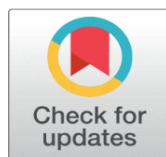


PIONEERING COSMOPOLITAN PANORAMA OF FINANCIAL FRAUD: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

The research aims to provide a comprehensive bibliometric analysis of financial fraud scholarship from 1976 to May 2022. By examining publication trends, key contributors, and thematic developments, it seeks to shed light on the evolution and current state of financial fraud research. This study aspires to identify significant journals, authors, institutions, and collaborative networks while highlighting research gaps and emerging areas within the field. It aims at informing future study and practical applications in the area of fraud prevention and control, with actionable insights towards both researchers and practitioners alike. Bibliometric study was used to extract and to analyze peer-reviewed publications into the Scopus database on financial fraud. The data were categorized according to the year of publication, the country, the journal, and the author and the organization for one to assess trends and productivity about the field. Metrics such as citation counts, H-Index scores, frequency, and percentages were computed to assess research impact. Collaborative networks and thematic developments were mapped using co-authorship and keyword analyses. The results of the analysis show that financial fraud research publications have been constantly increasing since 1976, indicating a growing academic and practical interest in the area. The Journal of Financial Crime is the leading publication venue, which reflects its importance in the advancement of the field, with an impact score of 1.5 and an H-Index of 26 as of June 2022. However, the study identifies gaps in the literature, characterized by limited thematic ideologies and keywords, as well as sparse international collaborative networks. This lack of global research connectivity opens up opportunities for creating collaborations to address the intrinsically global nature of financial fraud. Bibliometric data also show annual growth patterns and key performance indicators, which again points to the importance of focused research on emerging fraud threats. The implications of this research are many. It gives academics a clear understanding of underexplored themes and regions in financial fraud studies and guides the direction of further inquiries. For policymakers and practitioners, the study provides a foundation for developing targeted interventions and collaborative strategies to combat fraud on a global scale. The findings further encourage journal publishers and funding bodies to focus on financial fraud research, given its profound societal and economic impacts. Furthermore, the identification of gaps in international collaboration underscores the need for multidisciplinary and transnational research initiatives to tackle financial fraud effectively. This study represents a novel contribution to the financial fraud research domain by presenting one of the few bibliometric analyses covering over four decades of scholarly work.

Keywords: Financial Fraud Research, Bibliometric Analysis, Publication Trends, Collaborative Networks, Fraud Prevention Strategies

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1. INTRODUCTION

Among the most pervasive and economically damaging forms of crime, financial fraud emerges as a key area of concern. Factors that enable engagement in financial fraud often fit within the "fraud triangle" conceptual framework, as proposed by Cressey in 1953, whereby opportunity, significant pressure, and a rationalising mindset serve as prime motivators. Financial fraud has resulted in an overwhelming amount of economic loss with over \$3.6 billion lost to fraud in more

than 133 countries and accounting for 5% of global revenue according to the ACFE in 2022. According to the International Monetary Fund Financial Access Survey (2022), global losses to fraud stand at more than \$4.7 trillion against a gross world product (GWP) of \$94.94 trillion. In other words, financial fraud can be defined as a range of deceptive practices used by one party to get an unfair advantage over another. This includes false statements, coercive practices, and other unscrupulous acts to exploit trust and cause financial or reputational loss (Dictionary, 1990). Although these crimes have a global reach, the data indicate that many employees trust their employers and refrain from fraudulent practices, with labour force data from The World Bank (1990–2020). But despite all this, PwC's Global Economic Crime and Fraud Survey (2022) states that less than half, at 49%, of organisations report fraud incidents, indicating it has wide-ranging and systemic implications. Communications networks and information-sharing platforms have improved significantly, but research on financial fraud within academia is very limited and is usually limited to only a few well-respected journals and to specific industries. This scarcity of empirical evidence and limited single data source possibly accounts for the relatively small volume of scholarly output. Aware of this gap, the current study looks to explore and synthesize a broad spectrum of existing financial fraud literature across disciplines in an exploratory academic view. Financial fraud assumes various forms and, in many cases, the victims do not know the relevant legal frameworks, applicable regulations, and possible consequences. Therefore, making matters worse for the prevention and redressal process, complex financial fraud prevention requires addressing a number of challenges recognized by scholars, corporate entities, and policymakers. This rapid proliferation of publications makes it difficult to stay updated, thereby necessitating systematic reviews that synthesize knowledge and identify research priorities. Empirical contributions to the field have often resulted in fragmented insights, leading to the need for an integrated approach toward understanding financial fraud (Briner & Denyer, 2012).

Literature reviews play a vital role in integrating past research, capitalizing on previously developed knowledge bases, and making evidence-based predictions and insights to inform professional practice and policymaking (Rousseau, 2012). This paper undertakes an intensive bibliometric analysis that sheds light on the literature so far developed regarding financial fraud. Bibliometric analysis, which includes mapping and visualizing data trends, is very effective in identifying the status, directions, and emerging trends in a discipline (Borner et al., 2003). Techniques such as creating bibliometric maps, constructing tables, and using graphical representations facilitate the analysis of research outputs and their impact (Ahlgren et al., 2003; Boyack et al., 2005). This technique has been applied in multiple fields to trace the trends of research and to deliver actionable insights (Koskinen et al., 2008). Bibliometric studies using empirical research based on this technique commonly rely upon statistical and mathematical tools to establish the quantitative distribution of the research, the thematic pattern, and the disciplinary flux (Wang & Su, 2020). Although graphical bibliometric analyses may hold great promise, they do not gain popularity because of limited research activity (Chen, 2003). However, from the evidence presented in recent studies by Antonio et al. (2020) and Rusydiana (2021), bibliometric tools represent a utility for the arrangement and interpretation of research landscapes. The paper draws on the data of Scopus, with its bibliometric methods, in focusing on the trend, collaboration, and thematic concentration of publications regarding financial fraud across different journals and disciplines. This research would allow for a comprehensive perspective of financial fraud studies for better utilization of existing knowledge and the generation of new academic inquiries into this very important area.

According to the "Research Intelligence Content Coverage Guide," Scopus was introduced in November 2004 as a source-neutral abstract and citation database. It is curated by independent experts from various disciplines and serves as an extensive, multidisciplinary resource. The database includes citations and abstracts of peer-reviewed articles, industry journals, books, patent records, and conference proceedings. Additionally, Scopus provides tools for tracking, analyzing, and visualizing search data. With over 25,000 titles, including more than 23,452 peer-reviewed journals (5,500 of which are full open access), 294 trade publications, and around 852 book series, Scopus covers a vast range of academic content. It contains nearly 9.8 million conference papers from more than 120,000 global events, articles in press from over 5,500 journals, and 210,000 books, with 20,000 new books added annually. The database holds a total of over 77.8 million records, with 71.2 million records from post-1969 publications and 6.6 million records from pre-1970 publications, with the oldest record dating back to 1788. It also includes more than 44 million patent records from five major patent offices ("Research Intelligence Content Coverage Guide," 2020). The Scopus database provides a comprehensive overview of global scientific research output and is currently regarded as one of the primary sources of research information by the international academic community. According to Fahimnia et al. (2015), researchers often use Scopus to search for

information by keywords, titles, and abstracts. In this study, the keyword "Financial Fraud" was selected to align with the study's main objective. Additionally, the terms "financial" and "frauds" were incorporated, allowing searches to be conducted across titles, abstracts, and keywords, which facilitates the retrieval of articles related to financial fraud. Furthermore, the search process was restricted to articles published in the primary languages of scientific literature and indexed in relevant journals. This limitation is commonly applied in bibliometric analysis to ensure the inclusion of articles subject to peer review in high-quality journals. The database was then formatted into a CSV file, and all retrieved articles were reviewed for relevance and verified accordingly. The research questions were proposed to be answered for the current study:

RQ 1: What are the prevailing trends, thematic concentrations, and collaborative networks in financial fraud research as revealed through bibliometric analysis?

RQ 2: How do interdisciplinary approaches contribute to the understanding, prevention, and mitigation of financial fraud, and what gaps exist in the current literature for fostering new academic inquiries?

2. METHODOLOGY

Bibliometric analysis provides a "comprehensive and balanced view" of available data, enabling the calculation of statistical measures and other parameters that assess scientific productivity (Todeschini & Baccini, 2016). In this study, bibliometric analysis was performed using the Scopus database, as of May 2022. The search term "Financial Fraud" was used in article titles to identify relevant research related to financial fraud, focusing on studies published in English. This approach helps to define the research area and the purpose of the investigation (Fonseca & Louçã, 2018). Erratum and duplicate document types were excluded to prevent the double counting of documents. All remaining documents were included in the bibliometric analysis. The bibliometric analysis explores a collection of publications using quantitative analysis techniques, employing a variety of bibliometric indicators. For this study, the science mapping method was applied, using the visualization software biblioshiny to illustrate the subject structure and conduct the analysis. Biblioshiny is a user-friendly interface with powerful graphical capabilities for bibliometric analysis, presentation, and data review. The first step in the process was importing the data in CSV format from Scopus. The files were then uploaded to the biblioshiny package using bibliometric coding in RStudio. Bibliometric analysis is conducted using open-source tools developed by Aria and Cuccurullo, programmed in the R environment, for comprehensive mapping analysis (Aria & Cuccurullo, 2017). The four-step methodology proposed by Zhao and Strotmann (2015) for bibliometric analysis was employed to identify the most influential studies and review the research topic. This is recognized across all fields of research analysis for the strategy for keyword selection and its importance in processing, which is seen with Noh, Jo et al. 2015. As shown from Figure 1, it has determined topics regarding "Financial Frauds" mostly during keyword searches.



Figure 1: Process flow from keyword analysis to data analysis.

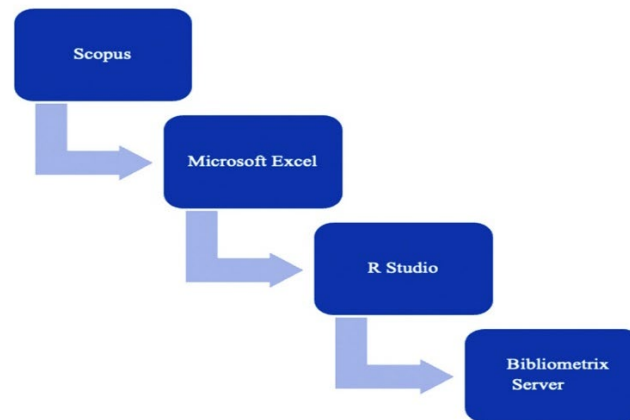
2.1 Subject Area

From the Scopus database the subject area selected were Computer Science(441), Business, Management and Accounting (243), Social Sciences(232), Engineering(205), Economics, Econometrics and Finance(197), Mathematics (104), Decision Sciences(101), Medicine(64), Arts and Humanities(50), Psychology(33), Materials Science(29), Physics and Astronomy(22), Energy(18), Environmental Science (17), Nursing(10), Biochemistry, Genetics and Molecular Biology(9), Neuroscience(9), Chemistry(6), Earth and Planetary Sciences(6), Multidisciplinary(6), Agricultural and Biological Sciences(5), Health Professions(5), Chemical Engineering(4), Pharmacology, Toxicology and Pharmaceutics(1).

2.2 Document Type

Document type included Articles (490), Conference Papers (330), Reviews (42), Book Chapters (53), Books (21), Conference reviews (9), Notes (6), Editorials (4), Short Surveys (1), Retracted (1). The language chosen was in English.

Period was from 1976 until May 2022. 2.3 Tools Used This study utilized Microsoft Excel 2022 Version 16.62 (.csv format) in calculating the frequency and percent of each publication as well as the creation of pertinent graphical illustrations; RStudio 2022.02.3 Build 492 in the establishment and visualization of bibliometric networks; and Endnote 20 (Bld 16480) for metrics on citations and referencing.



Flow from data collection to initial analysis.
Figure 2: The initial process of usage of technological tools.

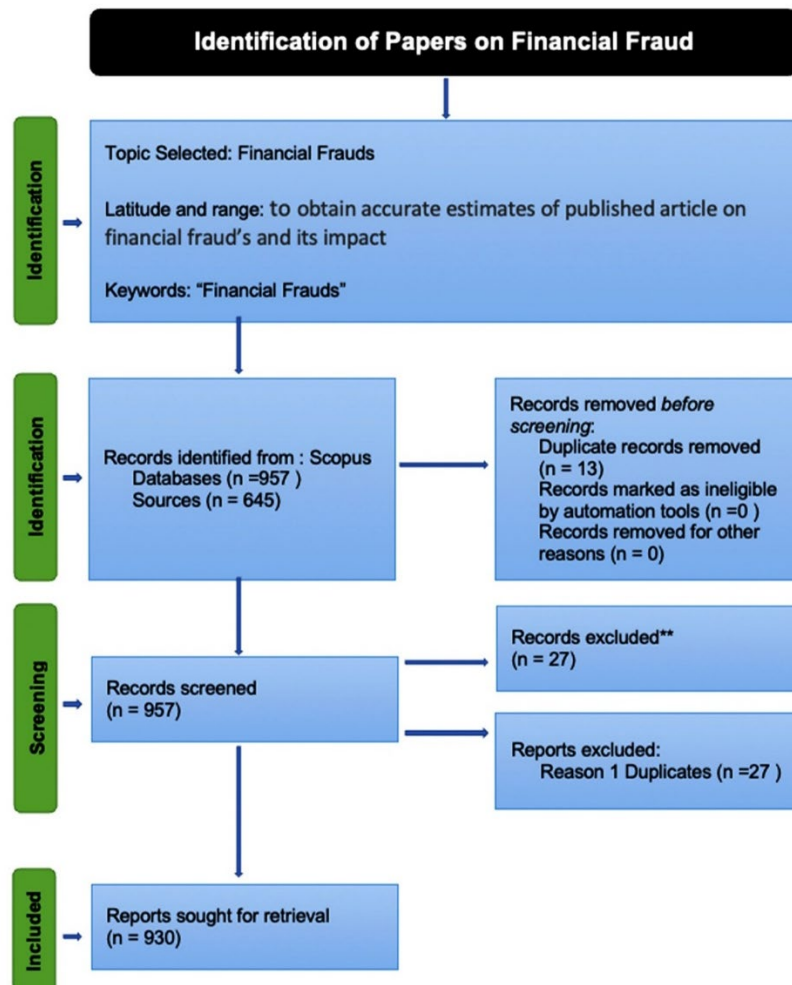


Figure 2. Prisma Flow diagram of the search strategy for document collection, cleaning and finalising.

Figure 3 explains the process flow of steps from document collection to the finalization of secondary data. The Prisma 2020 flow diagram is adopted for new systematic reviews, including database and register searches alone (Page et al., 2021).

3. ANALYSIS AND FINDINGS

The analysis of network graphs has always been traditionally treated primarily on the basis of explicative task and inverse to inferential task, the tools that are commonly used for facilitation derives in a great amount from the areas outside of the mainstream statistics (Kolaczyk and Csárdi 2014). The explicative analysis of data is typically one of the first topics that are encountered for standard introduction in the statistics area. Likewise, the visualization, numerical characterization of different networks are usually considered as primary steps in network analysis. (Kolaczyk and Csárdi 2014). The study has been categorized mainly into explicative analysis and structural analysis.



Figure 3. Overview of bibliometric analysis.

From Figure 4 the annual scientific production is determined for the time period from 1976 until may 2022, including 645 sources with 957 documents. The annual growth rate is 9.39 percent among 2218 authors who published their studies. The year 2021 has produced most number of articles in financial fraud with 157 compared to other years, whereas the years 1977 to 1989, 1991, 1992 and 1994 with no articles published (Figure 5).

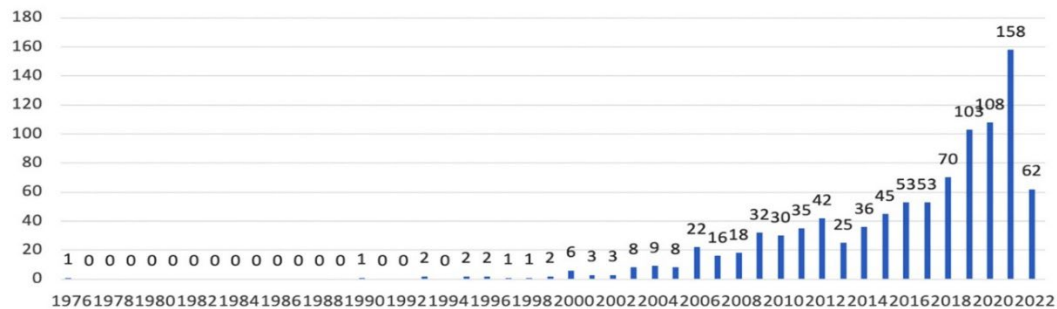


Figure 4. Number of articles produced in a year

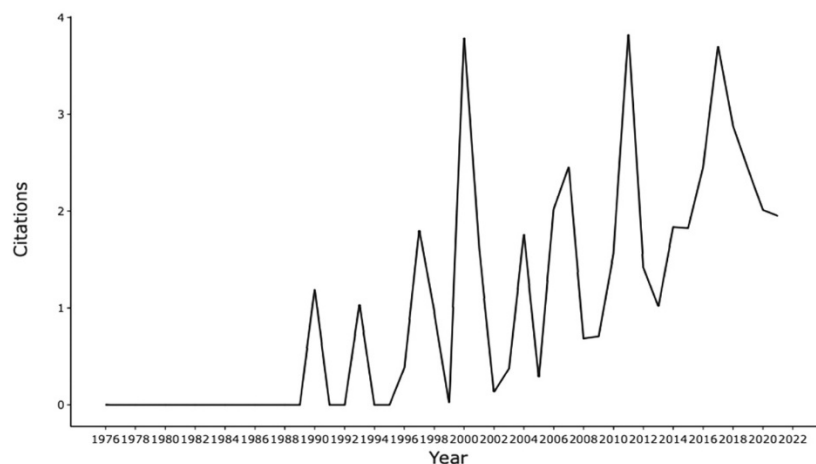


Figure 5. Average Citation Per Year

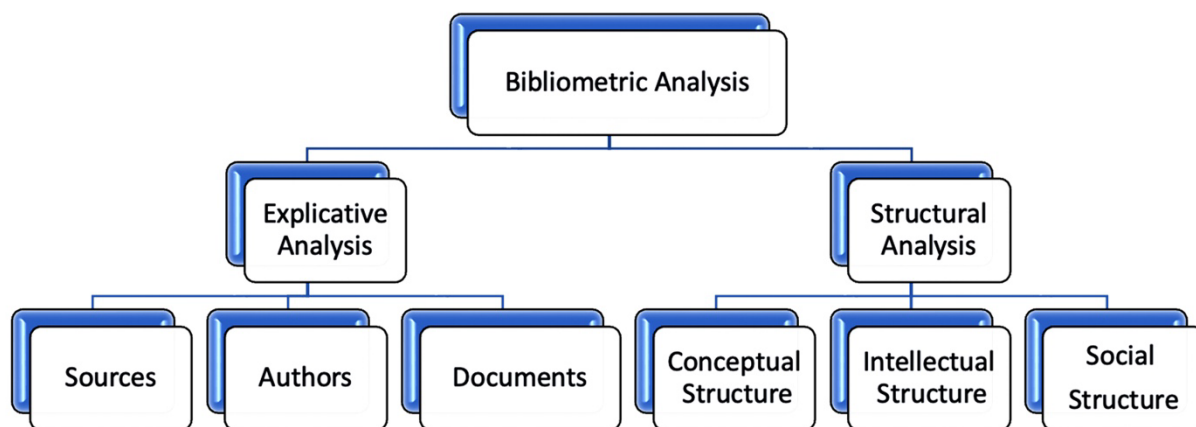
The study has compared average citation for a five year period difference, which represents years average mean total citation, number of articles and average mean total citation per article in (Table 1).

Years	Avg. MTC Yr.	Articles	Avg. MTC Art.
1990-1995	0.37	5	11.33
1996-2000	1.39	12	32.37
2001-2005	0.84	31	16.07
2006-2010	1.49	118	21.32
2011-2015	1.99	183	18.56
2016-2021	2.57	545	9.66
2022		62	0.1

Legend: Avg. MTC Yr. - Average mean total citation per year. Avg. MTC Art. - Average mean total citation per article.

Table 1. Fiver year average citation

Table 1 shows an overview of average citation calculated for a five year period. The mean integration Scores of the articles that appears in journals compared to other's by field.(Solomon et al., 2016). From the analysis of Table 1 average mean total citation per article for 5 year period is calculated and in 1976 there was only one article until 1989. The mean total citation per year and article has been calculated after that by taking average of years from 1990-1995, 1996-2000, 2001-2015, 2016-2021. The coherent approach for analysis has been segregated it into mainly explicative analysis and structural analysis. (Figure 7).

**Figure 6. Different sequential structure for bibliometric analysis.**

3.1 Explicative analysis

In an explicative analysis a variety of methods are used to attribute and discriminate the documents in a specified group. Then the attributes are confirmed by reference standards and can be assigned as generic descriptive analysis (Lawless and Heymann 2010).

The analysis primarily focuses on the following dimensions: (1) Sources, encompassing the most relevant sources, locally cited sources, and source dynamics; (2) Authors, including the most relevant authors, Lotka's Law, affiliations, countries,

country-specific scientific production, frequency of country production, and the most cited countries; and (3) Documents, covering the most cited documents, frequently used words, and trending topics.

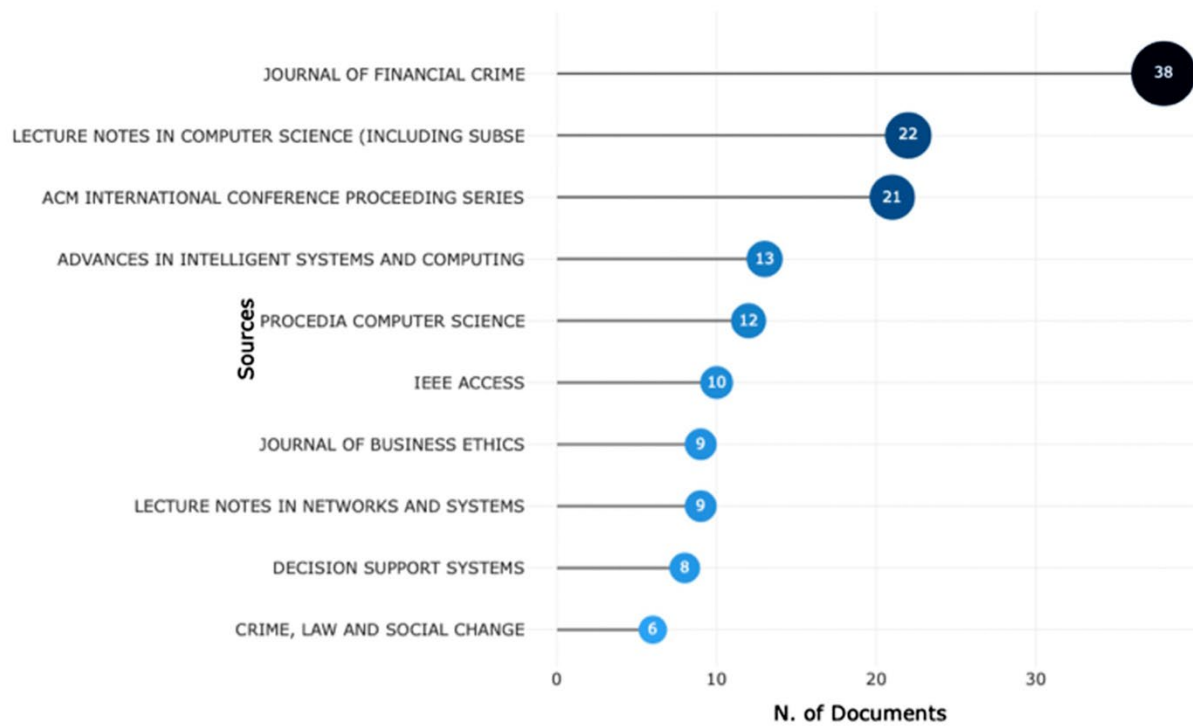


Figure 7. Most Relevant Sources

3.1.1.1. Most Relevant Sources

The expansion of specialized look motors and data stores on the Internet gives a wealthy source of extra data pre-focused for a wide run data needs, possibly empowering timely frameworks to explore the particular focus by inquiring the foremost important sources.(Leake, Scherle et al. 1999). In Figure 8 top ten sources were taken and journal of financial crime has most number of papers published that is 38.

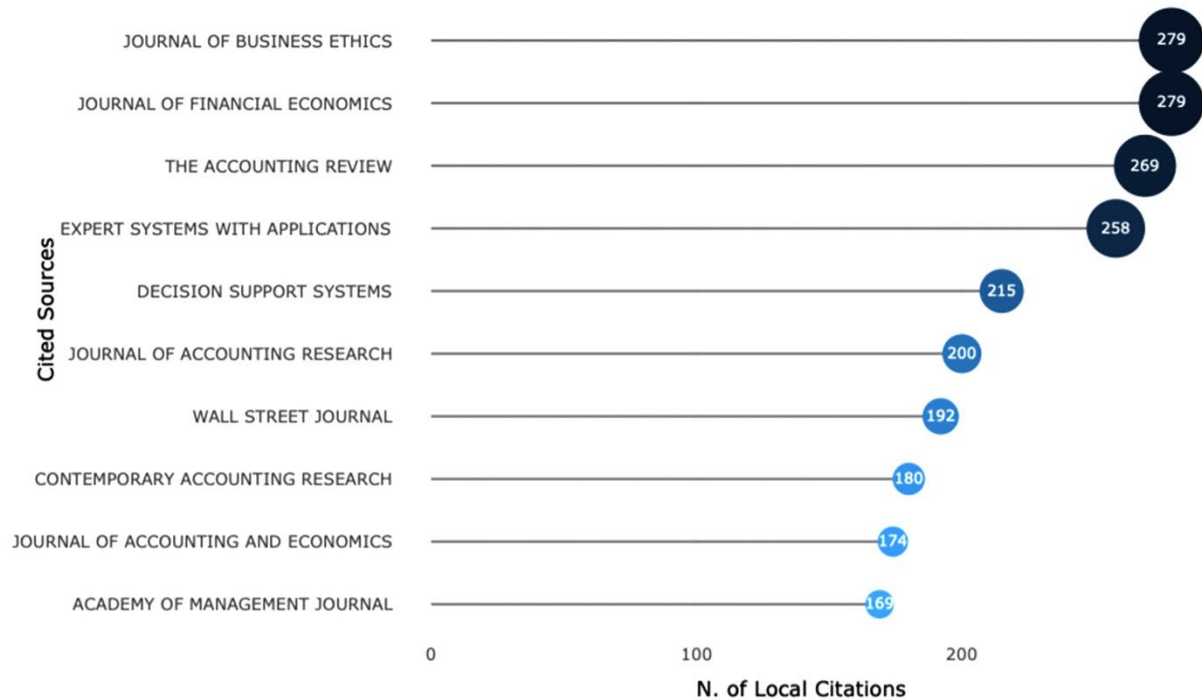


Figure 8. Most number of locally cited documents.

3.1.1.2. Most Local Cited Sources

Betweenness centrality appears to be a marker for multidisciplinary journals, but as it were in local quotation situations and after normalization; something else, the impact of degree centrality (measure) dominates the betweenness-centrality degree (Leydesdorff 2007). From Figure 9 it is evident that journal of business ethics and journal of financial economics tops the list for most locally cited sources with 279, the accounting review with 269 and expert systems with application has 258 citations.

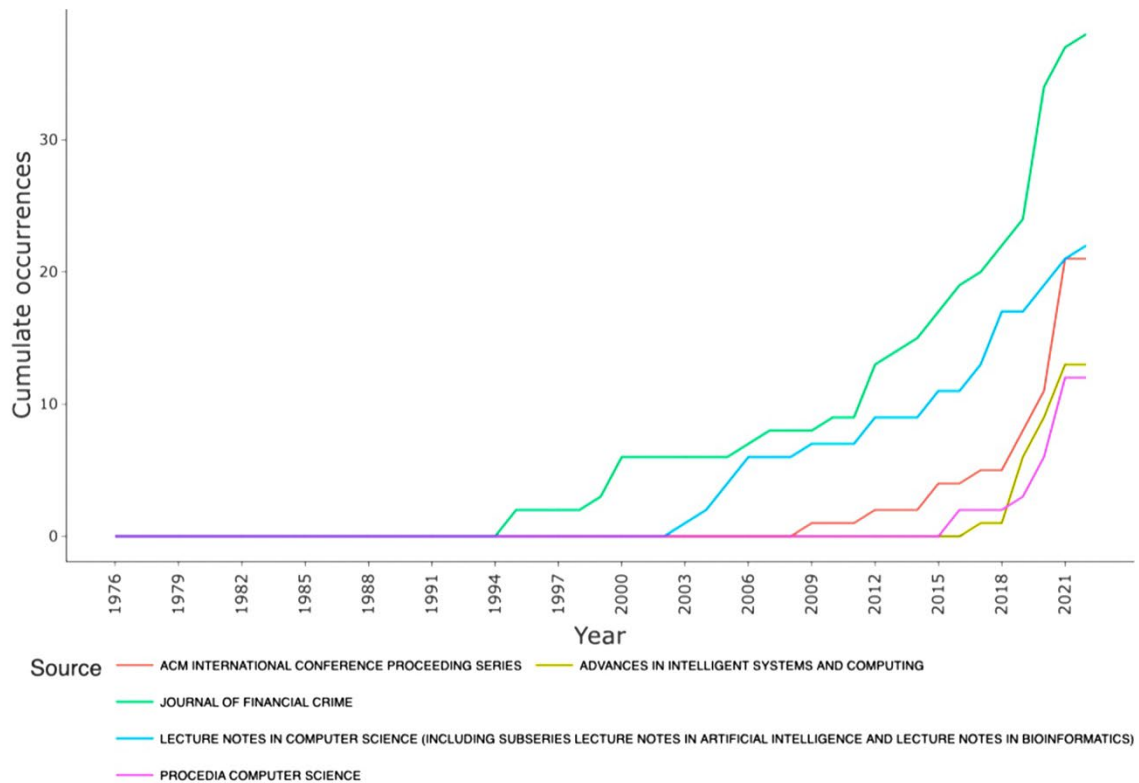


Figure 9. Source in comparisson with cumulative occurances.

Year	Journal Of Financial Crime	Year	Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence And Lecture Notes In Bioinformatics)	Year	ACM International Conference Proceeding Series	Year	Advances In Intelligent Systems And Computing	Year	Procedia Computer Science
1976 - 1994	0	1976 - 2002	0	1976 - 2008	0	1976 - 2016	0	1976 - 2015	0
1995 - 2022	349	2003 - 2022	204	2009 - 2022	88	2017 - 2022	43	2016 - 2022	39

Table 2. Periodical Source Dynamics

3.1.1.3. Source Dynamics

A graphical development is displayed which permits one to decide the spatial design of wealth at harmony for most sensible development models and the rates of dissipate. It is appeared beneath or a general and common conditions that this harmony is one of a kind and universal stability (Holt 1985). Figure 10 shows the trend in increasing cumulative occurrences of journals from 1976 to may 2022. Table 2 shows the start of occurrences and years with null values. The journal of financial crime occurred 349 times from 1995 to may 2022, lecture notes in computer science (including

subserieslecture notes in artificial intelligenceand lecture notesin bioinformatics) occurred 204 times from 2003 to may 2022, acm international conference proceeding series occurred 88 times from 2009 to may 2022, advances in intelligent systems and computing occurred 43 times from 2017 to may 2022 and procedia computer science occurred 39 times from 2016 to may 2022.

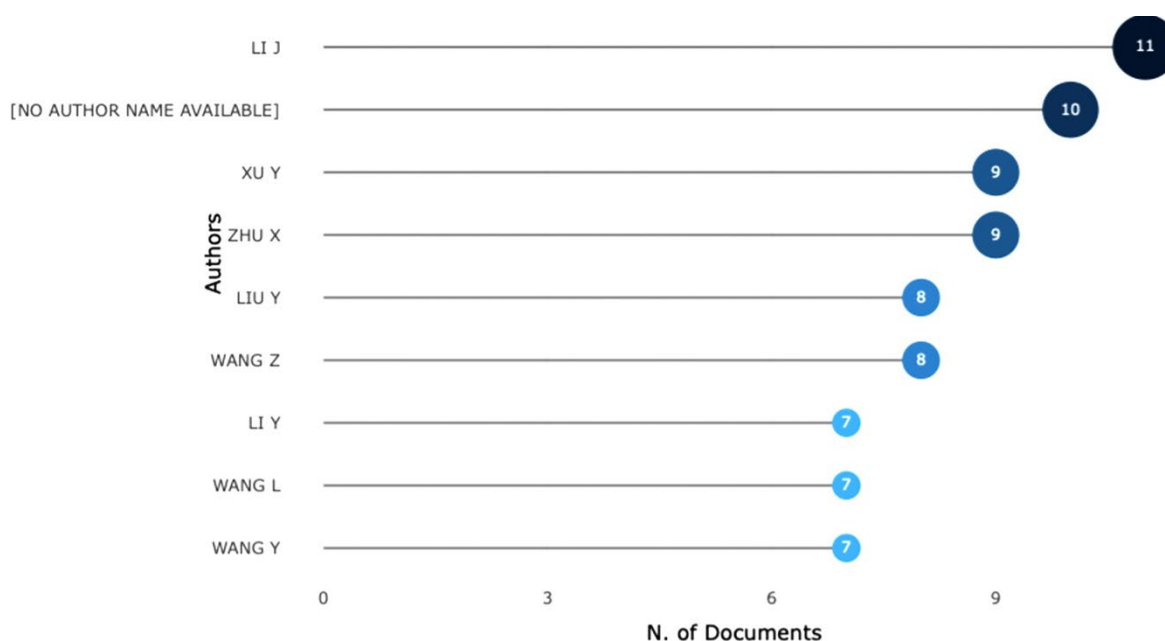


Figure 10. Most Relevant Authors

3.1.2.1. Most Relevant Authors

The foremost common degree of title "instruction" has been the number of "substantive" words that are included, and one of the variables which can be related to the authors (Yitzhaki 1994). Figure 11 shows that the authors HE J and LI J has most number documents with 11. There are 10 documents under an unnamed authors. Authors XU J and ZHU X has 9 documents, LIU Y and WANG Z with 8 documents, LI Y, WANG L and WANG Y has 7 documents published.

Documents written	Number of Authors	Proportion of Authors
1	1898	0.856
2	222	0.1
3	59	0.027
4	16	0.007
5	7	0.003
6	5	0.002
7	4	0.002
8	2	0.001
9	2	0.001
10	1	0
11	2	0.001

Table 3. Lotka's Law based Authors Productivity

3.1.2.2. Author Productivity through Lotka's Law

Lotka's Law deals with the frequency of distribution by authors in any given field. It says that the number of authors who are making commitment in a particular period of time may be a quotient of the number making a contribution in a single one. It is a supposed inverse square law (Bensman and Smolinsky 2017), where the number of authors publishing a particular number of articles may be a settled fraction to the number of authors that are publishing a single article (Kyvik 1989). From Table 3 there are only 2 authors who has written 11 documents and most documents are under 1898 different authors.

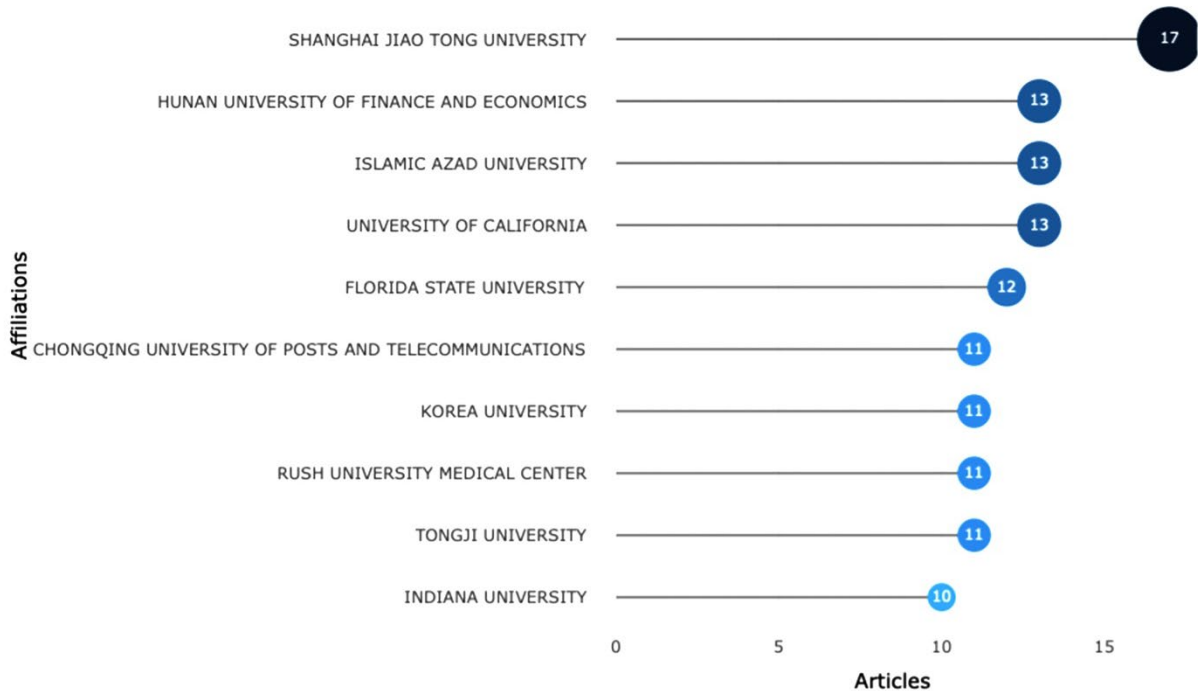


Figure 11. Affiliations of different universities with most number of articles.

3.1.2.3. Most Relevant Affiliations

Instep, leveraging information resources got to be the key reason credited to corporate victory stories amid the day break of the web age with affiliations worldwide (Serenko, Bontis et al. 2010).Shanghai Jiao Tong Univesity has most number of articles with 17 numbers published.

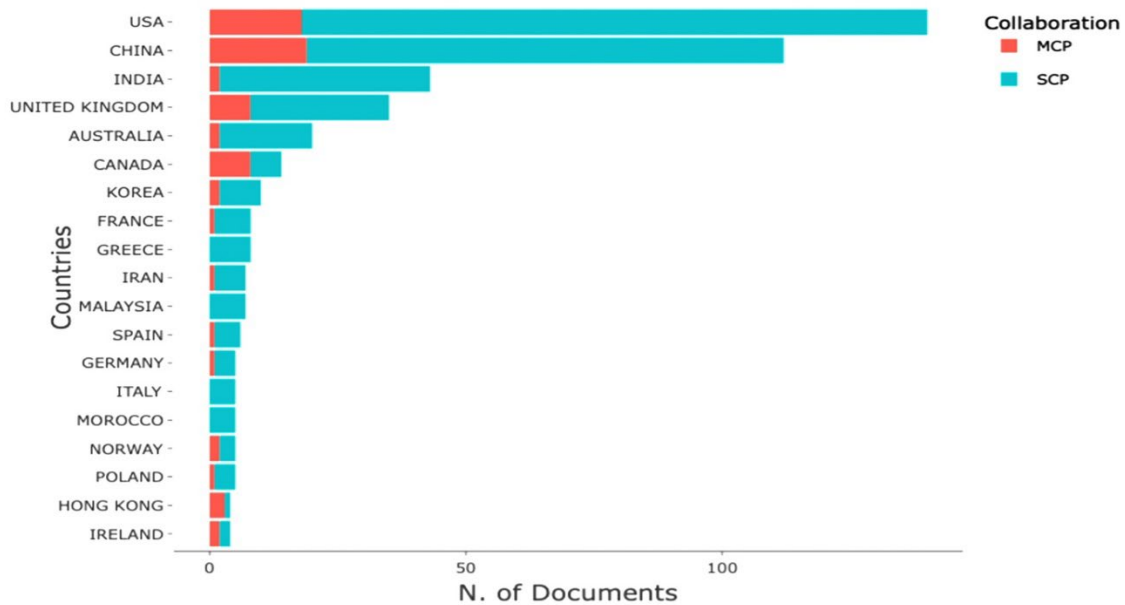


Figure 12. Scientific production in different countries.

Legend :SCP - Intra-country, MCP inter-country

Country	Articles	SCP	MCP	Freq	MCP_Ratio
USA	140	122	18	0.146	0.129
CHINA	112	93	19	0.117	0.17
INDIA	43	41	2	0.045	0.047
UNITED KINGDOM	35	27	8	0.037	0.229
AUSTRALIA	20	18	2	0.021	0.1
CANADA	14	6	8	0.015	0.571
KOREA	10	8	2	0.01	0.2
FRANCE	8	7	1	0.008	0.125
GREECE	8	8	0	0.008	0

Legend :SCP – single country production (Intra-country), MCP multiple country production (inter-country), Freq - Frequency MCP_Ratio multiple country production ratio.

Table 4. Corresponding Author's Country

3.1.2.4. Corresponding Author's Country

The degree of each author's commitment can be deduced from the arrange in which their names show up within the byline (Logan, Bean et al. 2017), in spite of the fact that the ordinary implications of origin positions shift among inquire about disciplines and nations (Liu and Fang 2014). Table 4 shows that USA has most number of article with 434 with an SCP of 381, MCP of 53 followed by China with 112 SCP and 93 MCP with a frequency of .308 lesser than USA.

Region	Frequency
--------	-----------

USA	582
CHINA	546
INDIA	258
UK	135
AUSTRALIA	98
CANADA	54
SOUTH KOREA	52
MALAYSIA	40
ITALY	38
GERMANY	36
INDONESIA	33

Table 5. Scientific production country wise

3.1.2.5. Country Scientific Production

After many years of time insightful work on the significance of open scholarly inquire about, there's still small efficient prove on how such investments can lead to extend levels of logical yield, made strides protecting and innovative output, superior financial execution and, eventually, to extend national riches (Crespi and Geuna 2008). USA has a frequency of 582, with China 36 less frequent than USA Table 5.

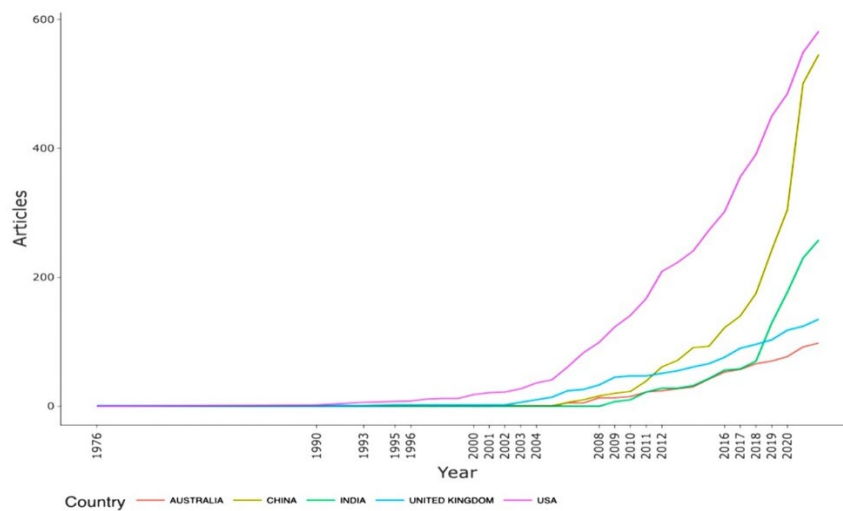


Figure 13. Countries productivity rate over time

Country	Year	Articles
UNITED KINGDOM	1976 - May 2022	1246
CHINA		2461
USA		4958
AUSTRALIA		713
INDIA		1148

Table 6. Top five Countries productivity.

3.1.2.6. Countries' Production over Time

The distinguished limits to scientific production approach, which emerge from the truth that both the inputs to and yields from logical generation are troublesome to quantify, The investigation is attempted from an universal perspective, based on a world science generation function (Crespi and Geuna 2008). USA has the most number of article 4958 and China with 2461 Table 6.

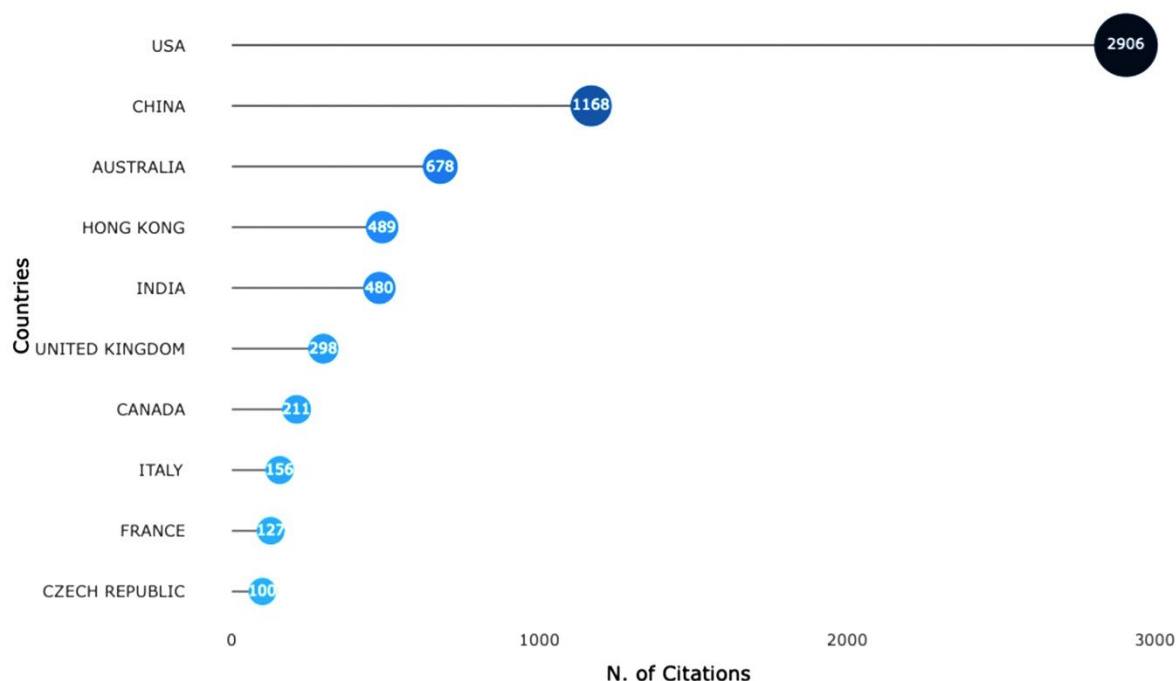


Figure 14. Countries that are cited most

3.1.2.7. Most Cited Countries

Communication among researchers shows up to be developing significantly, moving a few professionals from countries that did not take an interest in worldwide science an era ago into a worldwide communication network of acknowledgment and exchange (Bornmann, Wagner et al. 2015). The documents from US is cited the most with 2906 citations followed by China with 1168 and Australia with 678 as per Figure 15. Table 7 depicts a higher average article citation for Honk Kong at 122.25 per article rather than US with a total average citation of 20.76.

Country	Total Citations	Average Article Citations
USA	2906	20.76
CHINA	1168	10.43
AUSTRALIA	678	33.9
HONG KONG	489	122.25
INDIA	480	11.16

Table 7. Country wise document citation

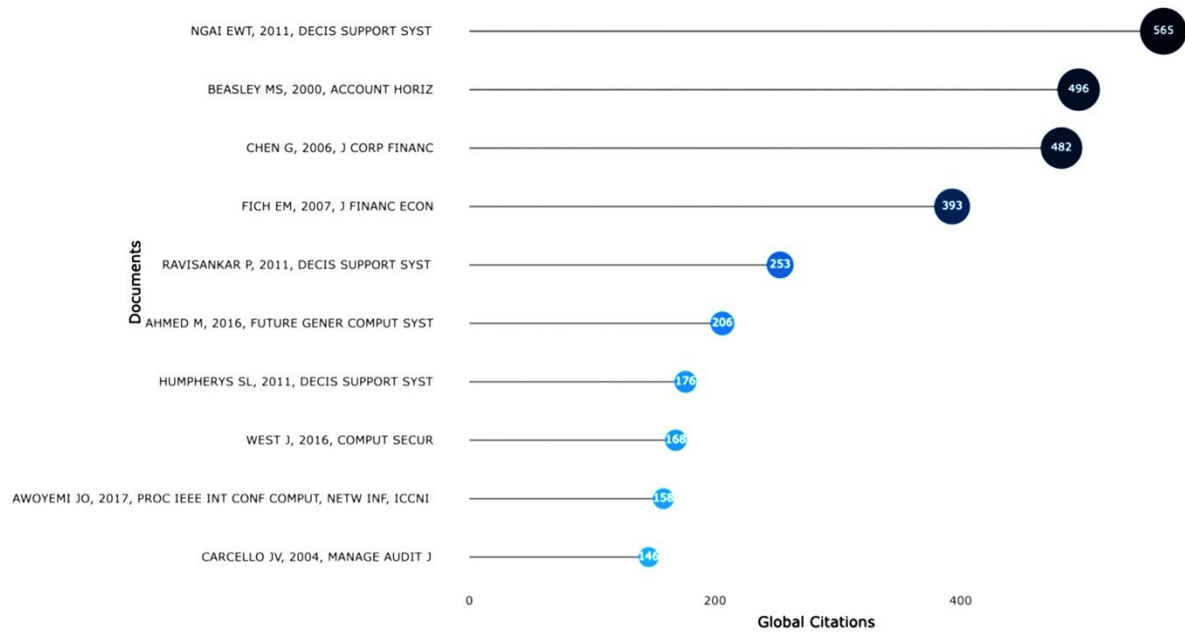


Figure 15. Documents cited the most

3.1.3.1 Most Cited Documents

A few work within the range emerges from questions that citations can be utilized as measures of the quality or importance of logical work, which then breakdowns into citations of different sorts that will offer assistance hone our estimations (Small 1978). In Figure 16 the document Decision Support System by author Ngai Ewt has 565 citations followed by Beasley MS with 496 on Account Horizon.

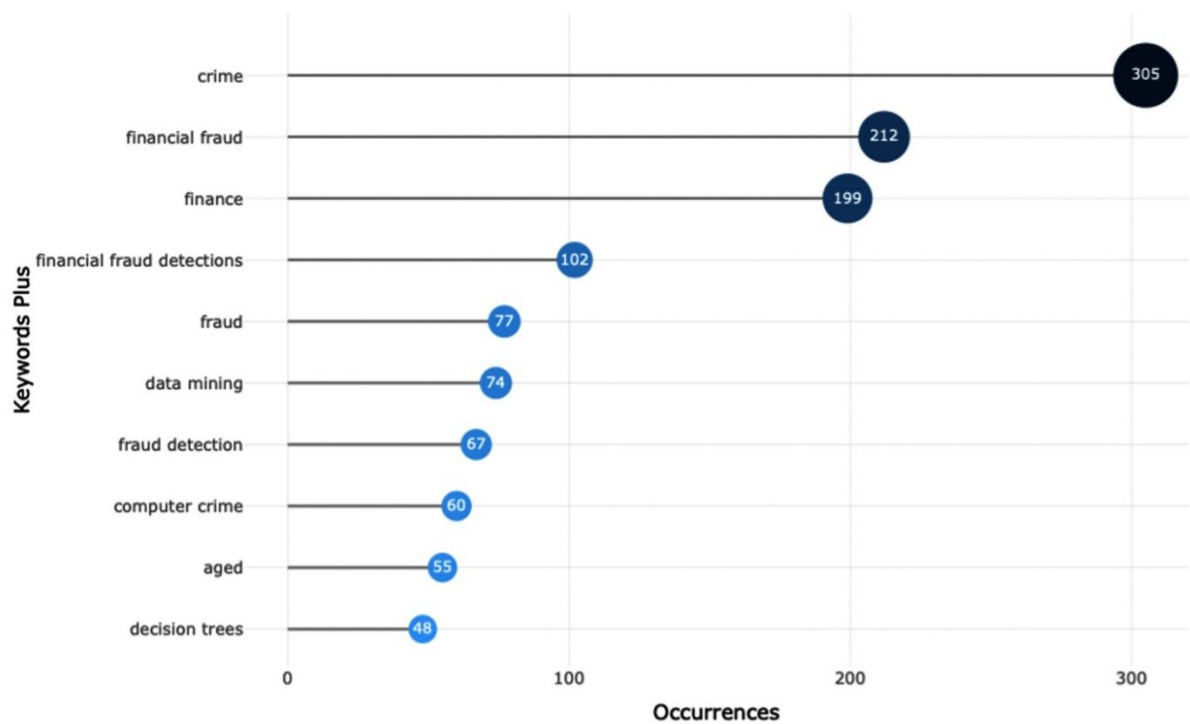


Figure 16. Frequent Words

3.1.3.2 Most Frequent Words

The foremost frequent words are so fundamental and principal components of English that they are as a rule accepted to be exceptionally well known by progressed understudies who have learned English for a long time both at the open instructive framework and private language studies. However, it could be a genuine matter of concern that progressed understudies don't appear solid derivational information of such words. Whereas there can be numerous conceivable reasons for this restricted information, a need of mindfulness of the perspectives involved in lexicon information counting derivational information and conceivably more noteworthy center on open input instead of beneficial utilize of the dialect likely play a huge part (Ebrahimi 2021). The keyword financial fraud is 212 and crime is used the most with a number of 305 Figure 17.

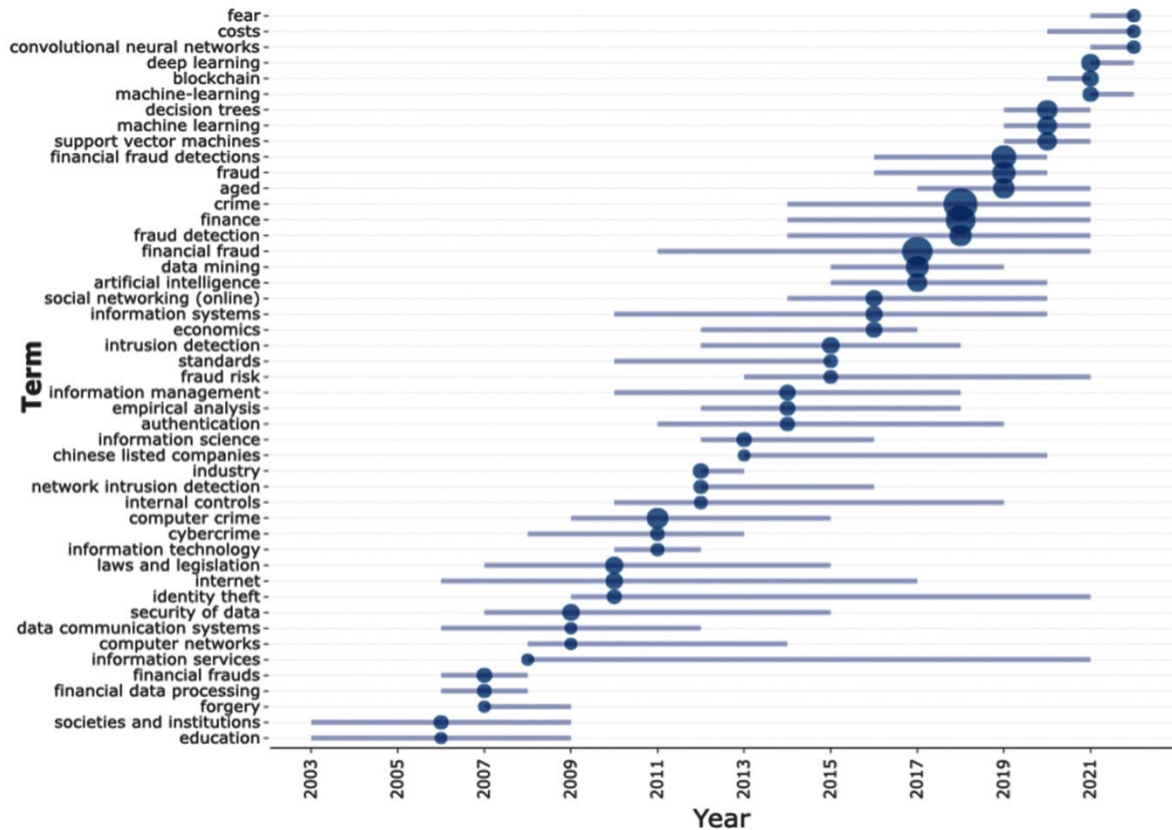


Figure 17. Trend Topics

Item	Freq	Year_q1	Year_med	Year_q3
Financial frauds	11	2006	2007	2008
Forgery	5	2007	2007	2009
Laws and legislation	25	2007	2010	2015
Identity theft	9	2009	2010	2021
Computer crime	60	2009	2011	2015
Cybercrime	7	2008	2011	2013
Internal controls	6	2010	2012	2019
Intrusion detection	21	2012	2015	2018

Fraud risk	7	2013	2015	2021
Financial fraud	212	2011	2017	2021
Crime	305	2014	2018	2021
Fraud detection	67	2014	2018	2021
Financial fraud detections	102	2016	2019	2020
Fraud	77	2016	2019	2020
Fear	6	2021	2022	2022

Table 8. Frequency of Trend Topics on a quarterly basis.

3.1.3.3 Trend Topics

The research conducted on the premise of data administration appears that diverse exercises related to obtaining, recovering and integration of data from a assortment of sources to organizing, and handling the data organizing and dispersing the data to the fitting person at suitable time within the most ideal heading (Hollebeek, Sharma et al. 2021). The trend topics fear, costs and convolutional neural network shows a higher intensity from 2021 to may 2022 Figure 18 and Table 8 Shows the frequency of topics related to fraud and fear are in higher numbers.

3.2 Structural analysis

The structure of corporate social obligation writing can be depicted through writing organize examination, which can appear scholastic joins of corporate social duty information in several zones of the communication discipline (Chang and Tai 2005). The author's preference for a school is reflected within the citation. Many scholars cite the same theories and ideas within the school when they have common interests. The co-citation organize analysis method empowers us to follow the advancing hypothetical interface shared researchers within the communication teach. It moreover makes a difference to quantify the interesting commitments of speculations and ideas that came from numerous disciplines (e.g., administration, brain research, and communication concepts and speculations) (Ji, Tao et al. 2022). In expansion, it empowers us to distinguish how these speculations and ideas have impacted the development of specific viewpoints and considerations within the communication writing.

3.2.1. Conceptual Structure - Thematic Evolution

3.2.2. Intellectual Structure

3.2.2.1. Co-citation Network

3.2.2.2. Historiograph

3.2.3. Social Structure - Collaborative World Map

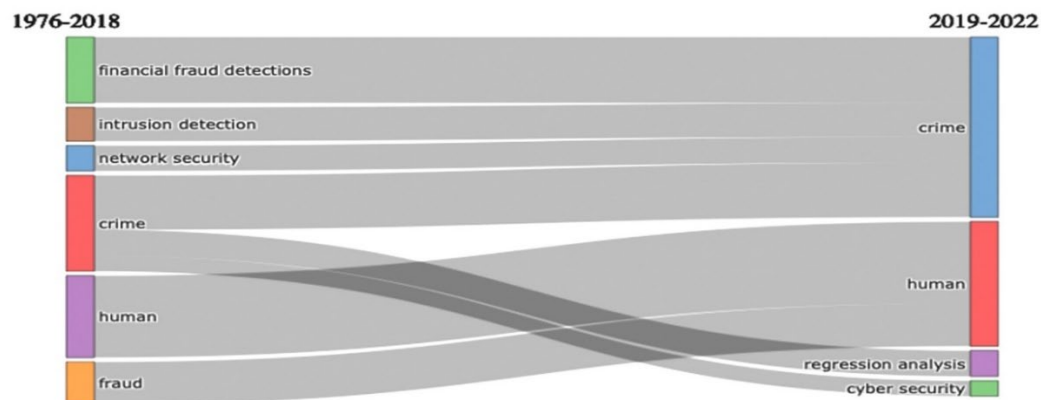


Figure 18. Thematic evolution over the years

3.2.1. Conceptual Structure - Thematic Evolution

Thematic evolution combines experiences from diverse disciplines, an auxiliary assessment of the literature sheds light into examining the key points within the study, distinguish persuasive distributions, clarify the network, and depict the results of the subject classification analysis (So, Kim et al. 2021).

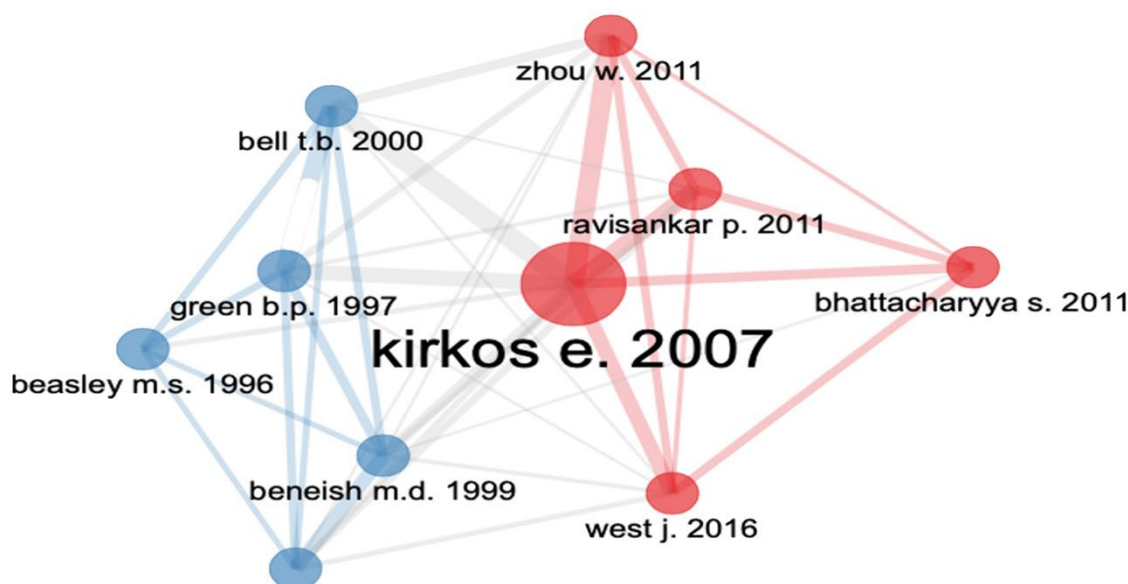


Figure 19. Co-citation Network

3.2.2. Intellectual Structure

3.2.2.1. Co-citation Network

The research direction of future research is determined by the knowledge structure of the most cited articles in the past few years (Chang, Gau et al. 2021). Figure 20 show the co citation network Kirkos e 2007 and the betweenness with a higher impact on the other authors such as Ravishnkar P 2007.

3.2.2.2. Historiograph

The foremost valuable highlights of the biblioshiny is the capacity to form historiographs, graphical representations of the authentic improvement of a research field. When making historiographs, the researcher can select either a custom set of records or the most noteworthy positioned papers. The precise limit is set by the researcher. The measure of the hubs on the outline compares to the chosen model. After the set of papers is characterized, biblioshiny maps the papers chronologically and speaks to citations among those papers. Whereas it is conceivable to draw a historiograph with a huge number of papers, the quotation arrange gets to be progressively complex and helpful (Garfield, Pudovkin et al. 2010).

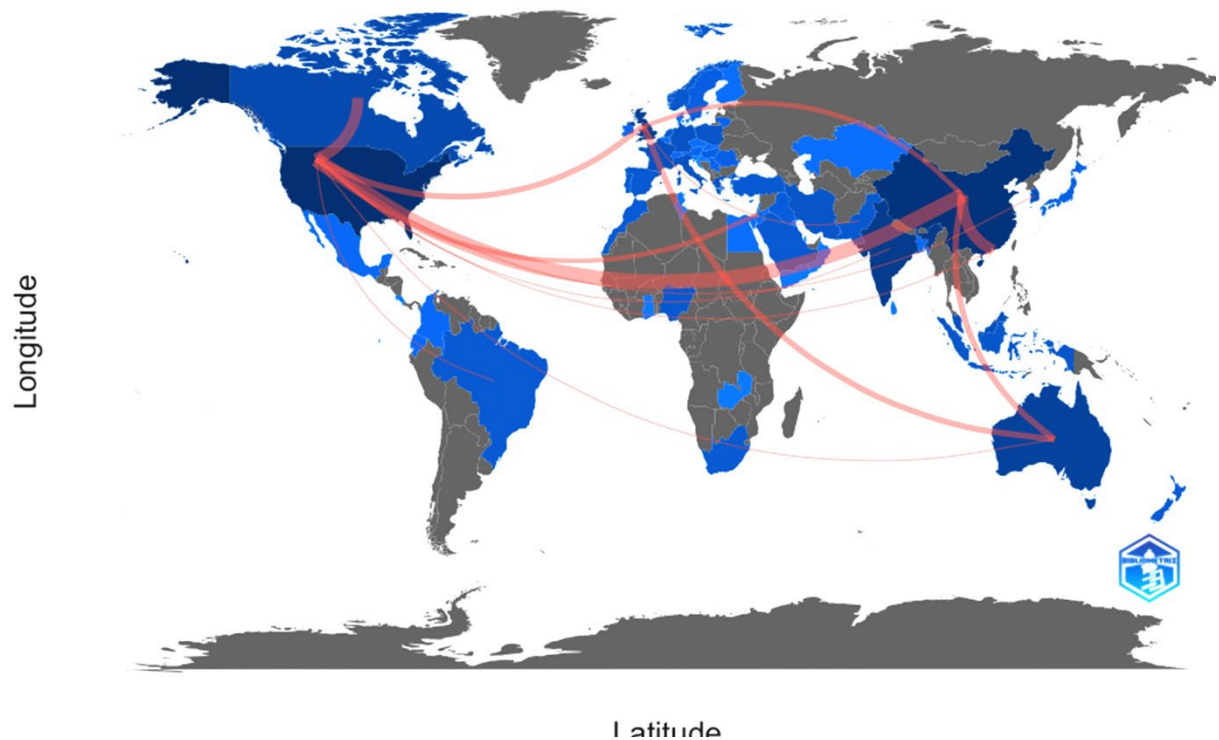


Figure 20. Collaboration World Map

From	To	Frequency
USA	CHINA	18
CHINA	HONG KONG	11
USA	CANADA	11
CHINA	AUSTRALIA	5
UNITED KINGDOM	AUSTRALIA	5
USA	UNITED KINGDOM	5
CHINA	UNITED KINGDOM	4
USA	ISRAEL	4

Table 9. Collaboration between different countries

3.2.3. Collaborative World Map

The analysis uncovered various creator collaborative systems with abundant connections between them. Each of these systems can be interpreted as a relatively formal investigate gather comprised of a variable number of creators who have co-authored (Hernández-Torrano, Somerton et al. 2022). Each of these systems can be deciphered as a generally formal inquire about gather comprised of a variable number of creators who have co-authored the examination outlines a thick organize of worldwide inquire about collaborations within the field of monetary extortion characterised by plenteous joins between researchers and bunches found completely different districts of the world. Table 12 shows a higher frequency of collaboration among China and US with 18 than with collaboration of China and Honk Kong with 11.

4. RESULTS

The bibliometric analysis identified the solutions for the problems presented in the research. The existing study intends to provide the ongoing trend and impact of all peer-reviewed publication in financial frauds from 1976 till May 2022. With reference to these research outcomes, the publication on financial fraud studies has been rising since 1976. Journal of financial crime has rated as first most active number of peer-reviewed papers in financial fraud research. As of June 2022, the journal impact score is 1.5 and H-Index of 26 as per The Scimago Journal & Country Rank. According to data obtained from the journal publisher Emerald Group Publishing Ltd. it publishes issues that fall within prevention control in financial crime and abuse that is caused. Maintaining an authoritative and practical approach. The findings further presented annual growth data up to May 2022 and their frequency and percentage. To understand the current trends and impact of publications in financial fraud research, we used a total of publications divided by year, country, journal, author, and organisation to analyze the publication trends in financial fraud. The discussion over the Journal that has the greatest number of articles published in financial frauds is the first point for showing the current trends. The analysis shows a limited number of documents in the field of financial frauds with distinct ideologies, keywords and trends. The network between the countries is also limited which gives an opportunity for a great number of topics to be considered for academic work. With increased financial fraud across the world as reported by ACFE Report to the World Nations there are fewer number of studies in the field. This preliminary literature review will help the authors to pursue and publish more number of article in the field.

5. SCOPE FOR FUTURE STUDIES

Current designs within the field of financial fraud discovery were recognized within the study. A bibliometric study was conducted to explore the fundamental objective of the inquiry float of financial fraud discovery. The productivity and conveyance of particular inquiry zones can be examined through the bibliometric overview. The information was retrieved from bibliometric analysis can survey the execution of the field, and offer help in examining the related studies to coordinate some approaches associated to the task of saves, and to compare consistent inputs and yields. In extension, the bibliometric analysis has shown an approximate revelation to energize and clarify the components that support the study with commitment of the considered field and coordinates the researchers to conduct enticing explore. In this way, the concentration of this study is on financial fraud area dispersions collected from the Scopus database. The most discoveries of this paper are valuable for getting a common outline of the state of the craftsmanship in the study of financial frauds area, concurring to bibliometric data. Hence, it is possible to discover the foremost exceptional investigate in this field, agreeing to a few key pointers, counting number of papers, citations, documents, affiliations, authors, journals. In any case, it is worth noticing that there are a few confinements that should be considered. To begin with, the research displayed within the paper points to be informative so that it is conceivable to recognize a few exceptionally pertinent investigate within the field. In this case, since the data is based from Scopus, other compelling databases were not used to collect data and is not included in this research. For occasion, a few persuasive authors don't distribute numerous papers or they don't get numerous citations due to their particular themes. Another case of this might be non-English talking nations that have appeared exceptionally frail comes about but have maybe distributed amazing inquire about comes about in their possess dialects. Momentarily, it was vital to classify the data, so a few rankings were displayed. It is basically pointed at being enlightening based on the bibliometric information found in Scopus. Moreover, numerous critical issues within the assessment of investigate are exceptionally troublesome to measure, counting inclusion in diaries, advancement of inquire about and around the world and numerous other related issues. Subsequently, this paper only provides common data that will be valuable to assist understand the field of financial fraud, but numerous other issues ought to be taken under consideration in arrange to induce a total picture of the state of the research in financial frauds.

AUTHORS' CONTRIBUTION

It is hereby acknowledged that all authors have accepted responsibility for the manuscript's content and consented to its submission. They have meticulously reviewed all results and unanimously approved the final version of the manuscript.

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REFERENCES

- Bensman, S. J. and L. J. Smolinsky (2017). "Lotka's inverse square law of scientific productivity: Its methods and statistics." *Journal of the Association for Information Science and Technology* 68(7): 1786-1791.
- Crespi, G. A. and A. Geuna (2008). "An empirical study of scientific production: A cross country analysis, 1981–2002." *Research Policy* 37(4): 565-579.
- Holt, R. D. (1985). "Population dynamics in two-patch environments: some anomalous consequences of an optimal habitat distribution." *Theoretical population biology* 28(2): 181-208.
- Kolaczyk, E. D. and G. Csárdi (2014). *Descriptive Analysis of Network Graph Characteristics. Statistical Analysis of Network Data with R*. New York, NY, Springer New York: 43-67.
- Kyvik, S. (1989). "Productivity differences fields of learning, and Lotka's law." *Scientometrics* 15(3-4): 205-214.
- Leake, D., et al. (1999). Selecting task-relevant sources for just-in-time retrieval. *Proceedings of the AAAI-99 Workshop on Intelligent Information Systems*, Citeseer.
- Leydesdorff, L. (2007). "Betweenness centrality as an indicator of the interdisciplinarity of scientific journals." *Journal of the American Society for Information Science and Technology* 58(9): 1303-1319.
- Liu, X. Z. and H. Fang (2014). "Scientific group leaders' authorship preferences: An empirical investigation." *Scientometrics* 98(2): 909-925.
- Logan, J. M., et al. (2017). "Author contributions to ecological publications: What does it mean to be an author in modern ecological research?" *PLoS One* 12(6): e0179956.
- Noh, H., et al. (2015). "Keyword selection and processing strategy for applying text mining to patent analysis." *Expert Systems with Applications* 42(9): 4348-4360.
- Serenko, A., et al. (2010). "A scientometric analysis of knowledge management and intellectual capital academic literature (1994-2008)." *Journal of Knowledge Management* 14(1): 3-23.
- Todeschini, R. and A. Baccini (2016). *Handbook of bibliometric indicators: Quantitative tools for studying and evaluating research*, John Wiley & Sons.
- Yitzhaki, M. (1994). "Relation of title length of journal articles to number of authors." *Scientometrics* 30(1): 321-332.
- ACFE (2022). Association of Certified Fraud Examiners (2022). Report to the Nation on Occupational Fraud.
<https://acfepublic.s3.us-west-2.amazonaws.com/2022+Report+to+the+Nations.pdf>
- Financial Access Survey, The International Monetary Fund.
<https://www.imf.org/external/datamapper/NGDPD@WEO/WEOWORLD>
- The World Bank DataBank, "Labor Force, Total (1990–2020)," <https://data.worldbank.org/indicator/SL.TLF.TOTL.IN>.
- PwC's Global Economic Crime and Fraud Survey 2022
<https://www.pwc.com/gx/en/forensics/gecsm-2022/pdf/PwC's-Global-Economic-Crime-and-Fraud-Survey-2022.pdf>
- Research Intelligence Content Coverage Guide. (2020). .
https://www.elsevier.com/_data/assets/pdf_file/0007/69451/Scopus_ContentCoverage_Guide_WEB.pdf
- Börner, K., Chen, C., & Boyack, K. W. (2003). Visualizing knowledge domains. *Annual review of information science and technology*, 37(1), 179-255.
- Ahlgren, P., Jarneving, B., Rousseau, R. (2003), Requirements for a cocitation similarity measure, with special reference to Pearson's correlation coefficient. *Journal of the American Society for Information Science and Technology*, 54(6), 550-560.
- Boyack, K.W., Klavans, R., Börner, K. (2005), Mapping the backbone of science. *Scientometrics*, 64(3), 351-374.
- Antonio, M.S., Rusydiana, A., Laila, N., Hidayat, Y.R., Marlina, L. (2020), Halal Value

- Chain: A Bibliometric Review Using R. Library Philosophy and Practice. Lincoln: University of Nebraska. p4606. Berkaoui, R.A. (2000), Accounting Theory. 4th ed. Jakarta: Salemba Empat.
- Chen, C. (2003), Mapping the mind. In: Mapping Scientific Frontiers: The Quest for Knowledge Visualization. Berlin: Springer, p67-99.
- Bornmann, L., et al. (2015). "BRICS countries and scientific excellence: A bibliometric analysis of most frequently cited papers." *Journal of the Association for Information Science and Technology* 66(7): 1507-1513.
- Chang, C.-Y., et al. (2021). "Directions of the 100 most cited nursing student education research: A bibliometric and co-citation network analysis." *Nurse Education Today* 96: 104645.
- Chang, T.-K. and Z. Tai (2005). "Mass communication research and the invisible college revisited: The changing landscape and emerging fronts in journalism-related studies." *Journalism & Mass Communication Quarterly* 82(3): 672-694.
- Crespi, G. A. and A. Geuna (2008). "An empirical study of scientific production: A cross country analysis, 1981–2002." *Research Policy* 37(4): 565-579.
- Ebrahimi, A. B. (2021). "Measuring Productive Derivational Knowledge of the Most Frequent Words." *International Journal of English Studies* 21(1): 55-74.
- Garfield, E., et al. (2010). "A bibliometric and historiographic analysis of the work of Tony van Raan: a tribute to a scientometrics pioneer and gatekeeper." *Research evaluation* 19(3): 161-172.
- Hernández-Torrano, D., et al. (2022). "Mapping research on inclusive education since Salamanca Statement: a bibliometric review of the literature over 25 years." *International Journal of Inclusive Education* 26(9): 893-912.
- Hollebeek, L. D., et al. (2021). "Fifteen years of customer engagement research: a bibliometric and network analysis." *Journal of Product & Brand Management*.
- Holt, R. D. (1985). "Population dynamics in two-patch environments: some anomalous consequences of an optimal habitat distribution." *Theoretical population biology* 28(2): 181-208.
- Ji, Y. G., et al. (2022). "Theoretical insights of CSR research in communication from 1980 to 2018: A bibliometric network analysis." *Journal of Business Ethics* 177(2): 327-349.
- Kolaczyk, E. D. and G. Csárdi (2014). *Descriptive Analysis of Network Graph Characteristics. Statistical Analysis of Network Data with R*. New York, NY, Springer New York: 43-67.
- Lawless, H. T. and H. Heymann (2010). *Descriptive analysis. Sensory evaluation of food*, Springer: 227-257.
- Leake, D., et al. (1999). *Selecting task-relevant sources for just-in-time retrieval. Proceedings of the AAAI-99 Workshop on Intelligent Information Systems*, Citeseer.
- Leydesdorff, L. (2007). "Betweenness centrality as an indicator of the interdisciplinarity of scientific journals." *Journal of the American Society for Information Science and Technology* 58(9): 1303-1319.
- Liu, X. Z. and H. Fang (2014). "Scientific group leaders' authorship preferences: An empirical investigation." *Scientometrics* 98(2): 909-925.
- Logan, J. M., et al. (2017). "Author contributions to ecological publications: What does it mean to be an author in modern ecological research?" *PLoS One* 12(6): e0179956
- Serenko, A., et al. (2010). "A scientometric analysis of knowledge management and intellectual capital academic literature (1994-2008)." *Journal of Knowledge Management* 14(1): 3-23.
- Small, H. G. (1978). "Cited Documents as Concept Symbols." *Social Studies of Science* 8(3): 327-340.
- So, K. K. F., et al. (2021). "The thematic evolution of customer engagement research: a comparative systematic review and bibliometric analysis." *International Journal of Contemporary Hospitality Management* 33(10): 3585-3609.
- Yitzhaki, M. (1994). "Relation of title length of journal articles to number of authors." *Scientometrics* 30(1): 321-332.