

Marwan Altarawneh¹
Mohammad Abedalrahman Alhmood²
Ala'a Zuhair Mansour³
Aidi Ahmi⁴

COMPREHENSIVE BIBLIOMETRIC MAPPING OF PUBLICATION TRENDS IN EARNINGS MANAGEMENT⁵

This research aims to trace the evolution of published articles, quotations, and themes on earnings management from 1988 to 2022. Therefore, the Web of Science (WOS) database is employed in the current study to identify the most-cited earnings management articles and the most-involved authors, institutions, and countries in earnings management. This research employs bibliometric exponents and tools like Microsoft Excel for frequency analysis, the VOS viewer for the visualisation of data, and Harzing's Publish or Perish for metrics of citation and earnings management analysis. According to the findings, after 2015, research in this field significantly increased. The United States has been ranked the most active nation in earnings management research. State University System of Florida from the US was the most prolific publisher of significant earnings management research publications. Accounting Review, Contemporary Accounting Research, and the Journal of Accounting and Public Policy are the leading publications in earnings management. The results of the current study are collected based on data from the Web of Science (WOS) database, and any limitations of the database impact the results. Through the integration of bibliometric information and graphical networks, this research has the potential to add to the growing body of knowledge by providing a broad overview of the trends shown in studies on earnings management that appeared in the WOS database between 1988 and the start of 2022.

Keywords: Earnings Management; Web of Science; Harzing's Publish or Perish; VOSviewer; Bibliometric analysis

JEL: M41; M42

¹ Marwan Altarawneh, Accounting Department, Faculty of Business Studies, Arab Open University – Riyadh, Saudi Arabia, m.altarawneh@arabou.edu.sa.

² Mohammad Abedalrahman Alhmood, Tunku Puteri Intan Safinaz School of Accountancy, Universiti Utara Malaysia 06010 UUM Sintok, Kedah, Malaysia, mohammad999333@gmail.com.

³ Ala'a Zuhair Mansour, Tunku Puteri Intan Safinaz School of Accountancy, Universiti Utara Malaysia 06010 UUM Sintok, Kedah, Malaysia, alaa.z.mansour@gmail.com. (Corresponding author).

⁴ Aidi Ahmi, Tunku Puteri Intan Safinaz School of Accountancy, Universiti Utara Malaysia 06010 UUM Sintok, Kedah, Malaysia, aidi@uum.edu.my.

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1. Introduction

Earnings management, often known as EM, refers to the selection of accounting policies or activities to purposefully alter earnings by managers. Some examples of earnings management include voluntary disclosure, voluntary earnings forecasting, and the estimation of accruals. EM is a significant subject for research because there is a possibility that it will harm the credibility of the financial reports, which are valuable information sources for investors in the markets (Zhong et al., 2022; Man, Wong, 2013). EM is a complex phenomenon that researchers have studied in many articles. Davidson and Stickney used the expression "earnings management" (EM) and Weil (1985) to describe the progression of achieving the desired level of earnings by various manipulations while adhering to widely accepted accounting practice constraints.

Similarly, Dechow and Schrand (2004) defined EM as a technique used by managers through the discretion of accounting methods to achieve desired goals. Healy and Wahlen (1999) defined EM as an intrusion in financial reporting to gain personal or private gain. EM is due to existing options for administrators in preparing the financial report (Kamarudin, Ismail, 2014). Earnings management exists when managers make changes to the financial statement. Additionally, managers use the methods of EM to control the results of certain accounting practices and deceive the firm's stakeholders about the firm's performance. Furthermore, managers manage earnings due to the need to meet benchmark and target earnings to affect and increase stock prices, obtain external financing, and avoid taxes (Burgstahler, Dichev, 1997; Healy, Wahlen, 1999; Dechow, Schrand, 2004). In the same way, Degeorge, Patel, and Zeckhauser (1999) exposed that a few firms were involved in EM to enhance their financial position by trying to achieve the profit forecast of the analyst and meet the expectations of investors.

Badia et al. (2008) stated that EM does not always imply fraud. Hence, fraud is a severe form of EM, according to Levitt (1998), and EM is considered somewhere between lawful accounting and pure fraud (Mansour et al., 2021; Mansour et al., 2020). According to Badertscher (2011), EM is classified into three types: (1) EM, which violates accounting principles; (2) EM, which is in the middle of acceptable accounting but violates GAAP; and (3) EM, which is within the criteria of GAAP.

Furthermore, two methods exist to manage a firm's earnings (Badertscher, 2011). The first method, known as accruals, is utilised to achieve the anticipated amount of earnings. Accrual earnings management, or AEM for short, is the name given to this approach (Healy, Wahlen, 1999; Dechow, Schrand, 2004). The second method involves adjusting actual business operations, such as lowering prices to boost sales, producing additional goods to cut down on the cost of the goods being sold, and cutting back on discretionary expenditures to increase current earnings. Managing earnings via real business transactions is known as "real earnings management" (REM) (Purwaningsih & Kusuma, 2020; Roychowdhury, 2006). According to (Cohen, Zarowin, 2010; Dechow, Schrand, 2010; Badertscher, 2011), firms can manage their profits using both accrual-based and REM methods.

Hirst debated the predictions of EM, Koonce, and Venkataraman (2008) and classified the earnings prognosis into three components (consequences, characteristics, and antecedents),

which match the timeline related to earnings forecasts. The authors found that most of the prior articles focused on how prediction or the characteristics of prediction affect predictions and did not examine any potential interactions between the three components.

Burgstahler and Dichev (1997) suggested that firms try to prevent EM from losing and falling. Simultaneously, they found that cash flow from operations and changes in working capital increased profits. According to Leuz, Nanda, and Wysocki (2003), who discoursed systematic differences in EM in 31 countries, their elucidation was grounded on the assumption that insiders use EM to boost their corporate performance to conserve their personal benefits. Consequently, EM is predictable to reduce investor protection as effective defence limits the insiders' ability to get precise benefits, reducing their incentive to disguise firm performance (Khan, Çera, Netek, 2019).

In addition, the areas that EM touches are wide. The study demonstrates the connection between EM and time detachment in the language (Kim, Kim, Zhou, 2017). The study assumes that managers are less inclined to participate in EM practices. Their insight on earnings manipulation is more immediate if they operate in countries where speakers are not linguistically required to identify future occurrences. The prior inquiry has focused on determining the existence of the phenomenon of EM. The result demonstrated that EM has a variety of incentives and motives, including altering how the stock market is perceived, improving management compensation, decreasing the likelihood that credit agreements would be violated, and preventing regulatory involvement (Bin, Chen, Hasanatunnisa, 2018). Some of these findings are similar to the results relating to management compensation such as Bilan, Mishchuk, Samoliuk, and Mishchuk (2020) and Skalicka, Zinecker, Balcerzak, and Meluzin (2018). However, the setting of Muslim culture alters the circumstances and outcomes (Qizam, 2021).

Additionally, bibliometric research has become more widespread recently; some articles have been conducted related to EM. For example, Vagner, Valaskova, Durana, and Lazaroiu (2021) investigated the keywords related to EM issues, emphasising the evolution and changes in a publication that appeared on the Web of Science. They discovered that perception and application had shifted during the reporting periods. The expression that was most frequently related to EM continued to expand. However, the prime group of words continued unchanged.

Further, Siekelova (2020) used a bibliometric analysis of earnings management. The findings provide techniques that are generally accepted in the assessment of researchers, teams, and institutions. In addition, the findings offer markers for the quality assessment of scientific publications. Citation database data is a significant source of information. Santos-Jaén et al. (2021) used a systematic bibliometric review to test the effect of Corporate Social Responsibility (CSR) on EM. The finding demonstrated that scholars are becoming increasingly interested in researching the influence of CSR. Despite the fact that the US and China produce the majority of published works, authors hail from more than 50 countries all over the world. The findings also display that being prolific does not imply being influential in this area. Based on prior studies, there are several gaps in the literature – for example, on voluntary disclosure of information, gender diversity, and the existence of audit committees, among others – that motivate the research to improve the analysis of the EM.

Despite the fact that bibliometric studies have been conducted related to EM, the current study contributes to the knowledge by further investigating many bibliometric traits that were neglected in the previous studies. In particular, the current study distinguishes itself from other bibliometric studies by analysing the types of documents and document languages in the area of EM. Furthermore, this study investigates the most active source title, the most active publisher, and the most influential institution in EM research. Moreover, the current study has an advantage over other prior studies by analysing the citation metric using Harzing's Publish and Perish software and conducting text analysis for the abstract and title papers in the EM area. Finally, the current study is the first in this area to analyse authorship and co-authorship in the research of the EM field.

A limited bibliometric study related to earnings management studies has been conducted in the past (see Table 1).

Table 1. Previous Studies on EM Using Bibliometric Analysis

Author	Area/Search Strategy	Scope & Source of Data	TDE*	Bibliometric Traits Examined
Vagner et al. (2021)	Earnings Management	<ul style="list-style-type: none"> • Web of Science database 	1,547	<ul style="list-style-type: none"> • Conduct a keyword analysis focusing on topics connected to earnings management • changes and evolution over time, from 1988 to the present
Santos-Jaén et al. (2021)	Social Responsibility AND Earnings Management Social Responsibility AND Earnings Quality Social Responsibility AND Accruals Quality	<ul style="list-style-type: none"> • Web of Science (WoS) 	329	analysis of various bibliometric indicators, including <ul style="list-style-type: none"> • the number of publications, • total citations, • citations per article, • top journals, • most relevant universities and • most influential countries on the subject, • analyse co-occurrence of terms and • co-authorship networks and • map density based on researcher networks
Anna Siekelova. (2020)	Earnings Management	<ul style="list-style-type: none"> • Web of Science • Science Citation Index Expanded (SCI-E); • Social Science Citation Index (SSCI); • Arts & Humanities Citation Index (AHCI); • Index Chemicus; • Current Chemical Reaction. • Conference Proceedings Citation Index -Science (CPCI-S); • Conference Proceedings Citation Index -Social Sciences & Humanities (CPCI-SSH). 	Not Provided	<ul style="list-style-type: none"> • Development of the number of publications on EM • Frequency of "earnings management" publications in selected countries • "Earnings management" in different fields of science • keyword publications on the topic of earnings management • the origin of publications dealing with "earnings management. " • most frequently cite publications with the term "earnings management." • the journals that publish research with the term "earnings management."

Note: TDE = total documents examined

The purpose of this paper is to give a bibliometric analysis of the scientific literature on EM by focusing on four main research questions: (a) how EM research has evolved and been distributed; (b) which countries, institutions, and authors are the most productive and

effective in EM studies; (c) what are the most common themes in the EM field among scholars; and (d) what are the most influential articles in the field of EM studies. The rest of this paper discusses many topics and factors related to addressing the research questions mentioned earlier and provides specifics on the study methodology, results, and interpretations. In order to answer these four questions, the bibliometric analysis considered the following aspects of the literature on EM:

(a) How has EM research evolved and been distributed?

- number of studies that are published each year
- number of cited publications per year
- total citations per year
- average citations per publication for each year
- average citations per cited publication for each year
- h-index; and g-index
- The document types
- The documents Languages
- Subject area

(b) Which countries, institutions, and authors are the most productive and effective in EM studies?

- The Most Active Source Titles
- The Most Active Publisher
- The most active countries
- Most Influential Institutions
- Analysis of Citation Metrics

(c) What are the most common themes in the EM field among scholars?

- Keywords Analysis
- Text Analysis

d) What are the most influential articles in the field of EM studies?

- Authorship and Co-Authorship Analysis

This research was conducted to acquire a more in-depth understanding of the EM phenomenon, particularly regarding the phenomenon's international scope and the collaborations it involves. It was essential to look at the most recent data in order to provide researchers with the information they needed to make suggestions for further investigation into the evolution of EM.

The remaining portions of the article are organised as follows: Section 2 demonstrates the methodology, whereas Section 3 displays the article's findings. Section 4 discusses numerous issues and problems that are elaborated on in answering the study questions. Finally, the final section presents a conclusion and recommendations for further research.

2. Methods

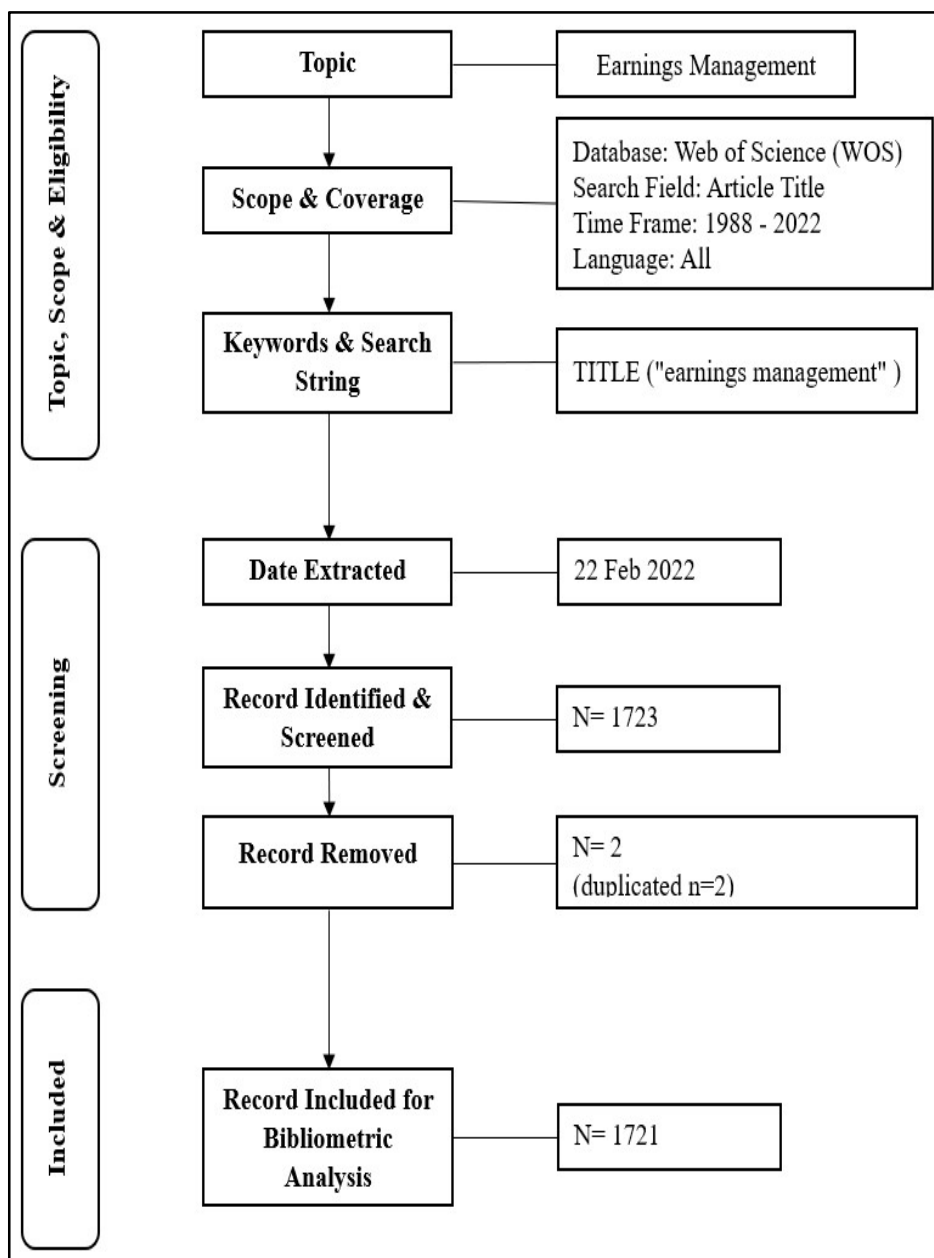
This study's method is based on how the data are gathered and organised until the whole set is ready to be analysed. Before this point, it was important to figure out the topic and the scope of the investigation based on why this study was being done. Our main focus will be on all the scientific work on EM in the WOS database. It was decided to use the Web of Science (WOS) database as it is the "largest single abstract and indexing database ever built" (Burnham, 2006) and the "largest searchable citation and abstract literature search list" (Allam et al., 2022; Mansour et al., 2020; Falagas et al., 2008; Nwagwu, 2007).

The research plan that was followed to choose the documents collected for this study can be seen in Fig. 1. This plan served as the basis for the selection process. On February 22, 2022, the data was taken directly from the WOS database. The phrase "earnings management" was used as a combination of keywords to find all targeted publications.

The bibliometric study of EM has not received much attention due to the lack of work put into it. Hence, we restricted the documents relevant to earnings management based on the title. To attain this purpose, the following enquiry was conducted: TITLE ("earnings management") AND (EXCLUDE (PUBYEAR, 2022)). This inquiry produced a total of 1723 documents. As the sequences of data cleaning operations exhibited four duplicate documents, 1721 documents were retained after this process. Since then, the data obtained from the WOS database has been exported into comma-separated values (.csv) and research information systems (.ris) formatted files.

This study examined the research trends in earnings management using the bibliometric method. Among the facts gleaned from the database are information on the documents' authors and affiliations; the publications' year of publication; language; topic matter; and title and keywords. Microsoft Excel, Harzing's Publish or Perish, and VOS-Viewer software have been used for data gathering and visualisation, respectively, intended for data analysis and visualisation. In addition, we used VOS-viewer software to execute key portions of the mapping analysis (Bastian et al., 2009; Van Eck, Waltman, 2020). The VOS-viewer employs two uniform weights to graphically describe the nodal network, such as the number and overall strength of the connections. The network size and the network-connecting interlinking lines represent the importance and power of the links.

Figure 1. Flow Diagram



3. Results and Findings

We examined bibliometric traits like publication per year and the yearly growth, types of documents and sources, the document's language, subject area, analysis of keywords, country productivity, authorship, active institution, and citation analysis using data from the WOS database. The findings are presented, for the most part, in the form of frequency and percentage. We reported the citation analysis as citation metrics and have disclosed the top 10 articles in EM that have received the most citations. Finally, the co-occurrence of the author's keywords is mapped via the VOS-viewer.

3.1 Evolution of Published Studies

The current research examines the evolution of published studies by analysing the number of documents created each year. Examining the papers for their publication years provides the researcher with assistance in understanding the development of the selected topic across time (Ahmi & Mohamad, 2019). The extended statistics of annual publications on earnings management are presented in Table 2, which covers the years 1988 through 2021. The first study published on earnings management according to the WOS database in 1988 was by the Journal of Accounting Research. Then, the research in this area grew heavily until 2015, when the publications increased remarkably to 146 (8.48%) publications this year. As shown in the table, the number of publications on EM increased steadily, with most of the publications occurring in 2020, totalling 214 documents (12.43%).

According to Table 2, documents produced in 2008 got the largest number of citations (a total of 4896 citations were found, with an average of 89.02 citations within each article). Furthermore, the documents published in 1992 got the fewest citations, totalling only 72. However, since 2015, the publication of earnings management has started to increase (Figure 1).

As shown in Table 2, the highest h-index by year was for 2008, with a value of 27 (which means that 27 publications this year had at least 25 citations). In comparison, the highest g-index per year was for the year 2012, with a value of 40 (which means that the top 40 publications in this year had a sum of at least 1600 citations). Furthermore, according to Table 2, the most cited publication in this area is the study by Jones (1991), with the title Earnings Management During Import Relief Investigations, published in the Journal of Accounting Research.

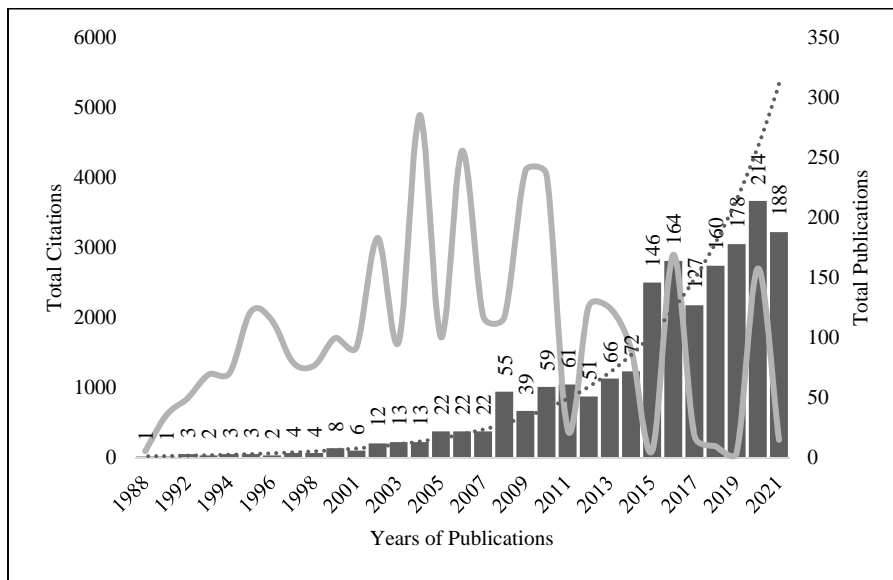
Table 2. Year of Publications

Year	TP	Percentage	NCP	TC	C/P	C/CP	h	g
2021	188	10.924	58	96	0.51	1.66	3	4
2020	214	12.435	143	610	2.85	4.27	11	14
2019	178	10.343	139	849	4.77	6.11	14	18
2018	160	9.297	128	1190	7.44	9.30	18	25
2017	127	7.379	84	1214	9.56	14.45	20	30
2016	164	9.529	121	2089	12.74	17.26	26	39
2015	146	8.483	110	1960	13.42	17.82	25	38
2014	72	4.184	57	1360	18.89	23.86	21	35

Year	TP	Percentage	NCP	TC	C/P	C/CP	h	g
2013	66	3.835	44	1319	19.98	29.98	19	35
2012	51	2.963	40	1712	33.57	42.80	17	40
2011	61	3.544	45	1580	25.90	35.11	21	39
2010	59	3.428	37	3140	53.22	84.86	25	37
2009	39	2.266	28	1654	42.41	59.07	19	28
2008	55	3.196	39	4896	89.02	125.54	27	39
2007	22	1.278	16	1722	78.27	107.63	16	16
2006	22	1.278	18	4386	199.36	243.67	16	18
2005	22	1.278	19	2021	91.86	106.37	12	19
2004	13	0.755	12	2010	154.62	167.50	12	12
2003	13	0.755	11	4106	315.85	373.27	10	11
2002	12	0.697	12	4040	336.67	336.67	10	12
2001	6	0.349	6	392	65.33	65.33	5	6
1999	8	0.465	8	2168	271.00	271.00	7	8
1998	4	0.232	4	2139	534.75	534.75	4	4
1997	4	0.232	4	1550	387.50	387.50	4	4
1996	2	0.116	2	101	50.50	50.50	2	2
1995	3	0.174	3	2900	966.67	966.67	3	3
1994	3	0.174	3	311	103.67	103.67	3	3
1993	2	0.116	2	166	83.00	83.00	2	2
1992	3	0.174	3	72	24.00	24.00	3	3
1991	1	0.058	1	2704	2704.00	2704.00	1	1
1988	1	0.058	1	257	257.00	257.00	1	1

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index.

Figure 2. Documents by Year (1988 - 2022)



3.2 Document Types

First of all, the collected data was analysed based on various types of research papers. The document types are classified as follows: articles, proceedings papers, early access, editorial materials, review articles, corrections, book reviews, discussions, meeting abstracts, notes, and retracted publications. The diversity of WOS database-recognised document types was analysed in terms of distribution. The analysis revealed a total of 11 different categories of documents. As shown in Table 3, the most common document type was articles, which accounted for 79.2% (1363) of total production, followed by proceedings papers, which accounted for 19.2% (328). Early Access 4.53% (78), Editorial Materials 1.22% (21), Review Articles 0.7% (12), Corrections 0.52% (9), Book Reviews 0.17% (3), Discussions 0.06% (1), Meeting Abstracts 0.06% (1), Notes 0.06% (1) and Retracted Publications 1 (0.06%).

Table 3. Document Type

Document Types	Record Count	Percentage (%)
Articles	1363	79.20
Proceedings Papers	328	19.06
Early Access	78	4.53
Editorial Materials	21	1.22
Review Articles	12	0.70
Corrections	9	0.52
Book Reviews	3	0.17
Discussions	1	0.06
Meeting Abstracts	1	0.06
Notes	1	0.06
Retracted Publications	1	0.06

3.3 Documents Languages

Table 4 demonstrates that English is the most commonly used language in journals, contributing to 96.46% of all articles. Furthermore, several documents used multiple languages, including Portuguese, Chinese, French, Spanish, German, Turkish, and Russian, which account for the smallest percentage of all published texts. After figuring out the current trends in languages, the next way to spot current trends is to look at the topic area, which shows where earnings management has been found.

Table 4. Language of Documents

Language	Total Publications*	Percentage (%)
English	1660	96.456
Portuguese	25	1.453
Chinese	14	0.813
French	7	0.407
Spanish	5	0.291
German	4	0.232
Turkish	4	0.232
Russian	1	0.058
Unspecified	1	0.058

* 97 documents have been published in dual languages

3.4 Subject Area

Table 5 displays the results of this analysis's subject-area sorting of published papers. The distribution shows a lot of literature on EM in different fields, such as "Business Economics and Social Sciences." other areas, i.e., Public Administration, Computer Science, Operations Research, Management Science, etc." As presented in Table 5, most of the documents analysed are in Business Economics (90.5%). After making certain that the most recent papers in earnings management studies focused on a trending subject area, we analysed the most active source in this field.

Table 5. Subject Area

Subject Area	Total Publications	Percentage (%)
Business Economics	1558	90.529
Social Sciences Other Topics	83	4.823
Public Administration	70	4.067
Computer Science	59	3.428
Operations Research Management Science	49	2.847
Science Technology Other Topics	45	2.615
Engineering	44	2.557
Education Educational Research	28	1.627
Environmental Sciences Ecology	28	1.627
International Relations	15	0.872
Mathematics	11	0.639
Government Law	10	0.581
Area Studies	6	0.349
Mathematical Methods in Social Sciences	6	0.349
Arts Humanities Other Topics	5	0.291
Criminology Penology	5	0.291
Development Studies	5	0.291
Telecommunications	5	0.291
Social Issues	4	0.232
Agriculture	3	0.174
Communication	3	0.174
Information Science Library Science	3	0.174
Materials Science	3	0.174
Psychology	3	0.174
Biotechnology Applied Microbiology	2	0.116
Geology	2	0.116
Religion	2	0.116
Sociology	2	0.116
Urban Studies	2	0.116
Women S Studies	2	0.116
Architecture	1	0.058
Automation Control Systems	1	0.058
Construction Building Technology	1	0.058
Mechanics	1	0.058
Mining Mineral Processing	1	0.058
Physical Geography	1	0.058
Transportation	1	0.058

3.5 Most Active Source Titles

Table 6 highlights the most active source title in the earnings management area. According to the table, the Accounting Review is the top journal contributing to earnings management publications, with 62 publications and 11777 total citations. Contemporary Accounting Research is in 2nd place in the list of most active source titles with 46 total publications and 2408 total citations. Also, "Journal of Accounting and Public Policy" is ranked 3rd in the most active source title list, with 41 publications and 1476 citations (Table 6). In comparison, the Journal of Business Finance and Accounting and the Journal of Accounting Economics are ranked fourth and fifth in the list of the most active source titles, which is presented in Table 6. After classifying the most active source in this section, the following section discusses the most active publisher.

Table 6. Most Active Source Title

Source Title	TP	TC	Publisher	Cite Score	SJR 2020	SNIP 2020
Accounting Review	62	11777	American Accounting Association	6.7	5.678	3.503
Contemporary Accounting Research	46	2408	Wiley-Blackwell Publishing Ltd	4.3	2.769	2.295
Journal of Accounting and Public Policy	41	1476	Elsevier	4.3	1.264	1.552
Journal of Business Finance and Accounting	37	1161	Wiley-Blackwell Publishing Ltd	3.3	1.282	1.738
Journal of Accounting Economics	35	8414	Elsevier	7.4	6.607	3.553
Journal of Business Ethics	29	1335	Springer Nature	9.0	2.209	2.534
Asia Pacific Journal of Accounting Economics	26	94	Taylor and Francis Ltd.	1.4	0.255	0.614
Journal of Accounting Research	26	4841	Wiley-Blackwell Publishing Ltd	7.1	6.767	3.565
Review of Accounting Studies	26	748	Springer Nature	5.3	4.418	2.807
Journal of Corporate Finance	22	2325	Elsevier	4.9	1.894	2.665
International Journal of Accounting and Information Management	19	156	Emerald Group Publishing Ltd.	3.2	0.455	1.333
Journal of Financial Reporting and Accounting	19	65	Emerald Group Publishing Ltd.	1.8	0.299	0.785
Journal of Applied Accounting Research	18	103	Emerald Group Publishing Ltd.	2.7	0.446	1.159
Journal of Banking Finance	17	737	Elsevier	4.4	1.580	2.166
Review of Quantitative Finance and Accounting	17	216	Springer Nature	2.6	0.664	1.444
Sustainability	17	75	Multidisciplinary Digital Publishing Institute (MDPI)	3.9	0.612	1.242
Advances in Accounting	16	90	Elsevier	2.3	0.445	0.768
Journal of Asian Finance Economics and Business	16	69	Korea Distribution Science Association (KODISA)	2.6	0.369	1.033
Accounting and Finance	15	268	Wiley-Blackwell Publishing Ltd	3.3	0.645	1.517
European Accounting Review	15	410	Taylor and Francis Ltd.	3.7	1.016	1.622

Notes: TP=total number of publications; TC=total citations; Cite Score= measures average citations received per document published in the serial in 2020; SJR= SCImago Journal Rank measures weighted citations received by the serial in 2020; SNIP= Source Normalized Impact per Paper that measures actual citations received relative to citations expected for the serial's subject field in 2020.

3.6 Most Active Publisher

Table 7 presents the most active publishers in the area of earnings management. According to Table 7, Elsevier is the most active publisher in this area, with 312 publications (18.13%), followed by Wiley, with 226 publications (13.13%). In contrast, Emerald Group Publishing is in third place on the most active publisher list, with 220 published (12.79%). Table 7 shows that Taylor & Francis is ranked 4th in the most active publisher list in the earnings management area, with 128 (7.44%). Finally, based on Table 7, Springer Nature, with 120 (6.97%), is listed as the fifth most active publisher in earnings management.

Table 7. Most Active Publisher

Publishers	Record Count	Percentage (%)
Elsevier	312	18.129
John Wiley & Sons, Inc	226	13.132
Emerald Group Publishing	220	12.783
Taylor & Francis	128	7.438
Springer Nature	120	6.973
American Accounting Association	105	6.101
Atlantis Press	42	2.44
IEEE	37	2.15
SAGE Publications Inc	32	1.859
MDPI	28	1.627
St Plum-Blossom Press Pty Ltd	24	1.395
World Scientific	21	1.22
Dalian University of Technology Press	17	0.988
Korea Distribution Science Association	16	0.93
International Business Information Management Association -IBIMA	13	0.755
Wuhan University of Technology Press	11	0.639
Canadian Academic Accounting Association	9	0.523
Editura ASE	9	0.523
Inderscience Enterprises Ltd	9	0.523
Information Engineering Research Institute	9	0.523

3.7 Publications Geographical Distribution

The current analysis sheds light on the countries that have been the most active publishers in earning management. Table 8 lists the most active countries. The USA, with 480 publications; China, with 400 publications; Taiwan, with 104 publications; and England, with 101 publications, control the list. The USA is also ranked 1st in total citations, with 40485 citations. In comparison, China is ranked 2nd with 7905 citations, England, with 1764 citations, is ranked 3rd, and Taiwan, with 1481 citations, is ranked 4th in the list of top countries contributing to EM research regarding total citation terms.

Table 8. Top 20 Countries contributed to EM Research

Country	TP	NCP	TC	C/P	C/CP	h	g
USA	480	422	40485	84.34	95.94	85	196
People's Republic of China	400	186	7905	19.76	42.50	36	87
Taiwan	104	85	1481	14.24	17.42	19	35
England	101	83	1764	17.47	21.25	21	40
Australia	91	79	1411	15.51	17.86	21	33
Malaysia	82	64	769	9.38	12.02	14	25
Indonesia	71	39	157	2.21	4.03	7	9
Canada	67	59	2280	34.03	38.64	20	47
Spain	62	57	1514	24.42	26.56	18	38
South Korea	60	49	945	15.75	19.29	12	30
Tunisia	47	33	793	16.87	24.03	11	28
Brazil	43	19	230	5.35	12.11	6	15
India	39	18	97	2.49	5.39	5	9
France	35	26	1725	49.29	66.35	12	26
Italy	35	29	1054	30.11	36.34	12	29
Vietnam	30	17	105	3.50	6.18	7	9
Saudi Arabia	24	19	189	7.88	9.95	9	13
New Zealand	23	22	247	10.74	11.23	8	15
Slovakia	23	13	66	2.87	5.08	4	7
Germany	21	15	585	27.86	39.00	7	15

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index.

3.8 Most Influential Institutions

Table 9 lists the most prominent institutions in earnings management research. Based on Table 9, the State University System of Florida is the most influential institution in earnings management, with 34 total publications. In addition, Beijing Jiaotong University is ranked 2nd on this list with 32 publications. Universiti Utara Malaysia, with 30 publications, is ranked 3rd on the list of most influential institutions. Regarding the most influential institution in total citations, New York University is in first place, with 4773 total citations for its 15 publications. The University of California System is also listed second with 2955 total citations for their 21 documents. Then, Hong Kong Polytechnic University is the third-most influential institution regarding total citations, with 1362 citations for its 16 publications. According to Table 8, the University System of Georgia, with 1329 citations, and the State University System of Florida, with 1223 citations, are ranked fourth and fifth in the Most Influential Institutions.

Table 9. Most Influential Institutions

Affiliation	Country	TP	NCP	TC	C/P	C/CP	h	g
State University System of Florida	USA	34	29	1223	35.97	42.17	11	29
Beijing Jiaotong University	China	32	7	41	1.28	5.86	2	6
Universiti Utara Malaysia	Malaysia	30	26	261	8.70	10.04	10	15
University of Texas System	USA	30	27	1148	38.27	42.52	16	27
University De Sfax	Tunisia	29	18	655	22.59	36.39	8	18
Dalian University of Technology	China	24	3	5	0.21	1.67	1	2
University of Zilina	Slovakia	22	13	66	3.00	5.08	4	7
Pennsylvania State System of Higher Education (PASSHE)	USA	21	18	1038	49.43	57.67	12	18
University of California System	USA	21	18	2955	140.71	164.17	14	18
University of North Carolina	USA	18	6	7	0.39	1.17	1	1
University of Indonesia	Indonesia	17	6	29	1.71	4.83	3	5
Egyptian Knowledge Bank (EKB)	Egypt	16	13	151	9.44	11.62	6	12
Harbin Institute of Technology	China	16	3	4	0.25	1.33	1	1
Hong Kong Polytechnic University	Hong Kong	16	13	1362	85.13	104.77	11	13
National Taiwan University	Taiwan	16	16	148	9.25	9.25	9	11
New York University	USA	15	14	4773	318.20	340.93	10	14
Universiti Teknologi Mara	Malaysia	15	11	92	6.13	8.36	5	9
University System of Georgia	USA	15	14	1329	88.60	94.93	9	14
Wuhan University of Technology	China	15	1	1	0.07	1.00	1	1
Indian Institute of Management IIM	India	14	5	20	1.43	4.00	2	4

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index.

3.9 Citation Analysis

The citation metric was produced by Harzing's Publish and Perish software. It was accomplished by importing two RIS-formatted files for two periods, 1988–2018 and 2018–2022, from the WOS database into the above software to display the raw citation metrics. Table 10 summarises, as of February 22, 2022, the citation metrics for the retrieved documents. As indicated, there have been 5946 citations to EM publications from 1988–2018 and 48768 from 2018–2022. Table 10 shows that 1000 papers were published from 1988 until 2018, and 721 papers were published from 2018 to 2022.

Table 10. Citations Metric

Metrics	Data 1	Data 2
Publication years	1988- Aug 2018	Aug 2018-2022
Citation years	5	33
Papers	1000	721
Total Citations	5946	48768
Citations per year	1477.82	1189.2
Citations per paper	5.95	67.64
Citations per author	2503.26	25820.29
Papers per author	456.71	375.67
h-index	32	99
g-index	46	211

Table 11 displays the top 20 most cited articles in earnings management. Table 11 shows that the most-cited document in this field is Detecting Earnings Management, which came out in 1995 and has been cited 2,742 times. Moreover, as shown in Figure 3, the analysis exposes a visual map of the citations based on countries with at least five citations for each article. The node size signifies the citation number per country, while the nodes' lines characterise the partnership between the authors in each country. The countries that regularly work together are assembled in the same colour as in Figure 3. The USA and China are the top 2 countries cited for their work in earnings management, while England, Taiwan, and Malaysia also receive a good number of citations.

Table 11. Highly Cited Published Articles in EM

No.	Authors	Title	Cites	Cites per Year
1	Dechow et al. (1995)	Detecting Earnings Management	2742	105.46
2	Jones (1991)	Earnings Management During Import Relief Investigations	2704	90.13
3	Leuz et al. (2003)	Earnings management and investor protection: an international comparison	2040	113.33
4	Klein (2002)	Audit committee, board of director characteristics, and earnings management	1689	88.89
5	Roychowdhury (2006)	Earnings management through real activities manipulation	1415	94.33
6	Burgstahler & Dichev (1997)	Earnings management to avoid earnings decreases and losses	1340	55.83
7	Cohen et al. (2008)	Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods	1026	78.92
8	Xie et al. (2003)	Earnings management and corporate governance: the role of the board and the audit committee	966	53.67
9	Degeorge et al. (1999)	Earnings management to exceed thresholds	956	43.45
10	Teoh et al. (1998a)	Earnings management and the long-run market performance of initial public offerings	853	37.09
11	Bergstresser & Philippon (2006)	CEO incentives and earnings management	836	55.73
12	Teoh et al. (1998b)	Earnings management and the underperformance of seasoned equity offerings	780	33.91
13	Frankel et al. (2002)	The relation between auditors' fees for non-audit services and earnings management	733	38.58
14	Cohen & Zarowin (2010)	Accrual-based and real earnings management activities around seasoned equity offerings	700	63.64
15	Yu & Zang (2012)	Evidence on the Trade-Off between Real Activities Manipulation and Accrual-Based Earnings Management	683	75.89
16	Burgstahler et al. (2006)	The importance of reporting incentives: Earnings management in European private and public firms	603	40.2
17	Cheng & Warfield (2005)	Equity incentives and earnings management	548	34.25
18	Yu (2008)	Analyst coverage and earnings management	526	40.46
19	Be' Dard et al. (2004)	The effect of audit committee expertise, independence, and activity on aggressive earnings management	480	28.24
20	Peasnell et al. (2005)	Board monitoring and earnings management: Do outside directors influence abnormal accruals?	449	28.06

In addition, the analysis of the current study, as shown in Figure 4, exposes the visualisation map of the citation based on the document, where the minimum number of citations per document is 20. The results presented in Figure 4 reveal that Dechow (1995) and Jones (1991) are the most cited documents in this area.

Figure 3. Network Visualization Map of The Citation by Countries

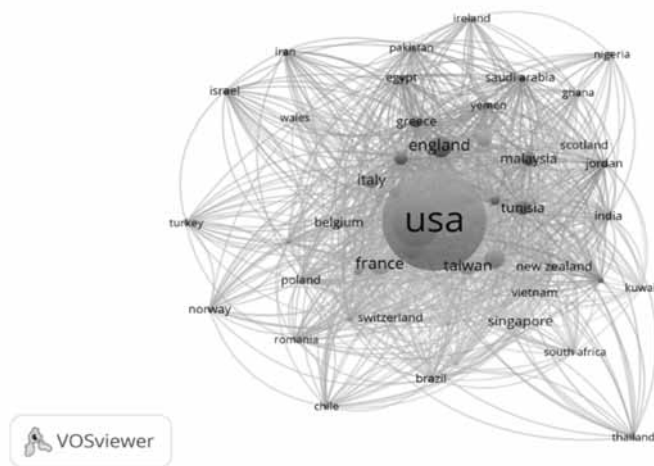
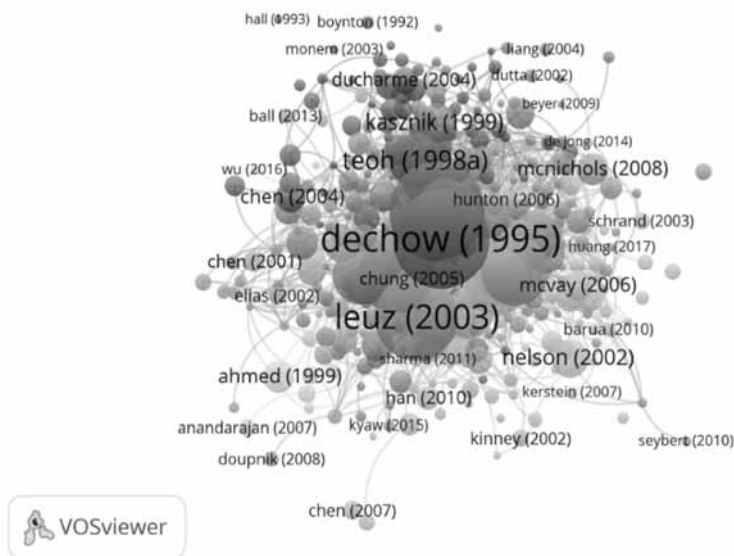


Figure 4. Network Visualization Map of the Citation by Documents

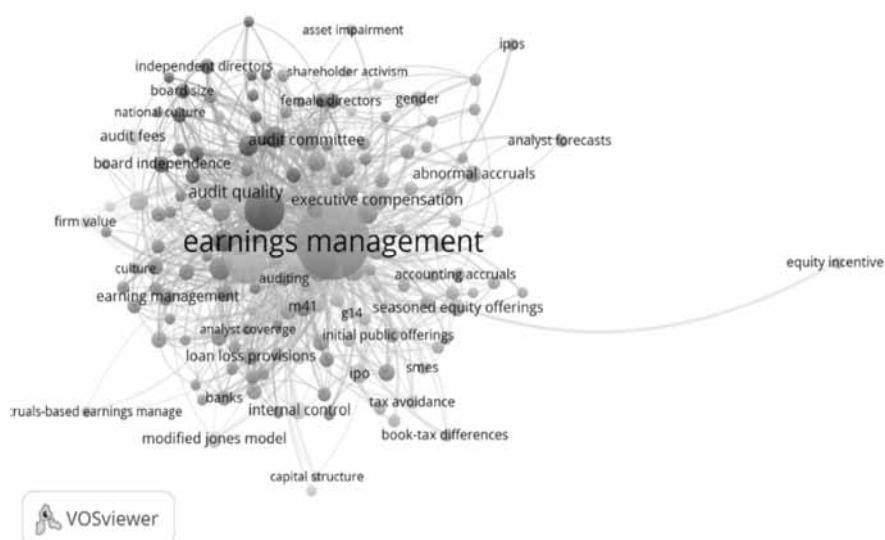


3.10 Themes in Earnings Management Research

3.10.1 Keywords Analysis

In this section, we utilised VOS-Viewer to analyse the author's keywords. Figure 5. Visualising the author's keywords via the network shows how the font size, the node's colour, and the thickness of the connecting lines were utilised to depict the author's keywords connected to other keywords. The analysis findings led to the development of 16 different clusters in earnings management research. These clusters were grounded in the author's keywords. For instance, the diagram proposes that earnings management, capital structure, information asymmetry, internal control, the modified Jones model, and Sarbanes-Oxley, all in green, are tightly allied and often present together.

Figure 5. Network Visualization Map of the Author Keywords



3.10.2 Text Analysis

The abstracts and titles of the papers acquired were analysed using the VOS viewer software and the full counting approach. Figure 6 visualises the number of times the word appears in the abstract and the study title. The size of the nodes is used to denote the significance of the occurrences, and the thickness of the lines that connect the nodes is used to denote the significance of the relationships between the occurrences. As a result, words that are connected to one another are arranged to highlight their connection. The analysis findings indicate that 12 clusters depend on the keywords within the title and abstract fields. The results revealed that REM, capital market, ownership structure, IPO, largest stockholder, and equity holding often occurred together.

3.11 Authorship and Co-Authorship Analysis

In this section, the emphasis is placed on the total number of authors for each publication. As is obtainable in Table 12, the highest number of authors who contributed to a single document is 7. There are 285 documents written by single authors, while other documents have multiple authors write the other documents. Three authors carried out 34.8% of the total publications, and two authors did 32.7% of the total publications.

Table 12. Number of Authors per Document

Author Count	Total Publications	Percentage (%)
1	285	16.56
2	563	32.71
3	599	34.81
4	233	13.54
5	35	2.03
6	4	0.23
7	2	0.12
Total	1721	100.00

Table 13. Most Productive Authors

Author's Name	Affiliation	Country	TP	NCP	TC	C/P	C/CP	h	g
Li YX	Dalian University of Technology	China	10	0	0	0.00	0.00	0	0
Kim Y	University of Seoul	South Korea	9	8	308	34.22	38.50	7	8
Alhadab M	Al al-Bayt University	Jordan	8	8	108	13.50	13.50	5	8
Durana P	University of Zilina	Slovakia	8	5	20	2.50	4.00	3	4
Li L	University of Waikato	New Zealand	8	5	26	3.25	5.20	3	5
Valaskova K	University of Zilina	Slovakia	8	6	49	6.13	8.17	3	6
Jarbouli A	Universite de Sfax	Tunisia	7	6	34	4.86	5.67	3	5
Kim JB	City University of Hong Kong	China	7	7	1002	143.14	143.14	7	7
Li X	Beijing Jiaotong University	China	7	4	35	5.00	8.75	4	4
Ozili PK	University of Essex	England	7	6	22	3.14	3.67	2	4
Wang X	University of Hong Kong	China	7	6	92	13.14	15.33	3	6
Campa D	International University of Monaco	Monaco	6	6	60	10.00	10.00	4	6
Gao J	Harbin Institute of Technology	China	6	3	8	1.33	2.67	2	2
Goel S	Management Development Institute (MDI)	India	6	5	22	3.67	4.40	3	4
Li Q	Wuhan Institute of Technology	China	6	1	1	0.17	1.00	1	1
Li YH	Beijing Jiaotong University	China	6	2	19	3.17	9.50	2	2
Sanusi ZM	Universiti Teknologi MARA	Malaysia	6	4	52	8.67	13.00	4	4
Seybert N	University of Maryland	USA	6	6	70	11.67	11.67	3	6
Shen CH	Shih Chien University	Taiwan	6	6	449	74.83	74.83	6	6
Yao H	Dalian University of Technology	China	6	1	1	0.17	1.00	1	1

Furthermore, Table 13 displays the list of the most productive authors in earnings management. The results indicate that Li YX from China is the author who published the most documents in this area, with ten publications. In comparison, Kim Y from South Korea is the second most productive author who published documents with the maximum number

of citations, with seven publications totalling 1002 citations. Moreover, Alhadab M. from Jordan is ranked 3rd with eight publications and 108 citations.

In addition, Figure 8 depicts the author's country or region as a network visualisation. Only those countries that have cited more than five publications and more than five citations combined are included in the analysis. The results of the method used to count scores indicate that the United States has a very significant role in collaboration with other countries. The US works closely with Australia, South Korea, and England, whereas China works closely with Australia, Taiwan, and England. Furthermore, Figure 9 presents the network visualisation of the allied authors (appearing in the same colour) regularly gathered together. Valaskova, Katarina; Lazaroiu, George; Kliestik, T.; Kovacova, Maria; Nica, Elvira; Suler, Peter; Vagner, Ladislav, for example, collaborate completely and conduct research together regularly.

Figure 8. Network Visualization Map of The Co-Authorship

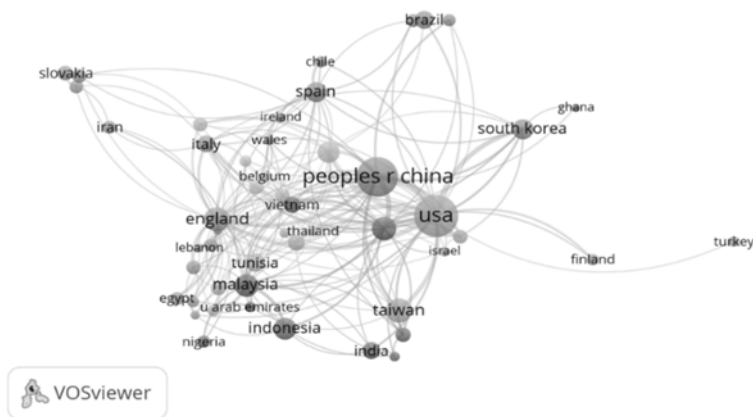
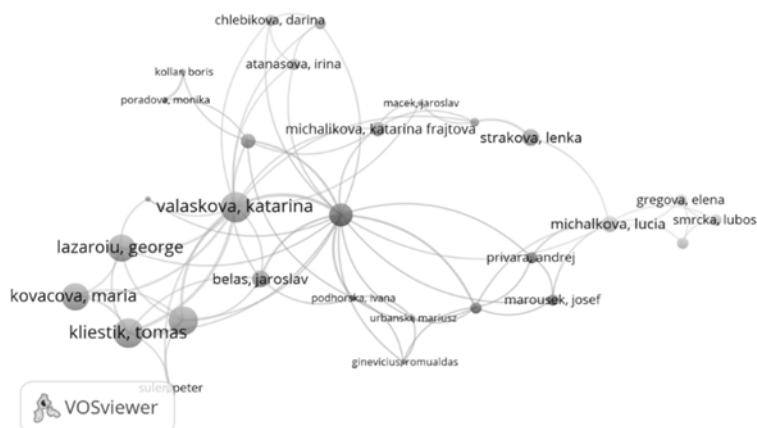


Figure 9. Network Visualization Map of the Co-Authorship



4. Discussions and Conclusion

A bibliometric analysis is utilised in the present study to analyse the progression of research on EM. The amount of work done in research and publications in a certain field can be measured using bibliometric analysis. The bibliometric analysis also assists policymakers and managers in making critical decisions before entering a specific field since the analysis findings could disclose the performance and influence of the studied research field (Ellegaard & Wallin, 2015). In addition, the results of the bibliometric study can assist academics in producing pertinent and recent research since the outcomes will highlight the critical areas in which research should be conducted. These results can greatly help academics (Ellegaard & Wallin, 2015).

Consequently, the current study concentrates on earnings management publications compiled from the WOS database. The current study employed a search query to find 1721 documents from the avowed database. Earnings management research (as per documents from the WOS database) was started by DYE (1988), titled Earnings Management in an overlapping generations model. After that, the publications in this area began to increase after 2015. Until now, the number of publications on earnings management has been rising.

According to the results, compared with other documents, most were published as articles, followed by proceedings papers and early access. The results indicated that English was the predominant language utilised in producing 96.46% of the research articles. The results also show that earnings management publications expand into disciplines such as Business Economics, Social Sciences, Other Topics, Public Administration, Computer Science, and Operations Research Management Science.

Regarding the research question of finding the impact of publications on earnings management, citation matrices have been employed. The value of the earnings management publications can be clarified by the citation metrics deliberated in the current research. Based on 33 years of publications (1988-2021), 1721 documents have been published with 54714 citations. The current study also discloses that further authors from diverse countries work together annually, indicating that earnings management spreads across different regions.

Even though the bibliometric analysis yielded informative results, the findings' quality can be enhanced in future studies. The initial masquerade is in the context of keyword utilisation in the search process. In the current research, we highlighted the aspects of earnings management that scholars often discuss to answer the research question. The results of the keyword analysis, title analysis, and summary analysis that VOS-Viewer created provide insight into the most important aspects of this field. For example, based on the current study results, capital markets, ownership structure, accrual earnings management, and real earnings management were among the most used keywords in the gathered documents.

In addition, it has been noted that no search query is perfect 100% to catch all academics interested in this area. Thus, undesirable results are predictable. Although the WOS database is considered one of the primary databases that index academic literature in various fields, the search query can also include results from other databases, such as Scopus and Google Scholar. When the search inquiry is implemented on all accessible academic databases, the outcomes could be richer and more visions could be assembled. Nevertheless, despite the

limits on the search database, the current study at least indicates a charming trend in earnings management research up to 2021. The current study also contributes by performing the bibliometric technique to expand the knowledge of earnings management literature.

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