, Banking, Bibliometric analysis.

## I. INTRODUCTION

Global public health security is seriously threatened by the introduction of a new coronavirus in December 2019, which has resulted in an increase in cases that have been confirmed worldwide. The new coronavirus that caused pneumonia (also known as COVID-19) was identified by the World Health Organization (WHO) as a worldwide pandemic on March 11, 2020. There have been more than 500 million verified cases so far, according to information provided by reputable organizations, the WHO, and official reports from different countries (Zhong, M., & Lin, M., 2022).

Several pieces of research on COVID-19 were conducted from the perspectives of the examination of the features of an epidemic, preventive medicine, preventative and control measures, etc. in order to control the epidemic as quickly as possible. Scientific research staff in various fields across the globe are actively engaged in affiliated research work. Most of this research, as is well known, largely concentrates on the fields of Immunology, general medical care, public wellness, health at work, and diseases associated with infection.

The worldwide financial market has been significantly impacted by the COVID-19 epidemic's rapid spread, which

has also exposed the world economy to entirely unknown risks and resulted in massive investment losses. The economy has been more severely impacted, particularly in developing nations (Mou, J., 2020, July). Additionally, it is said that the COVID-19 epidemic's primary economic effects—rather than death, illness, or the time spent caring for patients—come from fear, shame, and discrimination, which are the key factors influencing the economy (Gong, Et. al., 2020).

To limit the spread of the new COVID-19, governments adopted social isolation, quarantines, and the shutdown of non-essential businesses. The business sector, which had to scrounge for resources once the economy came to a grinding halt, was severely shocked. Due to the decrease in sales, cash is needed to fund operational expenses. The financial industry and banks are projected to play a crucial role in absorbing the shock by supplying critically needed resources (Acharya & Steffen, 2020; Borio, 2020).

COVID-19 is a newly discovered infectious illness that has attracted a lot of study attention. Regarding specific epidemiological, clinical, and virological properties of the virus and related clinical symptoms, there are still many unanswered questions.

The current study uses bibliometrics, which is a quantitative examination of citations in published papers, to build a citation graph—a network that represents the citations of various papers. Additionally, bibliometrics is employed to carefully assess a field's effect within a certain field of study. Additionally, Bibliometric networks were constructed and visualized using VOS viewer software., and Biblioshiny software was used to analyze the outcomes.

A bibliometric study of “covid- 19” and “banking sector” research will be conducted in this article, along with an examination of current literature and a thorough review. The following are the primary contributions of this study.

Performance analysis of pertinent articles is carried out. Using yearly statistics, publication categories, study fields, and highly cited articles, the core aspects of the publications are outlined.

With a careful examination of the collaborative links in the associated items, influential and extremely effective research things are found, including nations/regions, academic organizations, and authors. determining future research areas, clusters, and development patterns by looking at issues from the viewpoint of keywords.

From the views of existing major issues, upcoming trends and future problems, and constraints, constraints are given in-depth (Zhang, L., Ling, J., & Lin, M. (2022).

## II. RESEARCH METHODOLOGY

The objective of this study is to present a thorough bibliometric study of banking and COVID-19. The retrieval approach is used to first find pertinent papers in the appropriate database. The essential traits of the articles are then discussed in relation to yearly indicators, publication categories and study fields, and highly referenced articles. (Tranfield, D., Denyer, D., Smart, P., 2003)

After that, a variety of related bibliometric techniques and technologies are used to examine prominent and extremely prominent institutions, scholars, and their working connections. Research frontiers, hotspots, and emerging trends are also noted. A discussion of constraints, upcoming trends and problems, and current hot topics is concluded. The secondary data was collected from the Web of Science database ranging from 2020 to 2022.

## III. DATA SOURCES AND COLLECTION METHOD

Thomson & Reuters Corporation's Web of Science (WoS) is the most comprehensive information repository in the world, spanning a wide range of subjects. It offers dependable and high-quality academic information to researchers, and it has increasingly taken over as the primary source of data for bibliometric analysis. The WoS core collection is utilized as the data source in this work to locate and gather trustworthy literature. These are the retrieval settings: "Covid" AND "Banking" is specified in the time period 2020–2022, and the Web of Science Core Collection database is used. A total of 890 publications were retrieved. The pertinent data, including titles, abstracts, keywords, etc., was then exported in plain text format for bibliometric analysis.

## IV. BIBLIOMETRICS METHODOLOGY

A scientific review process known as bibliometric analysis uses all the publications that are connected to a certain topic or field to find the key authors or pieces of research as well as their relationships. This bibliometric investigation can offer a variety of relevant information that is relational, making it easier to comprehend the subject's larger intellectual environment. The first bibliometric research focused primarily on author or citation data and examined the intellectual effect of their writings. Bibliometric analysis has lately combined network analysis and sociometric analysis based on titles, keywords, and abstract data. In this study, the author has conducted the following bibliometric methodology.

The productivity and impact of publications are measured by data screening (country/region, institution, author, etc.) and performance analysis, which is based on activity indicators. Several well-known bibliometric indicators, such as the number of publications (NP), the number of citations (NC), and the average number of citations per publication (AC) can be used to quantify the fundamental properties.

The knowledge architecture and flow of work of a certain research topic or journal are revealed through scientific mapping analysis. The main components of the analysis in this section are the following: citation analysis (Dabic et al., 2015; Lin et al., 2018b), co-authorship analysis (Van Eck and Waltman, 2010), cooccurrence analysis (Kamdem et al., 2019; Luo and Lin, 2021), and timeline analysis (Yin et al., 2020). In order to extract and analyze the data for this work, two effective visualization software tools—VOS Viewer (Van Eck and Waltman, 2010), and Bibliometrix (Aria and Cuccurullo, 2017)—are used.

For the bibliometric analysis in this work, open-source software is used. A software program called VOS Viewer is used to build and display bibliometric networks. Additionally, VOS viewer has text mining capabilities that may be used to build and display co-occurrence networks of significant phrases taken from a corpus of scientific literature. To accomplish the study tasks, Bibliometrix, R software for bibliometric and co-citation analysis, was also employed. Because R is an ecosystem program, all its features are available to users in an open-source setting.

## V. ANALYSIS OF THE STUDY

Analysis of the study has been designed as follows:

### A. Performance analysis

- Number of publications
- Number of citations
- Highly cited publication
- Most impacted sources and most used keywords analysis

### B. Scientific mapping analysis

- Co-authorship analysis
- Co-occurrence analysis
- Three field analysis
- Most impacted source analysis

## VI. PERFORMANCE ANALYSIS

This analysis offers various facilities like several documents published during the year, the highest cited sources, papers, etc. The following table gives the basic information about the queried keywords in the Web of Sciences.



Fig. 1: Basic Information about the documents  
Source: Bibliometrix

Table 1: Yearly Indicators of Publications

Year	Number of Articles	Mean Total Citation per Article
2020	123	29.48
2021	418	10.08
2022	349	2.08

Source: Bibliometrix

Table no.1 dictates the number of articles published during the study period as well as also showing the mean total citation per article and classification of published documents during the period.In the year 2020, there were

123 articles published with a mean citation of 29.48. In the next year,a sharp increase has been noticed as it increases more than three times.

Table 2: Classification of Document

Document type	Number of documents
Article	840
Article; Book Chapter	3
Article; Data Paper	1
Article; Proceedings Paper	1
Review	44
Review; Book Chapter	1
<b>Total</b>	<b>890</b>

Source: Bibliometrix

Table no. 2 classifies the type of document published during the period of study. As we can see that majority of documents published on this subject were article forms, followed by review-type papers.

**VII. MOST CITED COUNTRIES ANALYSIS**

Table 3: Top ten highly cited countries

Country	Total Citation
USA	2946
UNITED KINGDOM	860
CHINA	685
INDIA	571
SLOVENIA	364
ITALY	346
PAKISTAN	245
SAUDI ARABIA	166
TURKEY	166
CANADA	158

Source: Bibliometrix

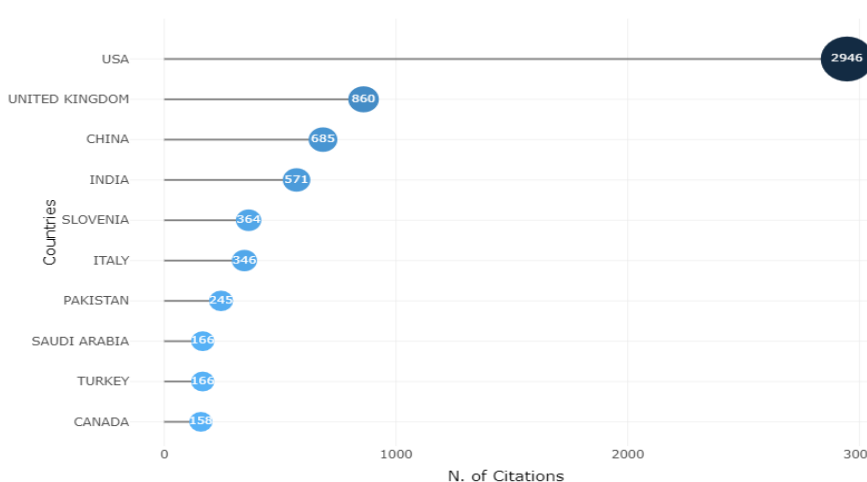


Fig. 2: Top ten highly cited countries

Source: Bibliometrix

Table no. 3 and Figure 2 give the results for highly cited countries. As the above table clearly shows that during this covid period, the most cited country is the USA followed by the United Kingdom, China, and India. As we all know that these countries contributed a major share in trade as

well as other fields of the economy and constitute a major holding in the world market therefore these countries were on the heading of the article produced during the pandemic period.

**VIII. MOST CITED AUTHORS ANALYSIS**

Table 4: Top 10 highly locally cited Authors

Author	Local Citations
GOODELL JW	23
DEMIRGUC-KUNT A	15
CHAURASIA S	13
MIAN SI	13
DAS S	12
KUMAR A	12
MAJMUDAR PA	12
ROY A	12
SAWANT OB	12
TITUS MS	12

Source: Bibliometrix

Table no. 4 describes the highly cited authors in this field. The highest citation was with the Goodell JW followed by Demirguc-Kunt A. These articles were highly cited due to their good quality of articles and contain deep knowledge about the related field. Here is the list of the top ten highly cited authors during the study period.

As the chart reflects that the word “IMPACT” is used 77 times covering the 8% presence in the overall article. This is followed by the keyword “RISK” i.e., 49 times used and it covers 5% of overall article keywords. These keywords show that the research articles were focused on the Impact of covid on the affiliated field, and the risk involved, and tried to develop the research models as well as the major determinants in this field. The “BANKING” keyword has been used twenty-five times which shows a strong correlation between covid and the banking sector. Similarly, various important issues have been discussed while performing the research activities.

**IX. MOST FREQUENTLY USED KEY WORDS ANALYSIS**

The author has also performed the keyword analysis with the help of bibliometrix of R software. The results show that the majority of articles emphasize the following keywords “IMPACT”, “RISK”, “Covid-19”, “Model”, etc.

Table 5: Top 10 Most frequently used words in articles:

Terms	Frequency
Impact	77
Risk	49
Covid-19	48
Model	48
Performance	42
Crisis	31
Determinants	27
Banking	25
Policy	25
Health	23

Source: Bibliometrix

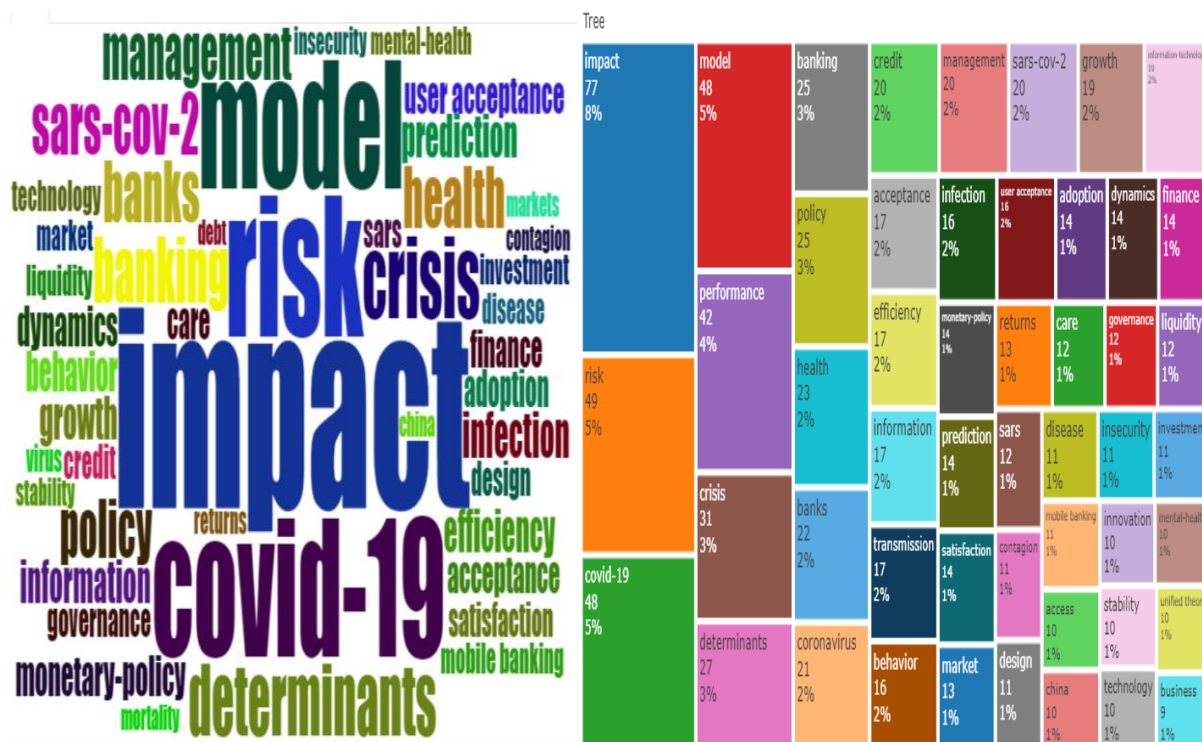


Fig. 3: Top 10 Most frequently used words in articles:

Source: Bibliometrix



**X. SCIENTIFIC MAPPING ANALYSIS**

This analysis offers a scientific analysis of the related keyword which includes citation analysis, co-authorship analysis, the co-occurrence of keyword analysis, three field studies, most impacted sources, countries analysis, etc.

**XI. CO-AUTHORSHIP ANALYSIS**

In this section, the author used the co-authorship analysis of countries with the help of a VOS viewer. Co-authorship of countries analysis has been described in the following figure. In the below figure one represents the overlay visualization and another figure reflects the dense

visualization. Our analysis shows that the majority of countries have contributed to this field of research. As displayed by the figure USA, China, England, and India have given the greatest number of research in the prescribed field and contributed a major share in the research world. Similarly, figure .... Shows that countries with large yellow circles reflect their productivity in the given research field. With the help of VOS software, we found that from the beginning of covid-19 pandemic countries like the USA, China, England, and India have started their research as these countries are significantly affected by the pandemic so their involvement is quite necessary and with passage of time several other countries also start contributing their significant share in this research field.

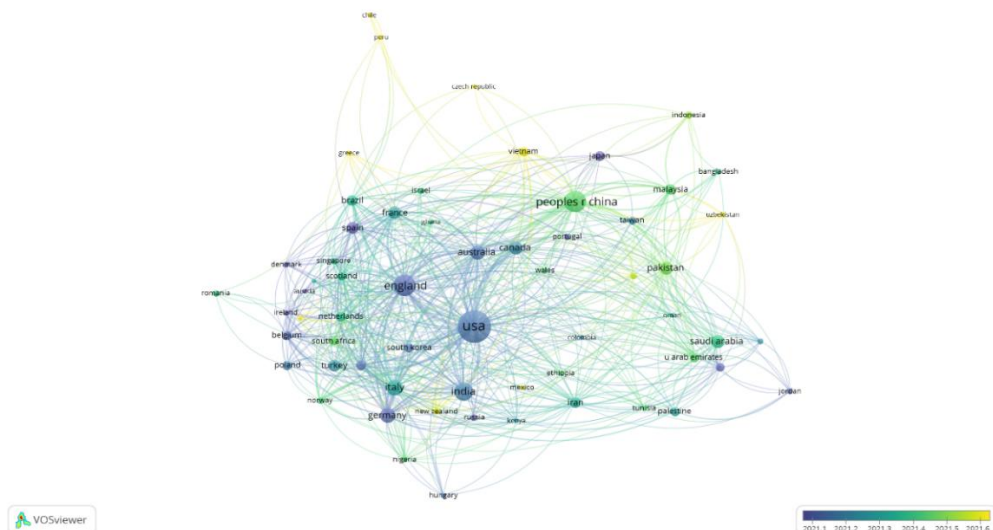


Fig. 4: Co-Authorship of countries overlay visualization

Source: VOS viewer

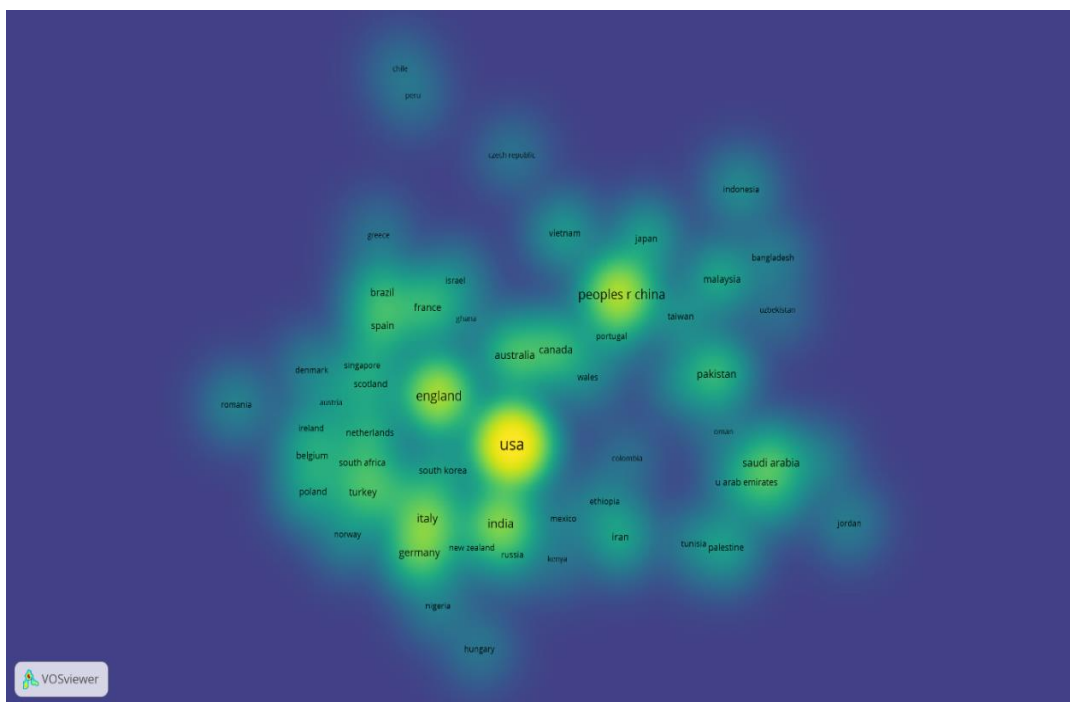


Fig. 5: Co-Authorship of countries densely visualization

Source: VOS viewer



**XIII. THREE FIELD STUDYANALYSIS**

The three-field analysis defines the relationship between authors, keywords, and sources. The left column in the following picture listed the names of writers, the center column listed keywords, and the right column listed the name of the publication. This analysis is performed with the help of bibliometrix of R software and it includes 25 authors, keywords, and sources. It has been clearly visible that the majority of journals contributed equally to this field.

Analysis reveals that most of the authors consider covid-19 as their keyword and the word substituting the covid-19 was also used many times in their keyword. Covid and banking relationship has been also displayed in this analysis as reflected by the keywords like banking, money, bank, financial stability, etc. The reason for concentrating on this topic was quite clear as these are the major sector which has been affected by the pandemic.

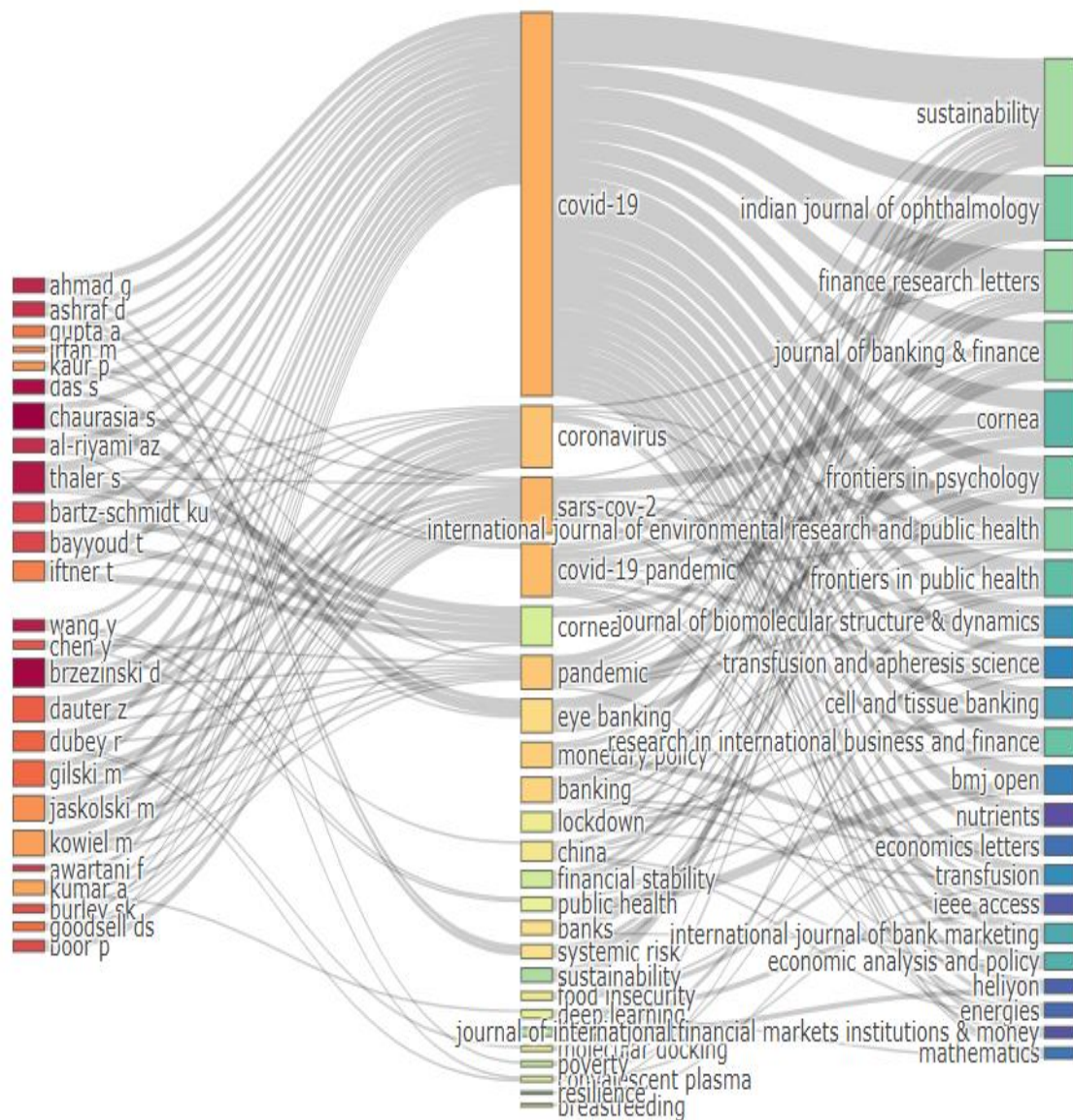


Fig. 8: Three field study

Source: Bibliometrix

**XIV. MOST IMPACT SOURCESANALYSIS**

This section provides the results of the top ten highly impacted sources in this field. Here the analysis gives the result for h-index, g- index, m- index total citation, and net production. The most popular author statistic is called the H-

index (or Hirsch index). Jorge E. Hirsch, a physicist, developed it in 2005. (California University). It is determined by the number of articles and citations. By dividing the H-index by the number of years a scientist has been working, we get the M-Index.



Table 6: Top 10 most Impact sources

Element	h_index	m_index	TC
JOURNAL OF BANKING & FINANCE	7	2.333	111
JOURNAL OF BIOMOLECULAR STRUCTURE & DYNAMICS	6	-	386
PLOS ONE	6	2	76
SUSTAINABILITY	6	2	464
FINANCE RESEARCH LETTERS	5	1.667	655
INDIAN JOURNAL OF OPHTHALMOLOGY	5	1.667	117
INTERNATIONAL JOURNAL OF BANK MARKETING	4	2	32
INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH	4	1.333	65
OXFORD REVIEW OF ECONOMIC POLICY	4	1.333	215
RESEARCH IN INTERNATIONAL BUSINESS AND FINANCE	4	1.333	64

Source: Bibliometrix

Here Finance Research letters have the highest number of citations which is 655, followed by journal titles Sustainability and Journal of biomolecular structure & Dynamics. Although the highest h-index has been achieved by the Journal of Banking 7 which reflects that it was cited 7 times similar to other journal having a 4 to 6 h-index which shows that these sources were cited from 4 to 6 times. The highest m-index shows the average citation the author receives over the years. Journal of Banking & Finance has the highest m-index. The reason may be a strong association between covid and the financial sector.

## XV. CONCLUSION OF THE STUDY

The initial part of our analysis was on learning about the fundamental aspects of banking and covid-19, such as how many articles were published throughout the research period, what kinds of documents were generated, how many citations authors obtained, etc. Performance analysis shows that there was an upward trend in publishing in this subject from 2020 to 2022 as evidenced by the growth in the number of articles and publications. Nearly 900 papers were found, and nearly 42 hundred people were involved in this issue, reflecting a 68.45% yearly growth rate that shows good and quick growth. Around 90% of the publications were articles, which made up the majority of the publications. In order to understand how the literature in journals on a given topic is dispersed or organized, Bradford's law of scattering was applied. As a result, we discovered that the journal "Sustainability" is the most frequently used and ranked first for doing so in terms of providing space for such topics to advance knowledge worldwide. As a result of the fact that these nations are frequently mentioned in research papers during the study period—as is well known—China, the United States, England, India, and other large economies face additional challenges as a result of the epidemic. The USA received the most citations (2946), followed by the UK, China, and India. The R software's bibliometrix was used to determine the authors who were most frequently mentioned.

The most popular keyword that may capture the tone of the writers and their work is also discovered during the performance analysis, and you can probably assume that what we discovered is not shocking. The most often used term in publishing research that demonstrates that COVID is an independent component whereas another element is

reliant on the pandemic is "IMPACT," as we discovered. The next frequent term we found was "RISK," which indicates that COVID has somehow negatively impacted the planet. One of the main industries discussed throughout the research publication and one of the top ten words utilized in this subject, according to our analysis, is banking.

In the next section of our investigation, we have created a scientific mapping analysis that offers a more precise method of identifying the covid and banking sectors. Here, we examined the co-authorship analysis to determine which nations the writers had participated in. And we discovered that the primary countries that enriched this area of study were the United States, China, England, and India. After that, we go on to the co-occurrence of keyword analysis, where we revisit the most significant and hotly debated subjects from the previous research period. Simply said, it aids in pinpointing hot-button issues. The most prevalent subjects we discovered were covid-19, which appeared more than 500 times, followed by sars-cov-2, which appeared 89 times. Here, we once more identified keywords like "Impact" and "banking," which indicates that covid-19 has a significant relation to the financial industry. As is well known, the whole financial sector underwent transformation because of the pandemic. Therefore, it is obvious that these issues have a prominent role in the field of research publishing. In the last section, we also identify the sources that have been most significantly impacted using the H-index, M-index, and citation frequency. The most reputable publication for publishing this issue and having the greatest h and m index is the Journal of Banking and Finance. The journal "Finance Research Letters" received the most citations, obtaining 655 total, indicating that the financial industry is the most influential and impacted by the pandemic.

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