Mapping Future Research Employee Fraud with Bibliometric Analysis

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Abstract.
Main Purpose - *This study aims to present and explain employee fraud by reviewing bibliometric analysis gathered from the Scopus database from 2011 until 2020.*
Method - The analysis method of this study uses a bibliometric analysis approach. Application system for data visualization uses VOSviewer and Microsoft Excel to perform data frequency analysis.
Main Findings - The results indicate that there is still a lack of research on employee fraud from 2011 until 2020. Meanwhile, it contradicts the results of the ACFE survey which shows a shifting in the trend of fraud perpetrators. For instance, in 2019 the first place was occupied by directors/owners, while in 2020 fraud perpetrators were dominated by employees.
Theory and practical Implication - Hopefully, this research helps encourage other researchers to conduct research on employee fraud in the field of detection and prevention for the sake of the sustainability of an organization. To the best of the author's knowledge, a bibliometric analysis study of employee fraud using the Scopus database is difficult to find.
Novelty - This study provides significant contributions and allows new insights about employee fraud that has been growing enormously, nevertheless.

Keywords: *Bibliometric Analysis; Employee Fraud; Future Research; VOSviewer*

Abstrak.
Tujuan Utama - Penelitian ini bertujuan untuk menyajikan dan menjelaskan kecurangan karyawan dengan tinjauan analisis bibliometrik yang diambil dari *database Scopus* dari tahun 2011-2020.
Metode - Metode analisis penelitian ini menggunakan pendekatan analisis bibliometrik Sistem aplikasi visualisasi data menggunakan VOSviewer dan Microsoft Excel untuk melakukan analisis frekuensi data.
Temuan Utama - Hasil penelitian ini menunjukkan masih kurangnya penelitian tentang kecurangan karyawan dari tahun 2011-2020. Hal ini bertentangan dengan hasil survei ACFE yang menunjukkan pergeseran tren pelaku *fraud,* yaitu tahun 2019 peringkat pertama ditempati oleh direktur/pemilik sedangkan mulai tahun 2020, pelaku fraud banyak didominasi oleh karyawan.
Implikasi Teori dan Kebijakan - Penelitian ini diharapkan dapat mendorong peneliti lainnya untuk melakukan penelitian tentang kecurangan karyawan di bidang deteksi dan pencegahan demi keberlanjutan suatu organisasi. Sepanjang pengetahuan terbaik penulis, studi analisis bibliometrik mengenai fraud karyawan dengan menggunakan database Scopus masih sulit ditemukan.
Kebaruan Penelitian - penelitian ini memberikan kontribusi yang signifikan dan memungkinkan wawasan baru tentang penipuan karyawan yang telah berkembang pesat.

Kata Kunci: Analisis Bibliometrik; Fraud Karyawan; Riset Mendatang; *VOSviewer*

INTRODUCTION

Fraud in the current era of globalization is an unavoidable issue. Fraud cases can occur in all modern business sectors, be it the public sector or the private sector, regardless of the size of the business and the nature of its operations. Fraud acts by fraud perpetrators are carried out to gain profits, avoid obligations, and others (Said et al., 2017). According to PWC (2014), fraud brings both financial and non-financial impacts on businesses. This is following the 2016 Report of the Association of Certified Fraud Examiners (ACFE) on workplace fraud and abuse, which reported that approximately $150,000 was lost for every investigated fraud case. In addition, the non-financial impacts include damage to the company's reputation, loss of employee morale, damage to business relations with external parties, and a decrease in company value (PWC, 2014). According to KPMG (2013), typical organizational fraud is related to cases of misappropriation of assets, misstatement of financial statements, theft of funds, and corruption, as well as fraud that is related to technology, identity, consumers, and supply chains.

Currently, employee fraud is a topic that deserves to be discussed. The results of the ACFE survey in 2020 showed that there was a shifting trend of fraud perpetrators. Previously, fraud perpetrators were dominated by owners and managers but over time, the fraud perpetrators shifted to be dominated by employees (Association of Certified Fraud Examiners (ACFE), 2018). PWC (2014) investigated fraud across industries which indicated that most cases of employee fraud occurred in the banking sector and showed that 71% of employees who worked in banking reported having seen or had direct knowledge of fraud within their organization over the past 12 months. The PWC Global Economic Crime Survey discussed the most common types of employee fraud in the banking industry and the percentages of occurrence as follows: misappropriation of assets (69%), procurement fraud (29%), bribery and corruption (27%), cybercrime (24%), and financial statement

fraud (22%) PWC (2014). Based on the total amount of disclosed fraud, 87% came from employee fraud incidents, which were carried out internally by both management and non-management sectors. Employee fraud is likened to a smooth puncture that will eventually go flat without realizing it. This can be interpreted that if the employee fraud is not diminished then it will lead to huge losses or even bankruptcy for the company or organization.

Other than the banking sector, there has been an increasing number of employee-related frauds in recent years across various industries. The number of employee fraud that occurs in an organization is very ironic; employees are expected to be the whistleblower of a fraud case but they become the perpetrators of fraud. Some of the causes of fraud include inadequate control at work, personal financial pressure, and maintaining an expensive lifestyle (Wolfe & Hermanson, 2004). The fraud triangle theory proposed by Cressey in the 1950s explains that there are three important elements behind someone committing fraud, including pressure, opportunity, and rationalization. Many studies such as Owusu et al. (2021), Said et al. (2017) have tested Cressey's fraud theory as an effort to detect the factors that encourage fraud practice. Although the fraud triangle theory has been supported by regulators, researchers such as Wolfe & Hermanson, (2004); Albrecht et al. (2010); Kassem & Higson (2012) insist that this concept will be insufficient to be a tool for observing, avoiding, and deterring fraud. Therefore, several researchers have proposed alternative theories used for investigating fraud, such as the fraud hexagon, fraud diamond, planned behavior theory, agency theory, grounded theory, and others. With the diversity of fraud theories, knowledge about the use of fraud theories in empirical research is necessary.

Although the number of employee fraud cases was increasing in 2020, employee fraud had not been a concern of researchers. Studies about fraud generally investigate fraud committed by company owners. To the best of

the author's knowledge, a bibliometric analysis study of employee fraud is difficult to find. Bibliometrics has the advantage of being able to quantitatively analyze research journals on a specific topic mathematically, access interrelated journals, and predict the direction of future studies (Yu et al., 2020). Therefore, this study was conducted to gain an in-depth understanding and provide recommendations for future researchers regarding the topic of employee fraud. This research contributes to providing a broad overview of the development of employee fraud research as a guide for future research in analyzing trends and performance in the field of employee fraud studies.

This study uses a bibliometric analysis approach to answer the following research questions.

Q1. How do current trends and publication impacts relate to employee fraud studies?

Q2. Which countries, journal publishers, and authors have been the most prolific and influential in employee fraud studies?

Q3. Which employee fraud themes are commonly used by researchers?

Q4. Which article is the most influential on the study of employee fraud?

Q5. What is the direction of future research that examines employee fraud?

METHOD
Research Design
The research method of this study uses a bibliometric analysis approach. The bibliometric analysis approach is chosen because it can show the development of previous research in particular fields. This analytical tool relies on the list of published journal article (Comerio & Strozzi, 2019). Researchers in the same study area tend to quote each other to set the position of their work in the field based on prior knowledge, which becomes the assumption that underlies the bibliometric analysis (Comerio & Strozzi, 2019). Bibliometric analysis is an objective and accurate method used in measuring the contribution of an article, analyzing trends and article performance in a particular field of study for the advancement of knowledge (Liu et al., 2014). In conclusion, the use of bibliometric analysis helps to get a better understanding of the evolution in particular fields of study, with the hope of finding research gaps and novelty as the basis for further research (Khitous et al.(2020); Herdianto et al. (2021); Donthu et al. (2021)). One of the things that must be considered in conducting bibliometric analysis is that non-alphabetical characters in the search filter should not be ignored. This is due to the results and further discussion depending on the data abstracted by the search filters, which the omission or misuse of non-alphabetic characters in the search filter can lead to inaccuracy and false conclusions (Liu et al., 2014). Several stages in conducting a bibliometric analysis consist of two stages, such as (1) performance analysis (standard technique in reviewing articles to present research performance, including author, institution, country, and journal name) (2) scientific mapping (includes citation analysis, co-analysis). citation, co-word analysis, and co-authorship analysis) (Donthu et al., 2021).

Collecting Data
This study uses data obtained from the Scopus database for bibliometric analysis. It is because Scopus data coverage is more substantial than the Web of Science (WoS) databases with various multidisciplinary sciences (Comerio & Strozzi, 2019). Scopus also offers tools to track, analyze and visualize data searches. Nowadays, the Scopus database is considered one of the primary data sources used by the international scientific communities. The process of collecting data from Scopus in this bibliometric analysis research uses the keywords "employee fraud". This study considers these keywords to reflect the research area and will be adapted to the objectives of this research. The inclusion and exclusion criteria for the data to be analyzed are as follows:

a. The initial search on Scopus used the article title, abstract, and the keyword "employee fraud". It was chosen because the default in Scopus is the first thing that readers see when they search the Scopus database.

b. This study analyzes all types of publications released within 10 years, from 2011 until 2020.

c. The article publications can use any language, related to the topic of employee fraud.

d. Data collection criteria for bibliometric analysis include all document types.

Documents that meet the criteria are then exported into CSV format. The data was taken on December 21, 2021. Several stages of the above process can be seen in Figure 1.

Data Analysis

Bibliometric analysis is using the VOSviewer application (version 1.6.17) to answer research questions by analyzing Co-authorship, Co-occurrence, Citation, Co-citation, and other themes. The use of the VOSviewer application (version 1.6.17) is to create and graphically visualize the bibliometric networks. VOSviewer was chosen for this study because of its ability to create maps based on network data, bibliographic data, and text data as well as its flexibility to support all file types. The file used for visualization in VOSviewer is in CSV format which contains the bibliographic information of the article. Microsoft excel 2019 is used for calculating the number of frequencies in each publication and creating a graphical representation accordingly.
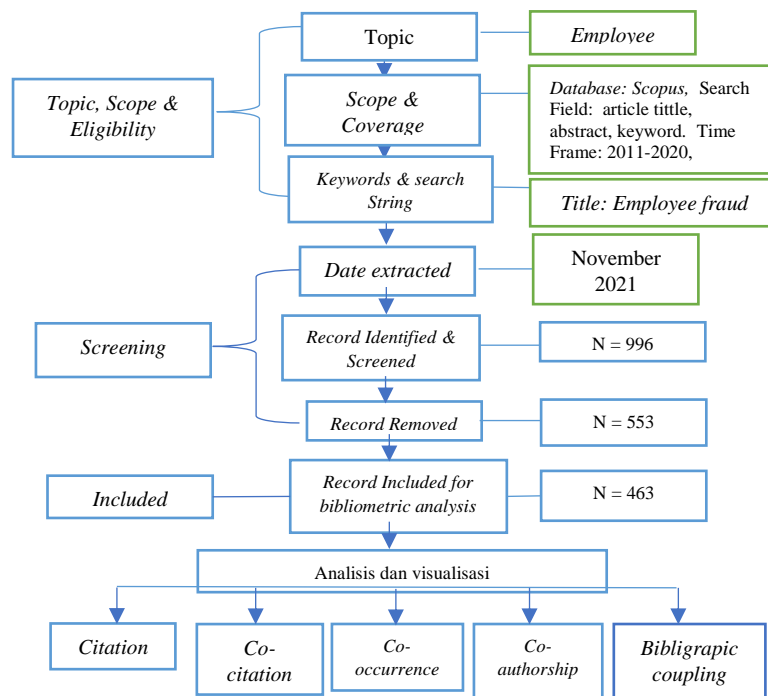
Source: Data Processed, 2021

Figure 1. Diagram Flow of the Bibliometric Analysis Search Strategy

RESULTS AND FINDINGS

This section will show the results obtained from the bibliometric analysis that will be used for answering all research questions. 463 documents in the Scopus database match the inclusion and exclusion criteria (see Figure 1). The results will be used in data analysis to find out the latest trends and the impacts of publications in the employee fraud study. Other than that, the results will also indicate the most productive countries and institutions, influential authors in employee fraud research, and which articles have the most influence on employee fraud based on the number of citations. Further data processing is also carried out to show the publication development from 2011 to 2020, knowing various types of documents and sources, the used languages, subject areas, keyword analysis, publications by country, analysis from the author's side, title and abstract analysis, and analysis citations.

To answer the first research question about the current trends and the impact of publications on employee fraud research, we used the total document findings from searches on Scopus to calculate and analyze publications by year, country, journal, author, and organization.

Publication Development

Based on data collected from the Scopus database with the keyword "employee fraud" in 2011 – 2020, the development of its publications can be described as follows:
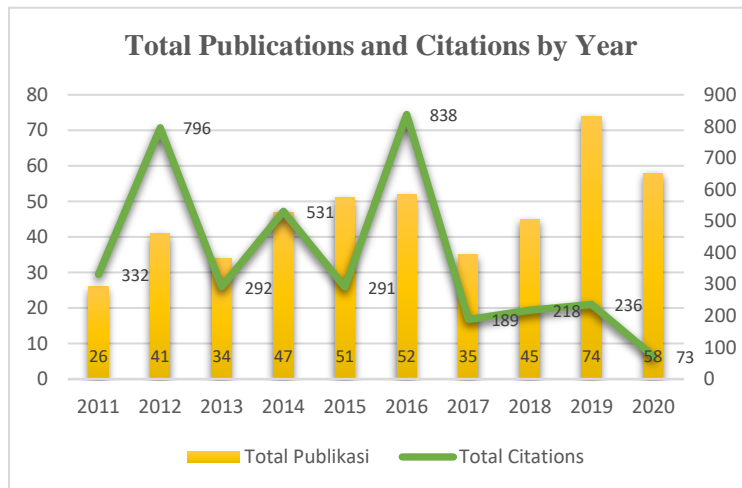
Source: Data Processed, 2021

Figure 2. Total Publications and Citations by Year

Table 1. Growth of Publication by Year

Year	Total Publications	Total Citations
2011	26	332
2012	41	796
2013	34	292
2014	47	531
2015	51	291
2016	52	838
2017	35	189
2018	45	218
2019	74	236
2020	58	73

Figure 2 provides a detailed summary of the annual publications and citations on employee fraud from 2011 to 2020. There were only 463 documents were published within 10 years, as shown in the figure above. The low rate of publications shows that researchers have not done many studies on employee fraud. Most publications were carried out in 2019. Besides, it can be seen that the trend of the publication development of "employee fraud" from 2011 to 2017 was relatively stable, increasing in 2018 and 2019, and relatively decreasing in 2020.

According to table 1, the most cited documents were those published in 2016, with as many as 838 citations. Overall, the number of cited documents every year has not progressed because the number of citations per year has decreased since 2017. This may also indicate that fewer researchers conduct studies in the employee fraud field.

Document Types and Sources

Table 2. Type of Document

Type of documents	Total Publications	(%)
article	291	62.85
conference paper	66	14.25
book chapter	42	9.07
review	23	4.97
book	20	4.32
note	10	2.16
conference review	5	1.08
shot survey	3	0.65
editorial	2	0.43
letter	1	0.22
total	463	100.00

Table 3. Source Type

Source Type	Total Publications	(%)
journal	317	68.47
conference proceeding	58	12.53
book	57	12.31
book series	23	4.97
trade journal	8	1.72
total	463	100.00

All data collected from the Scopus database is then evaluated and analyzed based on the type and source of the documents. The document types consist of various writing types, including articles, conference journals, books, and others. Published documents regarding employee fraud have been classified into 10 types of documents as summarized in table 2 above. The table shows that 62.85% are classified as articles, which means that more than a half of all publications related to employee fraud are in the form of articles. Subsequently, 14.25% is in the form of conference paper while other document types occupy less than 10% of the total publications. In addition, documents are also distinguished by the source which represents the type of document sources. In this study, the types of

document sources are divided into five main sources as shown in table 3 above, including journals, conference proceedings, books, book series and trade journals. The primary document source with the highest number is journals with 317 documents (68.47%), followed by conference proceedings with 58 documents (12.53%), books with 57 documents (12.31%) and other document sources.

Document Languages

There are various languages used in writing research on employee fraud, including English, Russian, French, Spanish, and others. Based on table 4 below, the writing about employee fraud topic in English is found in 452 documents (97.62%), followed by Russian which is only used in 3 documents (0.64%). Thus, it can be seen that English is the most used language in employee fraud studies.

Table 4. Language Used for Publications

Language	Total Publications	(%)
Bahasa Inggris	452	97.62
Bahasa Rusia	3	0.64
Bahasa Perancis	2	0.43
Bahasa Spanyol	2	0.43
Bahasa Italia	1	0.22
Bahasa Melayu	1	0.22
Bahasa Polandia	1	0.22
Bahasa Portugis	1	0.22
Total	463	100

Subject Area

This section discusses the document categories that are published based on the study area. According to the collected data from the Scopus database, publications about employee fraud were widely studied in the social sciences area, with as many as 192 documents of total publications (22.88%). The second place is occupied by other documents from Business, Management, and Accounting study fields, with as many as 189 documents. More detailed information related to the subject area of research with employee fraud topic is presented in table v5. The table shows that literature on employee fraud also occurs in various fields, such as computer science with 76 documents, engineering with 53 documents, medicine with 46 documents, and so on.

Table 5. Subject Area

Subject Area	Article	(%)
Social Sciences	192	22.88
Business, Management and Accounting	189	22.53
Economics, Econometrics and Finance	130	15.49
Computer Science	76	9.06
Engineering	53	6.32
Medicene	46	5.48
Art and Humanities	33	3.93
Decision Sciences	33	3.93
Psychology	15	1.79
Mathematics	13	1.55
Energy	8	0.95
Environmental Science	8	0.95

Pharmacology, Toxicology and Pharmaceutics	7	0.83
Agricultural and Biological Sciences	6	0.72
Nursing	6	0.72
Multidisciplinary	5	0.60
Physics and astronomy	5	0.60
Biochemistry, Genetics and Molucelar Biology	4	0.48
Earth and Planetary	4	0.48
Health Professions	3	0.36
Chemical Engineering	1	0.12
Dentistry	1	0.12
Veterinary	1	0.12

Publications by Country

This analysis identifies the most dominant countries in the publication of employee fraud. From the Scopus database, several authors from various countries have published documents related to employee fraud. This study uses the VOSviewer application to visualize and analyze publications by country further. Figure 3 below shows that the United States is the country with the highest number of research in employee fraud, with as many as 150 documents. The next position is occupied by Malaysia and the United Kingdom with 33 documents each, then Indonesia is in fourth place with 27 documents. This should be a stimulus for Indonesian researchers at various universities to be even more motivated to conduct research in the employee fraud area. The fifth place is occupied by the State of India with 23 document publications. The description is available in the table and visualization of the image below.

Table 6. Top 20 Most Active Countries

Country	Total Publications	(%)
United States	150	37.69
Malaysia	33	8.29
United Kingdom	33	8.29
Indonesia	27	6.78
India	23	5.78
Australia	17	4.27
Canada	16	4.02
South Africa	15	3.77
Germany	13	3.27
Netherlands	10	2.51
Greece	9	2.26
Nigeria	9	2.26
Russian Federation	8	2.01
China	6	1.51
Ghana	5	1.26
Iran	5	1.26
Norway	5	1.26

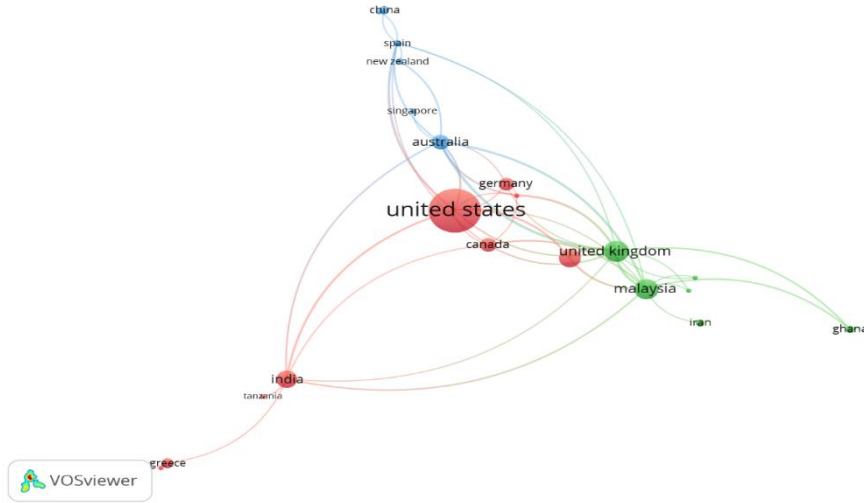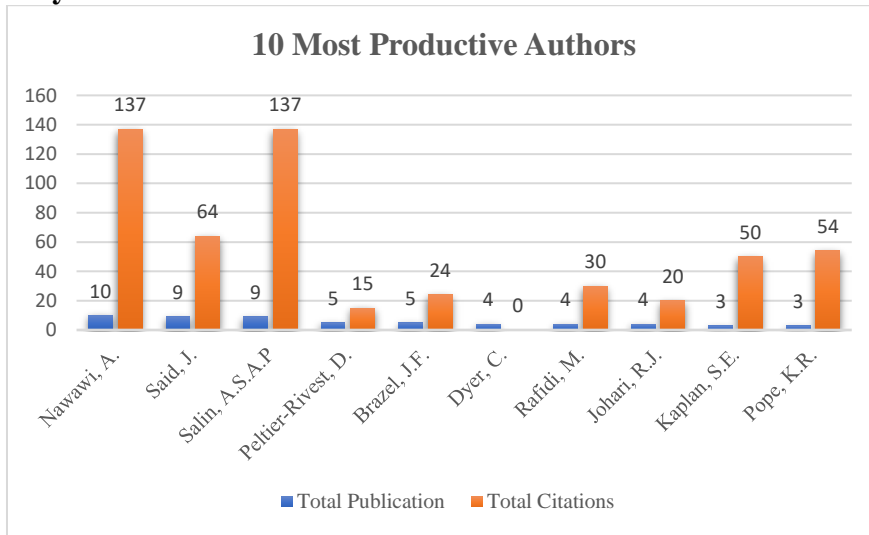| Switzerland	5	1.26
Turkey	5	1.26
France	4	1.01

Figure 3. Citations by Country

Authorship Analysis

Source: Data Processed, 2021
Figure 4. Top 10 Most Productive Authors

Table 7. Top 10 Most Productive Authors

Author	Affiliation	Country	Total Publication	Total Citations
Nawawi, A.	Universiti Teknologi MARA	Malaysia	10	137
Said, J.	Universiti Teknologi MARA	Malaysia	9	64
Salin, A.S.A.P	Universiti Teknologi MARA	Malaysia	9	137
Peltier-Rivest, D.	Concordia University	Canada	5	15
Brazel, J.F.	North Carolina State University	USA	5	24

Dyer, C.	The BMJ	UK	4	-
Rafidi, M.	Universiti Teknologi MARA	Malaysia	4	30
Johari, R.J.	Universiti Teknologi MARA	Malaysia	4	20
Kaplan, S.E.	Arizona State University	USA	3	50
Pope, K.R.	Arizona State University	USA	3	54

This section focuses on identifying the most prolific authors who conduct research in employee fraud. Figure 4 above shows the top 10 most productive authors who have conducted various research on the topic of "employee fraud" within 10 years. The most popular author is Nawawi, who has produced at least 10 articles about employee fraud published on Scopus. Several other influential authors when it comes to the writing of employee fraud topic include Said, J., Salin, A.S.A.P., Alam, M.M., Peltier-Rivest, D., and Brazel, J.F. On the other hand, Nawawi A. and Salin, A.S.A.P. receive 137 citations each; it makes them being in the first place when it comes to the most cited author in the employee fraud area. The next author is Said, J. who get 64 citations.

This research analyzes and visualizes the data obtained from the output of the VOSviewer application to run a more in-depth analysis, such as collaboration between authors. One of the outputs of the VOSviewer application in analyzing authors is the co-authorship which was conducted to figure out the number of collaborations between authors, organizations, and countries. Collaborative research produces more quality articles. Figure 5 shows the collaboration network between authors in at least one article. To determine the threshold,

the researcher should have been cited more than five times. The line color thickness, the size of the circle, and the font size of the text in the picture below indicate the strength of the relationship and the author's network.

The author's collaboration can be seen in Figure 5. The analysis results visualized in Figure 4 shows 22 authors grouped into 5 clusters which are represented by different colors. Alam M.M., Asry S., Mohamed D.I.B., Obaid R.R., Rafidi M.M., Ramli M.created a collaboration network with the highest number of articles, and they are part of cluster 1 represented by red. Figure 4 also illustrates that Author Said J. has collaborated with the red cluster 1.

The next visualization from VOSviewer about the author's analysis is Co-authorship based on Countries, which is a description of the collaboration network between the author's countries. See the visualization output in Figure 6. The picture suggests that the United States has a close cooperation network with several other countries. For example, the United States collaborates with Greece, Austria, and Malawi. Other than that, the USA collaborates with Germany, which also works with China.
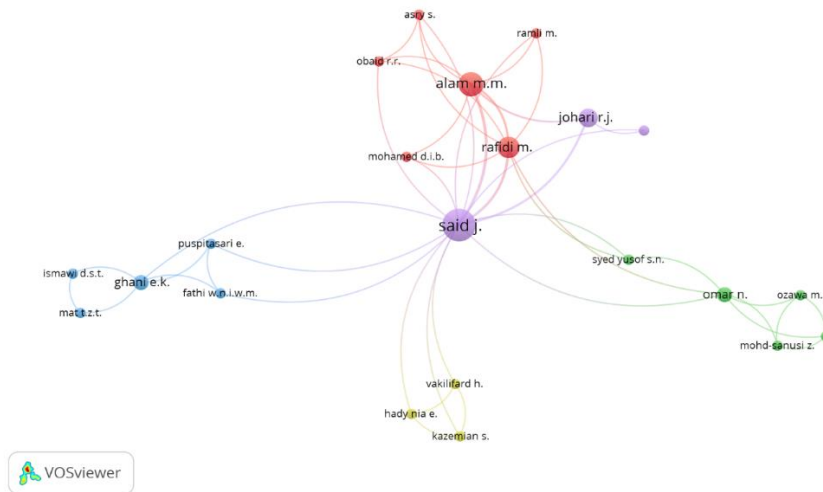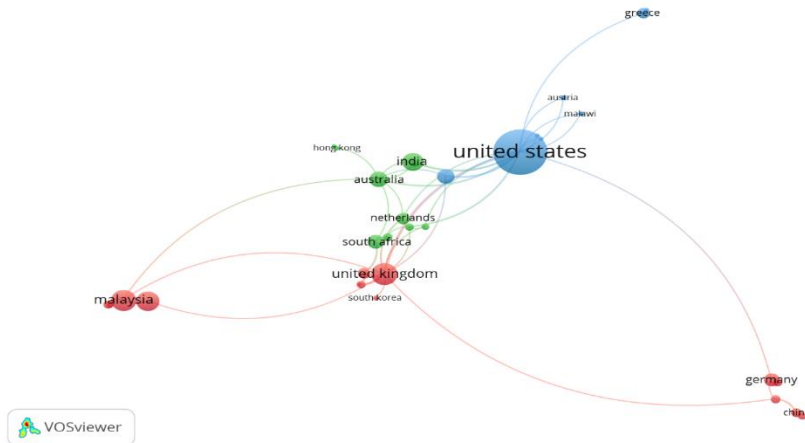
Figure 5. Co-Authorship Based on Author

Figure 6. Co-Authorship Based on Countries

Most Active Institutions

According to Table 8 below, the most active institution in publishing documents with the topic of employee fraud is Malaysia's Universiti Teknologi MARA with as many as 24 publications. In second place is Universiti Utara Malaysia which published 6 documents. Among all, institutions in the United States published most documents related to employee fraud.

Table 8. Most Active Institutions

Institutions	Country	Total Publication
Universiti Teknologi MARA	Malaysia	24
Universiti Utara Malaysia	Malaysia	6
Arizona State University	USA	6
Concordia University	Canada	5
Bina Nusantara University	Indonesia	5
NC State University	USA	4
Brigham Young University	USA	4
The University of Texas at Austin	USA	4
Erasmus Universiteit Rotterdam	Netherlands	4
Wayne State University	USA	2

Ohio University	USA	2
Auburn University	USA	2
Universitetet I Stavanger	China	2
John Jay College of Criminal Justice	USA	2
University of Denver	USA	2

Keyword Analysis

The most crucial thing when it comes to analyzing the keywords is that those keywords should've represented the entire document (Comerio & Strozzi, 2019). If the keywords show up two times or more, it means that there is a relation between those documents. The keyword analysis process uses the Co-occurrence analysis in the VOSviewer application. This process is conducted to comprehend the research trend about employee fraud studies. To find out the most used keywords that encourage the co-occurrence network, the keyword occurrence is limited to as many as three times; there are 77 keywords in total. Figure 7 visualizes the co-occurrence network of mostly used author's keywords, such as:
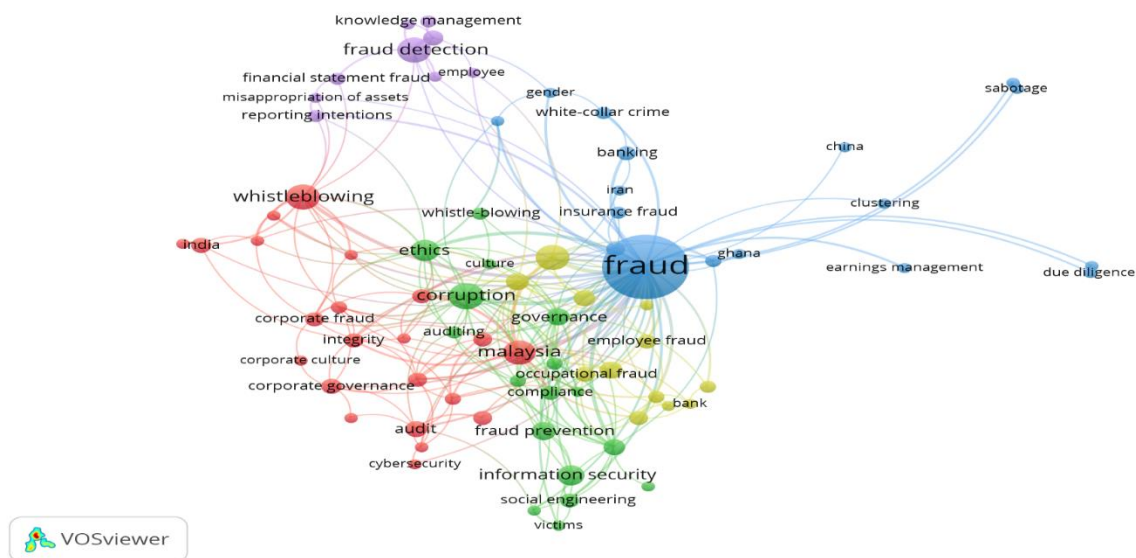

Figure 7. *Co-Occurance of Outhor Keywords*

Figure 6 shows that "fraud" is a widely studied concept, followed by various other topics, including "employee fraud". The term "employee fraud" is part of the rarely used keywords. Keywords with three occurrences that only come up with 77 keywords in total. Those keywords are grouped into five clusters. Each cluster is represented by a different color. The author's keyword analysis offers several useful insights, such as:

1. First of all, it shows that employee fraud is a noble topic. Researchers and writers rarely use the keyword " employee fraud" for their studies.

2. Second, the keyword "employee fraud" is closely related to several other terms, including, corruption, whistleblowing, internal control, occupation fraud, and fraud triangle theory. It means that there are a lot of things that need to be developed and connected with employee fraud cases. For instance, when it comes to fraud detection, many are using the fraud triangle theory. Thus, it requires the development of empirical tests in detecting fraud by using other theories, such as the fraud hexagon

theory. Also, these numerous fraud theories can be used as keywords.

3. Third, interestingly, employee fraud can be connected to topics like whistleblowing. The connections between those two are ironic because employees should have been the whistleblower in any fraud case but now they become the culprit. On the other hand, it opens an opportunity for researchers in the future to analyze or study both keywords empirically.

4. Fourth, research on employee fraud has not been found in Indonesia. Thus, it opens up an opportunity for researchers to study employee fraud in Indonesia, both in the public and private sectors.

The keywords that can be potentially used for further research topics in the future are shown in Table 9 and Figure 8 below.

Table 9. Top 20 Author Keywords

| Author Keywords	Frequency	(%)
Fraud	144	26.13
Human	82	14.88
Crime	53	9.62
Fraud Detection	23	4.17
Article	20	3.63
Whistleblowing	20	3.63
Corruption	19	3.45
Ethics	17	3.09
Internal Countrol	17	3.09
Security of Data	17	3.09
United States	17	3.09
Employee	16	2.90
Information Systems	15	2.72
Malaysia	15	2.72
Personel Management	15	2.72
Human Resource Management	14	2.54
Legislation and Jurisprudence	13	2.36
Risk Management	12	2.18
Finance	11	2.00
Information security	11	2.00
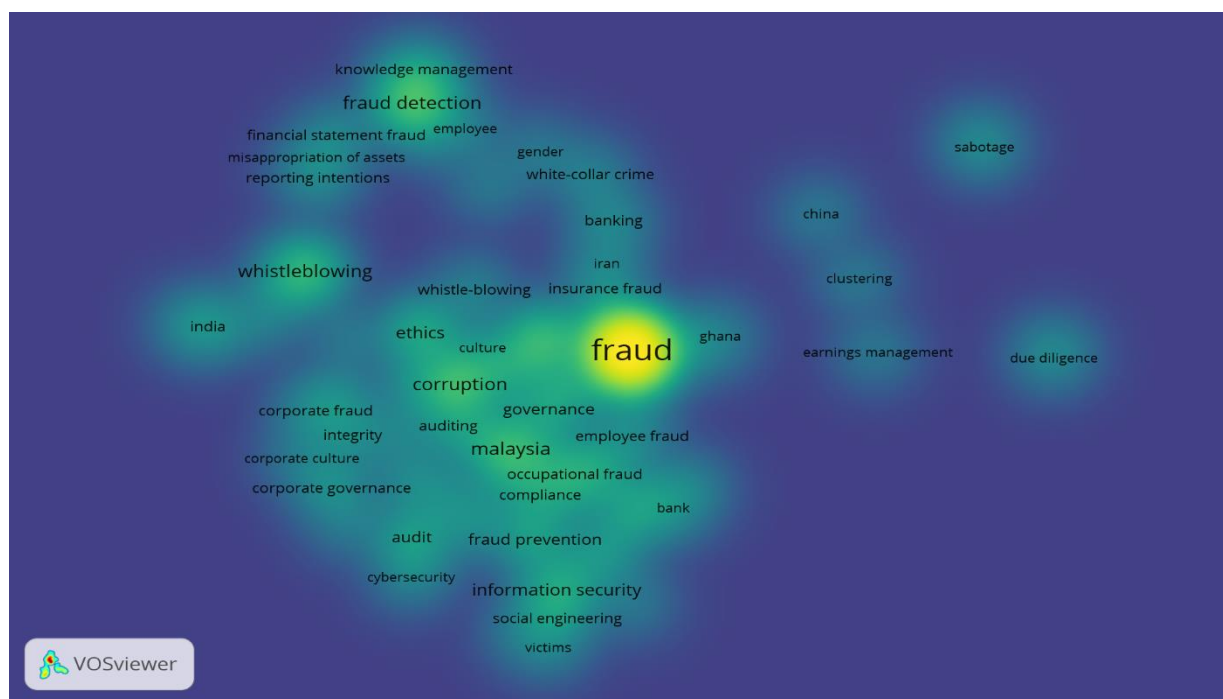
Figure 8. *Co-Occurance of Outhor Keywords*

Based on Figure 8, it can be seen that the words represented in faded green with small sizes refer to terms that have not been studied much, such as the word employee fraud. Thus, it can be a suggestion for further studies to do more exploration on employee fraud which has enormously expanded compared to employer fraud, according to surveys. Other than that, the researchers in the future are expected to be able to combine the word "employee fraud" with other terms shown in the picture above, as well as "fraud detection".

Thus, this can be a direction for further research to examine more employee fraud, which in surveys has developed a lot compared to fraud committed by directors or company owners. And further researchers can combine the word employee fraud with other words contained in the picture above, including fraud detection.

Citation Analysis
Another common way to measure the impact of research publications is by using citation analysis (Ding & Cronin, 2011). This section will also answer the fourth question about the

most influential aspect when it comes to studies on employee fraud. Therefore, the data analysis method is performed on 463 documents in total, and the number of citations will be counted for each document. Table 10 shows the result of the data processing, which suggests the top 10 most-cited articles.

Other than that, the result from VOSviewer about the citation analysis is visualized through Figure 9. It shows the citation analysis according to the document analysis unit, which is divided into five clusters and at least one occurrence. The most influential and most-cited article was written by Robinson et al. (2012). The title is "The Effects of Contextual and Wrongdoing Attributes on Organizational Employees' Whistleblowing Intentions Following Fraud". It means that the article is a quality one, influential, and relevant to be a reference for other articles related to employee fraud. Other articles that receive numerous citations by other authors in the network were written by Lee G. (2013), Zakaria K.M. (2016), Murphy P.R. (2016), and so on.
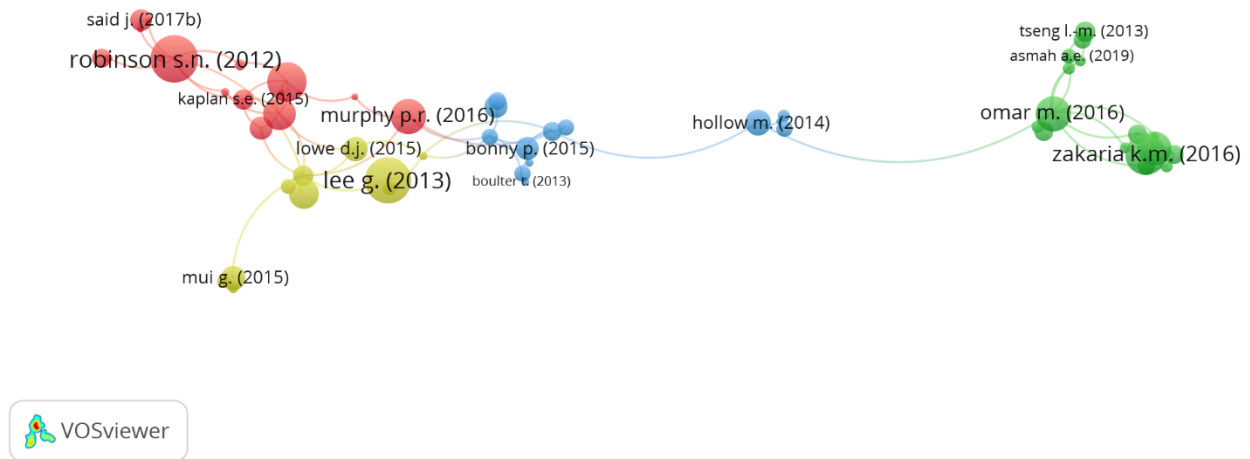
Figure 9. *Citation of Document*

Table 10. Top 10 Cited Articles in Employee Fraud Research

No	Authors	Tittle	Year	Total Citations
1.	Robinson S.N., Robertson J.C., Curtis M.B.	The Effects of Contextual and Wrongdoing Attributes on Organizational Employees' Whistleblowing Intentions Following Fraud	2012	56
2.	Lee G., Fargher N.	Companies' Use of Whistle-Blowing to Detect Fraud: An Examination of Corporate Whistle-Blowing Policies	2013	52
3.	Zakaria K.M., Nawawi A., Puteh Salin A.S.A.	Internal controls and fraud-empirical evidence from oil and gas company	2016	41
4.	Brink A., Eller C.K., Gan H.	The effect of evidence strength and internal rewards on intentions to report fraud in the dodd-frank regulatory environment	2013	40
5.	Murphy P.R., Free C.	Broadening the fraud triangle: Instrumental climate and fraud	2016	31
6.	Omar M., Nawawi A., Salin A.S.A.P.	The causes, impact and prevention of employee fraud: A case study of an automotive company	2016	31
7.	Rahim S.A.A., Nawawi A., Salin A.S.A.P.	Internal control weaknesses in a cooperative body: Malaysian experience	2017	28
8.	Kaplan S.E., Pope K.R., Samuels J.A.	An examination of the effect of inquiry and auditor type on reporting intentions for fraud	2011	27
9.	Halbouni S.S., Obeid N., Garbou A.	Corporate governance and information technology in fraud prevention and detection: Evidence from the UAE	2016	23

10.	Hollow M.	Money, morals and motives: An exploratory study into why bank managers and employees commit fraud at work	2014	17

Publication by Source Title

Figure 10 is the visualization of the processed data from the VOSviewer application. It shows the publishers that published the most journals about employee fraud. Journal of Financial Crime published the most articles on employee fraud topic. The second place is the Journal of Business Ethics. See Table 11 for a more detailed position of each journal. Meanwhile, Tqm Journal consists of the latest publications that discuss employee fraud. As the result, researchers in the future may gather data from those journal publishers.

Table 11. Most Active Source Title

Source Tittle	Publisher	Total Publication	Total Citation
Journal Of Financial Crime	Emerald Group Publishing Ltd.	34	203
Journal Of Business Ethics	Springer Netherlands	8	207
Journal Of The International Academy For Cases Studies	Allied Academies	8	1
Auditing	American Accounting Association	5	165
Journal Of Money Laundering Control	Emerald Group Publishing Ltd.	5	20
Behavioral Research in Accounting	American Accounting Association	4	64
Fraud The Counter Fraud Practitioner S Handbook	Taylor and Francis	4	-
Internatonal Journal Of Law And Management	Emerald Group Publishing Ltd.	4	8
International Journal of Recent Technology And Engineering	Blue Eyes Intelligence Engineering and Sciences Publication	4	7
International Jornal Of Scientific And Technology Research	International Journal of Scientific and Technology Research	4	-

Figure 10. Citation of source analysis

Bibliographic Coupling Analysis

This process is done to show several documents which are categorized into clusters with similar research discussions. Figure 11 shows the pattern of merged bibliography which is divided into five clusters and three occurrences; 98 items appear. Each cluster is described as follow:

a. Cluster 1: This cluster forms a pattern that discusses fraud prevention. Cluster 1 is red and it is the largest cluster that consists of 25 items. The most cited document from this cluster is Halbouni S.S. (2016) which was cited 23 times with the title "Corporate Governance and Information Technology in Fraud Preventing and Detection Evidence from The UAE".

b. Cluster 2: The connection of several documents in this cluster is related to fraud detection. The most cited document was written by Abbasi A. (2012) called "Metafraud A Meta Learning Framework for Detecting Financial" cited 137 times.

c. Cluster 3: The patterns help to understand the factors that encourage employee fraud. Cluster 3 is represented by blue and consists of 21 items. The most cited article is "The Mass Production of Redundant Misleading and Conflicted Systematic Reviews and Meta-analysis" by Ioannidis J.P.A. (2016). The document is cited 583 times.

d. Cluster 4: The pattern discusses the potential and indications of employee fraud. This cluster is visualized by yellow and consists of 15 items. The most cited document is "Corruption in the South African Construction Industry; A Thematic Analysis of Verbatim Comments from Survey Participants" by Bowen P.A. (2012). This article is cited 72 times.

e. Cluster 5: The connections that develop within this cluster are about one intention to perform employee fraud. The most cited document was written by Robinson S.N. (2012) entitled "The Effect of Contextual and Wrongdoing Attributes on Organizational Employees Whistleblowing Intentions Following Fraud". This cluster is represented by purple and consists of 14 items.
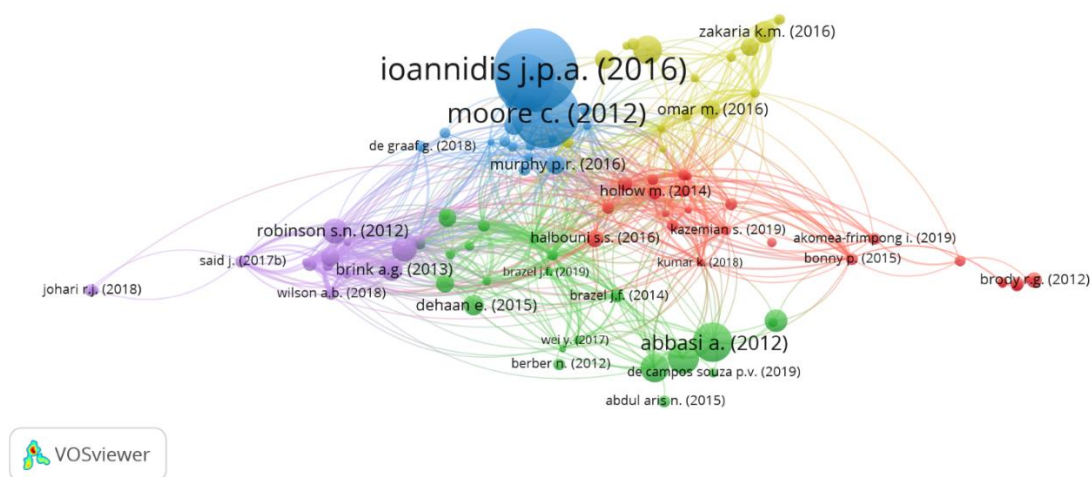

Figure 11. Bibliographic Coupling of Document

CONCLUSSION

This study was conducted to analyze and examine in depth reviews of employee fraud using a bibliometric analysis approach from the Scopus Database. This study uses the search query title, abstract, and the keyword "employee fraud" to find 996 documents from the Scopus database. After narrowing the existing publications in 2011-2020, found 463 documents. In general, the results of this study indicate that the trend of studies and publications on employee fraud tends to decrease; not much to be found on the topic. In addition, the results showed that the most widely published types of documents were in the form of journals and written in English. Studies on the topic of employee fraud are mostly carried out by several disciplines, such as Social and Business Sciences, Management, and Accounting. On the other hand, the impact of publications on employee fraud is not necessarily significant. This is indicated by the low level of citations on every document related to the employee fraud study. In 10 years (from 2011 to 2020), 463 documents were being processed and produced but only 3,802 citations were found.

Furthermore, the United States and Malaysia are the most productive countries that produce research and studies on the topic of employee fraud. On the other hand, the Journal of Financial Crime has published the most journals on employee fraud. Nawawi, A. is the most prolific writer, while MARA University of Technology is the most active institution producing literature on employee fraud. Keyword analysis suggested the most common and most researched themes, which also answered the third question. Based on the results of keyword analysis, it was found that some of the most widely used keywords, such as fraud, human, crime, fraud detection, whistleblowing, and many more. Relationships between keywords also appear in the VOSviewer output above. Thus, future researchers can be more creative in combining keywords in research, which are adapted to the current phenomenon of course.

The limitation of this study is that it only uses a database from Scopus. Therefore, it is hoped that researchers can improve the databases used for research, such as Google Scholar, open knowledge maps website, Web of Science, Dimension API, and others. On the other hand, research expansion is possible through other bibliometric analysis tools, such as Gephi, HistCite, and others. Although limitations may apply, this study makes a significant contribution and allows new insights into the rapidly evolving employee fraud.

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