



INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



Bibliometric Analysis of Fraud In Small and Medium-Sized Enterprises

Wan Nur Syawatul Aswal Zulkefle, Hafizah Mat Nawi, Mohd Nor Yahaya

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v12-i4/12149>

DOI:10.6007/IJARBSS/v12-i4/12149

Received: 22 February 2022, **Revised:** 24 March 2022, **Accepted:** 05 April 2022

Published Online: 19 April 2022

In-Text Citation: (Zulkefle et al., 2022)

To Cite this Article: Zulkefle, W. N. S. A., Nawi, H. M., & Yahaya, M. N. (2022). Bibliometric Analysis of Fraud In Small and Medium-Sized Enterprises. *International Journal of Academic Research in Business and Social Sciences*, 12(4), 1549–1566.

Copyright: © 2022 The Author(s)

Published by Human Resource Management Academic Research Society (www.hrmars.com)

This article is published under the Creative Commons Attribution (CC BY 4.0) license. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this license may be seen at: <http://creativecommons.org/licences/by/4.0/legalcode>

Vol. 12, No. 4, 2022, Pg. 1549 – 1566

<http://hrmars.com/index.php/pages/detail/IJARBSS>

JOURNAL HOMEPAGE

Full Terms & Conditions of access and use can be found at
<http://hrmars.com/index.php/pages/detail/publication-ethics>



INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



www.hrmars.com

ISSN: 2222-6990

Bibliometric Analysis of Fraud In Small and Medium-Sized Enterprises

Wan Nur Syawatul Aswal Zulkefle¹, Hafizah Mat Nawi², Mohd Nor Yahaya³

¹Quest International University Perak, Malaysia, ^{2,3}National Defence University of Malaysia, Malaysia.

Email: hafizah.matnawi@upnm.edu.my (Corresponding author)

Abstract

Fraud has become a worldwide issue that threatens the sustainability of organisations of all sizes. However, there are issues on the disintegration of frauds towards certain disciplines. The goal of this study is to create a meaningful single-source reference for accounting scholars concerning fraud in small and medium enterprises. This study aimed to: (i) evaluate the trend of research on fraud in SMEs, (ii) determine key areas in fraud research, and (iii) identify the major players in fraud research. The study employed a bibliometric method to describe and analyse data on 72 works related to fraud. The data was retrieved in August 2021 from a Scopus database. The study employed VOSviewer and Harzing Publish or Perish software in visualising and integrating the data, respectively. The study also analysed data using Microsoft Excel. Findings showed that research on fraud was started as early as 1989. The early development was very slow which caught only the attention of scholars from the West especially the U.S and the U.K. The number of publications started to evolve in the year 2004. The analysis revealed that the Journal of Financial Crime published the most articles related to fraud in SMEs. Nevertheless, the list of the 20 most cited papers reflects that there is still a scarcity of studies in this field. Since the study confines on papers published in the Scopus database only; hence, the representativeness of 'fraud n SMEs' research is considered moderate. This bibliometric study can be a stepping stone in complementing meta-analysis and structured literature reviews.

Keywords: Fraud, Small and Medium Enterprises (SMEs), SCOPUS, Bibliometric Analysis, VOSviewer, Harzing's Publish or Perish Software.

Introduction

Despite the fact that the majority of managers in most organisations conduct business with integrity, however, some yield to perceived pressures and opportunities to make their organisations look better than they truly are (Albrecht et al., 2008). This dishonest act is called as fraud triangle which was introduced by Cressy in 1953. Fraud can be defined as a deliberate attempt by an individual or a group of individuals to deceive another party to gain an unfair benefit (Sow et al., 2018). In other words, fraud refers to any intentional action(s) committed by an individual or a group of individuals to deceive another entity (Halbouni et al., 2016).

According to the Association of Certified Fraud Examiners-ACFE- (2020), fraud causing more than \$3.6 billion of total losses globally and certain fraud risks were more likely to occur in small enterprises. ACFE (2020) found that frauds related to billing, payroll, and check and payment tampering are either two or four times higher in small and medium-sized enterprises (SMEs) than in large organisations.

Numerous frauds have been uncovered in businesses worldwide over the last decade. Enron, WorldCom, Parmalat, Vivendi, SK Global, and Adelphia are examples of such frauds. Archambeault & Webber (2018) indicated that organisations that were affected by fraud did not survive for at least three years after the fraud was discovered but larger organisations may have a higher chance of surviving. Thus, fraud will severely affect the survival of small and medium-sized businesses (ACFE, 2012). Fraud influences the reputation of SMEs as well as the confidentiality of their stakeholders (i.e. customers, shareholders, creditors, etc.), in addition to financial losses. Furthermore, one of the reasons SMEs fail in strategic activities is a fraud, which, in severe circumstances, can drive the entire firm out of business. SME's will be at a competitive disadvantage if fraud becomes a cost of doing business (Adams et al., 2006).

Considering the importance of this issue on SMEs, this study conducted a bibliometric analysis of documents that were published on a topic related to 'fraud in SMEs'. Fundamentally, this paper focuses on three research questions:

- (i) "how has the research on fraud evolved?",
- (ii) "what are the key areas in fraud research?", and
- (iii) "who are the major players in fraud research?".

The bibliometric analysis in this study would consider the following aspects in answering the above-stated research questions. This study looked into sources and document types, the number of published studies per year, and languages of documents, to answer the question related to the evolution and distribution of fraud research. In answering the question of the key areas of fraud research, this study examined the subject area, title analysis, and frequency of keywords. Further, this paper looked into countries with the most contributions, citation analysis, and authorship analysis, in answering the third question.

The next section presents the research methods, followed by results from the bibliometric analysis and their interpretations and discussion. The final section concludes the findings, states the limitations and recommends future research related to fraud.

Methodology

To identify the potential under-researched areas in 'fraud in SMEs', this study performed a bibliometric analysis approach. The study collected data from the Scopus scientific database considering the database is the largest searchable database in social sciences (Nasir et al., 2021).

This study conducted the following query: (TITLE-ABS-KEY (fraud OR embezzlement OR "white collar crime" OR "white-collar crime" OR "financial crime" AND "small and medium-sized enterprises" OR SMEs OR SME OR "small firms" OR "new small ventures" OR "international new ventures" OR "new venture" OR "born global"). 72 documents were retrieved from the database. This data was extracted on 1st September 2021 without setting any boundaries on the year of publication, document type, subject area or language. There are no identical documents detected after the data cleaning process, thus, a total of 72 documents was included for the Bibliometric Analysis.

The Scopus retrieved data were used to plot a graph of publication growth, and total citations of scientific articles published related to fraud from the year 1989 until 2021. Several analyses were directly retrieved from Scopus through the 'analyze search results' function in the Scopus website.

Further, this study used VOSviewer software (version 1.6.15) to visualise the data in form of network visualisation maps. The study divided the visualisation maps into Keywords analysis and Title analysis. In addition, the study used Harzing's Publish or Perish software to incorporate data and search for the citation metrics for the data. The data were also analysed manually or using Microsoft Excel. The final step was the descriptions and interpretation of the results.

Results

This section presents the results of bibliometric analysis. The section is categorised into three major subsections based on the above-mentioned research questions:

1. Fraud research's evolution and dissemination
2. Key areas in fraud research
3. Major players in fraud research

1. 'Fraud in SMEs' Research's Evolution And Dissemination

In addressing this research question, this study was looking into (i) document and sources types, (ii) number of published studies per year, and (iii) languages of documents.

(i) Document and Source Types

The documents published on fraud in SMEs have been categorised into six types of documents as shown in Table 1. The table indicates that article is the most common document type, representing approximately three-fifth (3/5) of the total documents, followed by conference paper (19.4%). Other types of documents accounted for less than 10% of the total number of publications.

Table 1: Document type

| Document type | Frequency | Percentage (%) |
|-------------------|-----------|----------------|
| Article | 46 | 63.9 |
| Conference paper | 14 | 19.4 |
| Conference review | 5 | 6.9 |
| Book chapter | 3 | 4.2 |
| Review | 3 | 4.2 |
| Note | 1 | 1.4 |
| Total | 72 | 100 |

It is worth noting that the conference paper in the documents type might not be the same as the source paper (Sweileh et al., 2017). When a paper is presented at a conference, for example, it is designated as a conference paper under document type. Depending on its publishing status, the same material could be categorised as a complete journal article, book chapter, or conference proceeding under the source type (Mansour et al., 2021). Table 2 shows the five different types of sources. Journals accounted for 65.3 per cent of all sources, followed by conference proceedings (18%) and book series (11%). Other sources accounted for less than 10% of the total, with books (4.2%) and trade journals (1.4%).

Table 2: Source type

| Source type | Frequency | Percentage (%) |
|-----------------------|-----------|----------------|
| Journal | 47 | 65.3 |
| Conference Proceeding | 13 | 18.1 |
| Book Series | 8 | 11.1 |
| Book | 3 | 4.2 |
| Trade Journal | 1 | 1.4 |
| Total | 72 | 100 |

The data were also analysed based on the Source Title. Table 3 displays the ten journal databases with the most publications on 'fraud in SMEs' research, which accounted for about a quarter of all documents. According to the findings, the Journal of Financial Crime was the most influential journal, publishing the most articles on SMEs fraud. This journal was listed in Scopus coverage since 1993.

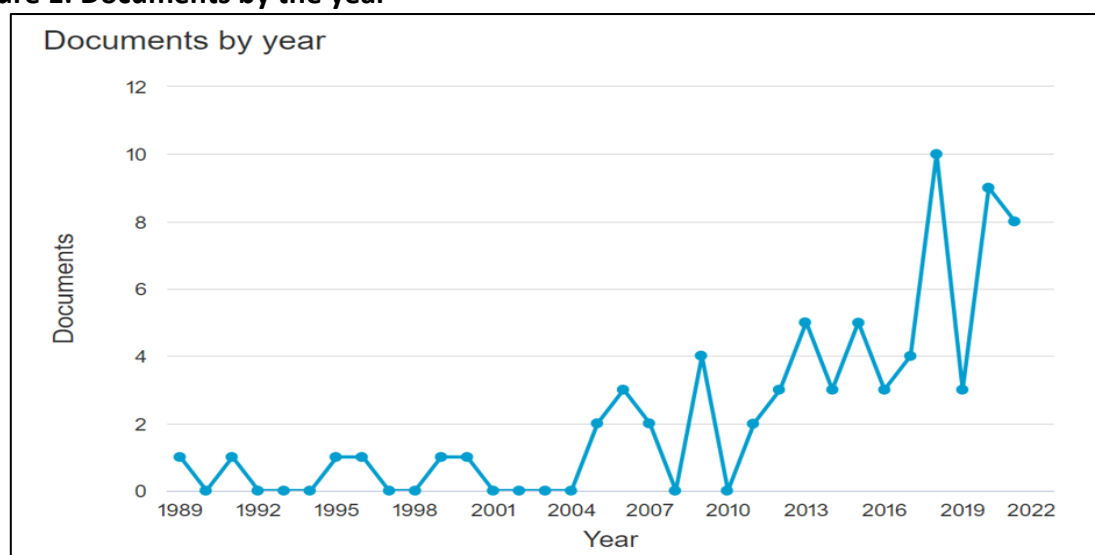
Table 3: Top 10 journals in the area related to ‘fraud in SMEs’

| Rank | Source Title | No of documents |
|------|--|-----------------|
| 1 | Journal of Financial Crime | 6 |
| 2 | Lecture Notes in Network and System | 2 |
| 3 | Advances in Intelligent System and Computing | 2 |
| 4 | Computer Fraud and Security | 2 |
| 5 | ACM International Conference Proceeding | 1 |
| 6 | Accounting Auditing and Accountability Journal | 1 |
| 7 | Journal of Money Laundering Control | 1 |
| 8 | Journal of Business Ethics | 1 |
| 9 | Communications In Computer and Information Science | 1 |
| 10 | Journal of Financial Regulation and Compliance | 1 |

(ii) Year of Publications

The first research related to fraud in SMEs was published in 1989 by the Journal of Information Technology, with a paper titled “Internal auditor and the prevention and detection of fraud”. Since the initial published papers, the groundwork on fraud in SMEs has shown ups and downs tendency. Since 2004, the number of fraud-related publications has steadily increased. Based on Figure 1, it was expected that the number of publications in 2018 would appear as the largest since 1989. Few publications of fraud in SMEs have already been listed or planned to be listed in the Scopus database for the year 2021. This analysis indicated an interest in this field, demonstrating the importance of research related to ‘fraud in SMEs’.

Figure 1: Documents by the year



(iii) Languages of Documents

Interestingly, unlike publications on other topics, the documents for ‘fraud in SMEs’ research were published in English and French languages only. Table 4 reveals that English is the most often used language in the articles contributing to 96% of the overall publications. The rest of the publications used French as the language (4%).

Table 4: Languages of documents

| Languages | Frequency | Percentage (%) |
|--------------|-----------|----------------|
| English | 69 | 96 |
| French | 3 | 4 |
| Total | 72 | 100 |

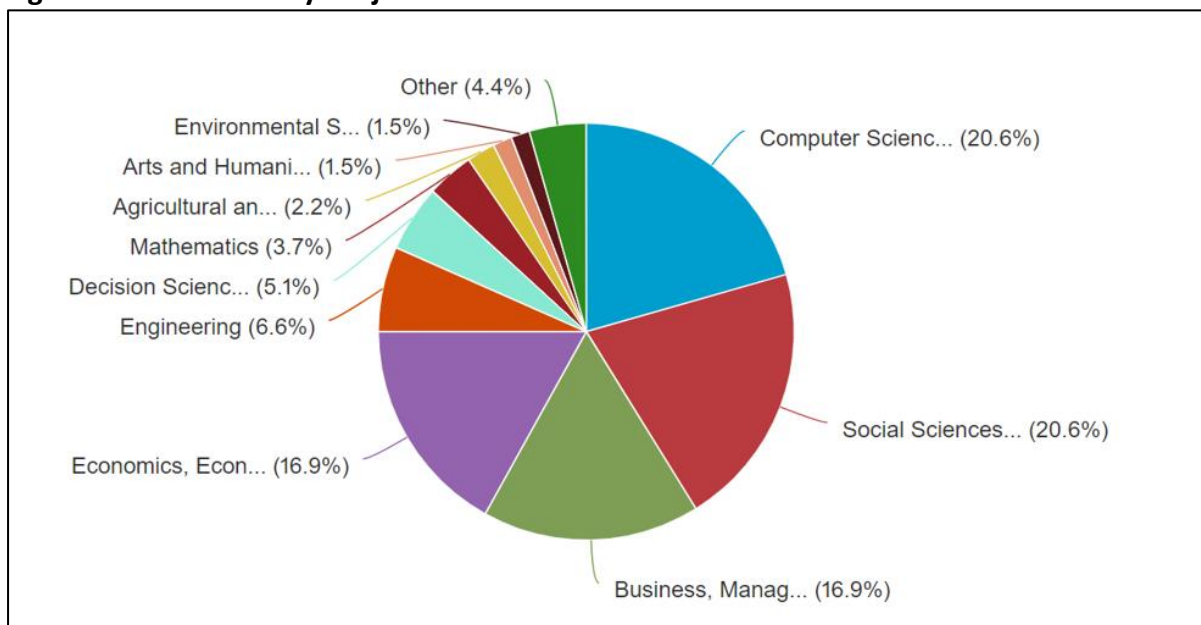
2. Key Areas in Fraud Research

In addressing this research question, this study examined the (i) subject area and, (ii) keyword analysis.

(i) Subject Area

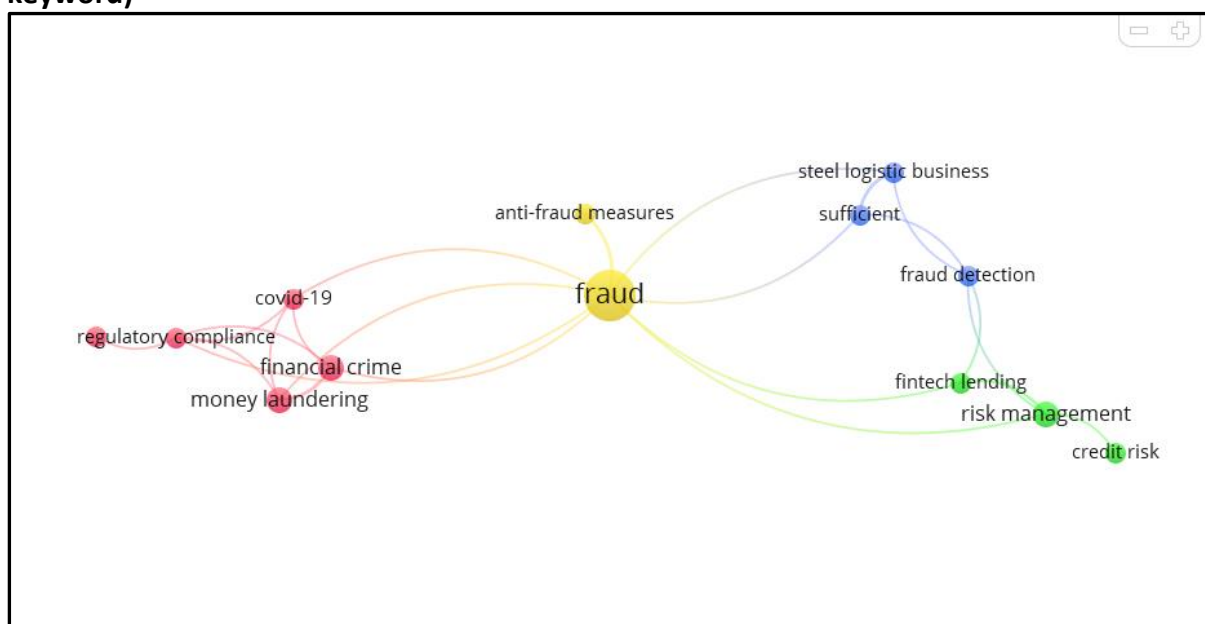
Figure 2 charted the subject areas in studies related to fraud in SMEs. Most of the studies on fraud in SMEs were in the domain of ‘computer sciences’ and ‘social sciences’. Both domains recorded the same percentage of 20.6%. It was followed by ‘business, management and accounting’ and ‘economics, econometrics and finance’ which also recorded the same percentage (16.9%). The remaining subject areas were from engineering, decision sciences, mathematics, agricultural and biological sciences, arts and humanities, and environmental sciences, which accounted for less than 10% each.

Figure 1: Documents by subject area



(ii) Keywords Analysis

The fundamental principle of keyword analysis is that the authors’ keywords are adequate to represent the contents of the article (Comerio & Strozzi, 2019). VOSviewer was used to build and visualise bibliometric networks. This software uses font size, square size, colour, and the thickness of connecting lines to visualise the authors’ keywords and display the relationship amongst the keywords. Figure 3 portrays the map visualisation of the author’s keyword created using VOSviewer, demonstrating the strength of the relationship between keywords. Keywords that are related are usually grouped in the same colour (Sweileh et al., 2017).

Figure 3: Keyword map for the study on ‘fraud in SMEs’ (based on co-occurrence author’s keyword)

In addition, in terms of the number of occurrences, this study set the minimum number of occurrences of a keyword to be two. The authors utilised 208 keywords in 72 publications, according to VOSviewer data. Following the cleaning process, 13 of the 208 keywords met the threshold. In this field of study, the keyword "fraud" was the most frequently utilised. The top ten keywords used in the research on "fraud in SMEs" are listed in Table 5.

Table 5: Top Ten (10) Keywords in ‘Fraud in SMEs’ Research

| No | Keywords | No. of Documents |
|----|-----------------------|------------------|
| 1 | Fraud | 10 |
| 2 | Money laundering | 3 |
| 3 | Risk management | 3 |
| 4 | Financial crime | 3 |
| 5 | Blockchain | 3 |
| 6 | White collar crime | 2 |
| 7 | Credit risk | 2 |
| 8 | Fraud detection | 2 |
| 9 | Regulatory compliance | 2 |
| 10 | Fintech lending | 2 |

To make the visualisation more attractive, this study chose index keywords as the unit of analysis and expanded it into the overlay visualisation to illustrate the evolution of ‘fraud in SMEs’ research over time (refer to Figure 4). VOSviewer data showed that 237 keywords are used in 72 publications. This study set a threshold for the minimum number of occurrences of a keyword at 2. The analysis resulted in 31 out of 237 keywords met the threshold. The keyword “crime” was the most used index keywords in this area of study. The keywords with a blue colour range in this map represent fraud research activities with an earlier average

Table 1: Top 10 countries contributed to the publication

| Rank | Country | No. of documents | Citations |
|------|----------------|------------------|------------|
| 1 | United States | 18 | 232 |
| 2 | United Kingdom | 6 | 43 |
| 3 | France | 5 | 9 |
| 4 | China | 4 | 37 |
| 5 | Malaysia | 4 | 19 |
| 6 | Turkey | 3 | 10 |
| 7 | Nigeria | 3 | 5 |
| 8 | Italy | 3 | 4 |
| 9 | Japan | 3 | 3 |
| 10 | Indonesia | 3 | 1 |
| ** | Norway | 1 | 105 |
| ** | Canada | 1 | 10 |

(ii) Main Institutions

Furthermore, Table 7 presents the institutions from which most of the publications on fraud in SMEs was originated. All institutions published not more than 1 document except the Mae Fah Luang University which published 2 documents (out of a total of 72) on the research topic. If looking into the total number of citations per institution, three institutions reported having the highest citations per institution (n= 105). They are College of Charleston, U.S, East Tennessee State University, U.S, and Norwegian School of Economics and Business Administration, Norway. This was followed by (a) the US Department of Justice, Washington and Vanderbilt University (n= 40), (b) Hohai Business School, Hohai University, King's College London, University of Alabama, and Kent State University (n= 34); and (c) Department of Accounting, Deakin University (n= 16).

Table 7: Top 10 Main institutions contributed to the publications

| Rank | Country | No. of documents | Citations |
|------|---|------------------|-----------|
| 1 | College of Charleston | 1 | 105 |
| 2 | East Tennessee State University | 1 | 105 |
| 3 | Norwegian School of Economics and Business Administration | 1 | 105 |
| 4 | US Department of Justice, Washington | 1 | 40 |
| 5 | Vanderbilt University | 1 | 40 |
| 6 | Hohai Business School, Hohai University | 1 | 34 |
| 7 | King's College London | 1 | 34 |
| 8 | University of Alabama | 1 | 34 |
| 9 | Kent State University | 1 | 34 |
| 10 | Department of Accounting, Deakin University | 1 | 16 |
| ** | Mae Fah Luang University | 2 | 2 |

(iii) Authorship Analysis

Remarkably, even though Abdul Rasid, Basiruddin and N'Guilla Sow were among the top three authors in this fraud research, however, their total number of citations per author is relatively low (n=7). Alternatively, Eilifsen (from Norwegian School of Economics and Business Administration), Lensberg (from East Tennessee State University) and Mckee (from College of Charleston, U.S) were found to be cited most documents per author (n=105).

Table 8: Top 10 authors in 'Fraud in SMEs' research

| Authors | No of Documents | Citations |
|--|-----------------|------------|
| Abdul Rasid | 2 | 7 |
| Basiruddin | 2 | 7 |
| N'Guilla Sow | 2 | 7 |
| Chaisricharoen | 2 | 2 |
| Phuttima | 2 | 2 |
| Vance | 2 | 0 |
| Yan | 2 | 0 |
| Zou | 2 | 0 |
| *Eilifsen, A, Lensberg, T, & Mckee, T.E | 1 | 105 |

(iv) Citation Analysis

The citation metric for the data was determined using Harzing's Publish or Perish software. As of August 30, 2021, Table 9 shows the citation metric for all documents gathered. The citation metric table reveals that 355 citations were referenced for 72 published papers over 32 years (1989-2021), with an average of 11.09 citations each year. The authors manually calculated the average citation per year using Google Scholar citations, as shown in Table 10.

Table 9: Citation metrics

| | |
|------------------------|------------------|
| Reference date | 30 August 2021 |
| Publication years | 1989 - 2021 |
| Citation years | 32 (1989 – 2021) |
| Total number of papers | 72 |
| Total citations | 355 |
| Cites/year | 11.09 |
| Cites/paper | 4.93 |
| Authors/paper | 2.28 |
| Papers/author | 0.43 |
| Hirsch h-index | 9 |
| Egghe g-index | 17 |
| PoP hl,norm | 6 |
| PoP hl,annual | 0.19 |

The top 20 referenced articles on the topic of SMEs fraud are listed in Table 10. The table summarises the number of times each document was cited in both the Scopus and Google Scholar databases. The table shows that the paper written by Lensberg, Eilifsen, and McKee (2006) received the highest citation. The title of the article is "Bankruptcy theory development and classification via genetic programming". According to the Scopus database, the articles

has been cited 105 times, with an average of 7 citations every year. Alternatively, based on the computation of Google Scholar as of 6 September 2021, the articles also received the highest number of citations (220 times). In terms of the highest citation per year, a paper which was written by Asgary, Ozdemir, and Özyürek (2020), titled “Small and medium enterprises and global risks: evidence from manufacturing SMEs in Turkey” received the highest citation Google Scholar sites per year (n= 41 times).

Table 10: Top 20 cited articles on 'Fraud on SMEs'

| No | Authors (year) | Document Title | Source | Cited by | Cites per year | GS cites | GS sites per year |
|----|---------------------------------|---|---|----------|----------------|----------|-------------------|
| 1 | Lensberg et al (2006) | "Bankruptcy theory development and classification via genetic programming" | European Journal of Operational Research | 105 | 7 | 220 | 14.67 |
| 2 | Alexander & Cohen (1996) | "New evidence on the origins of corporate crime" | Managerial and Decision Economics | 40 | 1.6 | 90 | 3.60 |
| 3 | Guo, Bao et al (2018) | "To sell or not to sell: Exploring sellers' trust and risk of chargeback fraud in cross-border electronic commerce" | Information Systems Journal | 34 | 11.33 | 62 | 20.67 |
| 4 | Johansson & Carey (2016) | "Detecting Fraud: The Role of the Anonymous Reporting Channel" | Journal of Business Ethics | 16 | 3.2 | 82 | 16.40 |
| 5 | Rachagan & Satkunasingam (2009) | "Improving corporate governance of SMEs in emerging economies: A Malaysian experience" | Journal of Enterprise Information Management | 12 | 1 | 51 | 4.25 |
| 6 | Tillman & Indergaard (1999) | "Field of schemes: Health insurance fraud in the small business sector" | Social Problems, University of California Press | 12 | 0.55 | 31 | 1.41 |

| | | | | | | | |
|----|-------------------------|--|--|----|------|----|-------|
| 7 | Asgary et al (2020) | "Small and Medium Enterprises and Global Risks: Evidence from Manufacturing SMEs in Turkey" | International Journal of Disaster Risk Science | 10 | 10 | 41 | 41 |
| 8 | Eitle (2000) | "Regulatory justice: A re-examination of the influence of class position on the punishment of white-collar crime" | Justice Quarterly | 10 | 0.48 | 26 | 1.24 |
| 9 | Georgiev (2017) | "Too big to disclose: Firm size and materiality blindspots in securities regulation" | UCLA Law Review | 6 | 1.5 | 38 | 9.50 |
| 10 | Ključnikov et al (2020) | "Innovative regional development of the structurally disadvantaged industrial region by means of the local currency" | Acta Montanistica Slovaca | 5 | 5 | 4 | 4.00 |
| 11 | Yiallourou (2019) | "The limitations of the VAT gap measurement" | EC Tax Review | 5 | 2.5 | 6 | 3.00 |
| 12 | Sow et al (2018) | "Fraud prevention in Malaysian small and medium enterprises (SMEs)" | Journal of Financial Crime | 5 | 1.67 | 36 | 12.00 |
| 13 | Andoh et al (2018) | "Impact of fraud on Ghanaian SMEs and coping mechanisms" | Journal of Financial Crime | 5 | 1.67 | 9 | 3.00 |

| | | | | | | | |
|----|--------------------------------|--|--|---|------|----|------|
| 14 | Lopes & Oliveira (2015) | "Implementation of information systems security policies: A survey in small and medium sized enterprises" | World Conference on Information Systems and Technologies, WorldCIST 2015 | 5 | 0.83 | 10 | 1.69 |
| 15 | Rotem (2011) | "Company duplication - plain fraud or a 'poor man's' bankruptcy? A case study in the financial distress of small businesses" | International Insolvency Review | 5 | 0.5 | 9 | 0.90 |
| 16 | Adair (2009) | "Non-observed economy and informal employment in the european union countries: A comparative analysis of estimates and determinants" | Revue Economique | 5 | 0.42 | 2 | 0.17 |
| 17 | Desai et al (2019) | "An Architecture of IoT-Based Product Tracking with Blockchain in Multi-sided B2B Platform" | IFIP WG 5.7 International Conference on Advances in Production Management Systems, APMS 2019 | 4 | 2 | 4 | 2.00 |
| 18 | Kapardis & Papastergiou (2016) | "Fraud victimization in Greece: Room for improvement in prevention and detection" | Journal of Financial Crime | 4 | 0.8 | 26 | 5.20 |
| 19 | Wellons (2005) | "Enforcement of Risk-Based Capital Rules" | Capital Adequacy beyond Basel: Banking, Securities, and Insurance | 4 | 0.25 | 5 | 0.31 |
| 20 | Katsikouli et al (2021) | "On the benefits and challenges of blockchains for managing food supply chains" | Journal of the Science of Food and Agriculture | 3 | 3 | 6 | - |

Discussion, Recommendation and Conclusion

This study performed a bibliometric analysis to understand an overview of publications related to 'fraud in SMEs'. A clear insight into the evolution and distribution of research in 'fraud in SMEs' had been addressed in the first research question. The Scopus database detected 72 documents related to this topic. The first document was written by Marston, Dixon and Collier, titled "Internal auditors and the prevention and detection of computer fraud", was published in the year 1989. Findings indicate that research on 'fraud in SMEs' was initially carried out by western scholars. It began to attract scholars from the East or Asia starting from the year 2009. The extent of fraud literature remained stagnant at a relatively low level in the early decades. It started to evolve starting from the year 2004. Interestingly, the Scopus results reported that 96% of the documents were written in English, while the remaining were written in French. Almost two-thirds of the documents are in journal source type.

Furthermore, the key area of 'fraud in SMEs' research (i.e. the second research question) could be viewed in form of subject areas and keywords analysis. Research on 'fraud in SMEs' were mostly in subject areas of 'computer sciences', 'social sciences', 'business, management and accounting' and 'economics, econometrics and finance'. This has encouraged the creation of fresh ideas and creativity by bringing together several disciplines. Moreover, results generated by VOSviewer showed the key points of this field of study.

The final question is concerning the examination of major players and their collaboration. The significance of publications in 'fraud in SMEs' research could be explicated from the citation metrics (refer to Table 9). Documents connected to 'fraud in SMEs' were cited 11.09 times each year on average, resulting in 4.93 citations per paper, according to the Scopus database. Articles about 'fraud in SMEs' were also written by several authors, with an average collaboration index of 2.28 authors per article.

The study had identified several limitations. First, exclusive reliance on the Scopus database may lead to inconclusive publications on 'fraud in SMEs' research. Furthermore, this research only focused on the topic related to 'fraud in SMEs' derived from the title of the article, abstract, and keywords. As a result, all other material relating to 'fraud in SMEs' but not specifically using it within those subject areas was omitted. Second, authors may have registered more than one name or provided multiple spellings in Scopus, resulting in erroneous information about their works. Third, the analyses of this study were limited to the leading journals in 'fraud in SMEs'. Hence, any articles published in lower-ranked or specialist journals were not be considered in the analysis. These limitations should be kept in mind concerning the generalisability of the results of this study.

Nevertheless, this study adds to knowledge by providing current research trends in 'fraud in SMEs' and expanding the literature on 'fraud in SMEs' through the application of the bibliometric method. Studies on 'fraud in SMEs' should be thoroughly investigated, since the trend of interest continues to rise year after year. Future research in this field may also concentrate on a full content analysis of papers on the research topic. This bibliometric study can be used in conjunction with meta-analysis and structured literature reviews as a stepping stone. Reviews will provide further information about the domain's antecedents and results.

Finally, this research can serve as a baseline for future researchers who are expected to contribute to the expanding body of knowledge on 'fraud in SMEs'.

References

- ACFE. (2020). *Report to The Nation Global Study on Occupational Fraud and Abuse 2020* (Vol. 53, Issue 9).
- Albrecht, W. S., Albrecht, C., & Albrecht, C. C. (2008). Current trends in fraud and its detection. *Information Security Journal: a global perspective*, 17(1), 2-12.
- Alexander, C. R., & Cohen, M. A. (1996). New evidence on the origins of corporate crime. *Managerial and Decision Economics*, 17(4), 421-435.
- Archambeault, D. S., & Webber, S. (2018). Fraud survival in nonprofit organizations: Empirical evidence. *Nonprofit Management and Leadership*, 29(1), 29–46.
<https://doi.org/10.1002/nml.21313>
- Adair, P. (2009). Non-observed economy and informal employment in the european union countries: A comparative analysis of estimates and determinants. *Revue Economique*, 60(5), 1117-1153.
- Asgary, A., Ozdemir, A. I., & Özyürek, H. (2020). Small and medium enterprises and global risks: evidence from manufacturing SMEs in Turkey. *International Journal of Disaster Risk Science*, 11(1), 59-73.
- Comerio, N., & Strozzi, F. (2019). Tourism and its economic impact: A literature review using bibliometric tools. *Tourism Economics*, 25(1), 109–131.
<https://doi.org/10.1177/1354816618793762>
- Cressy, D. R. (1953). *Other people's money: The social psychology of embezzlement*. New York: The Free Press.
- Desai, S., Deng, Q., Wellsandt, S., & Thoben, K. D. (2019, September). An Architecture of IoT-Based Product Tracking with Blockchain in Multi-sided B2B Platform. In *IFIP International Conference on Advances in Production Management Systems*, 458-465
- Eitle, D. J. (2000). Regulatory justice: A re-examination of the influence of class position on the punishment of white-collar crime. *Justice Quarterly*, 17(4), 809-839.
- Georgiev, G. S. (2017). Too big to disclose: Firm size and materiality blindspots in securities regulation. *UCLA L. Rev.*, 64, 602.
- Guo, Y., Bao, Y., Stuart, B. J., & Le-Nguyen, K. (2018). To sell or not to sell: Exploring sellers' trust and risk of chargeback fraud in cross-border electronic commerce. *Information Systems Journal*, 28(2), 359-383
- Halbouni, S. S., Obeid, N., & Garbou, A. (2016). Corporate governance and information technology in fraud prevention and detection: Evidence from the UAE. *Managerial Auditing Journal*, 31(6–7), 589–628. <https://doi.org/10.1108/MAJ-02-2015-1163>
- Johansson, E., & Carey, P. (2016). Detecting fraud: The role of the anonymous reporting channel. *Journal of business ethics*, 139(2), 391-409.
- Kapardis, M. K., & Papastergiou, K. (2016). Fraud victimization in Greece: room for improvement in prevention and detection. *Journal of Financial Crime*.
- Katsikouli, P., Wilde, A. S., Dragoni, N., & Høgh-Jensen, H. (2021). On the benefits and challenges of blockchains for managing food supply chains. *Journal of the Science of Food and Agriculture*, 101(6), 2175-2181.
- Ključnikov, A., Civelek, M., Krajčík, V., & Ondrejmišková, I. (2020). Innovative Regional Development of the Structurally Disadvantaged Industrial Region by means of the Local Currency. *Acta Montanistica Slovaca*, 25(2).

- Lensberg, T., Eilifsen, A., & McKee, T. E. (2006). Bankruptcy theory development and classification via genetic programming. *European Journal of operational research*, 169(2), 677-697
- Lopes, I., & Oliveira, P. (2015). Implementation of information systems security policies: A survey in small and medium sized enterprises. In *New Contributions in Information Systems and Technologies*, 459-468
- Mansour, A. Z., Ahmi, A., Popoola, O. M. J., & Znaimat, A. (2021). Discovering the global landscape of fraud detection studies: a bibliometric review. *Journal of Financial Crime*. <https://doi.org/10.1108/JFC-03-2021-0052>
- Rachagan, S., & Satkunasingam, E. (2009). Improving corporate governance of SMEs in emerging economies: a Malaysian experience. *Journal of Enterprise Information Management*.
- Rotem, Y. (2011). Company duplication—plain fraud or a ‘poor man's’ bankruptcy? A case study in the financial distress of small businesses. *International Insolvency Review*, 20(2), 131-159.
- Sow, A. N., Basiruddin, R., Abdul Rasid, S. Z., & Husin, M. (2018). Understanding fraud in Malaysian SMEs. *Journal of Financial Crime Iss*, 25(3), 1–32.
- Sweileh, W. M., Al-Jabi, S. W., AbuTaha, A. S., Zyoud, S. H., Anayah, F. M. A., & Sawalha, A. F. (2017). Bibliometric analysis of worldwide scientific literature in mobile - health: 2006-2016. *BMC Medical Informatics and Decision Making*, 17(1), 1–13. <https://doi.org/10.1186/s12911-017-0476-7>
- Tillman, R., & Indergaard, M. (1999). Field of schemes: health insurance fraud in the small business sector. *Social Problems*, 46(4), 572-590.
- Wellons, P. A. (2005). Enforcement of risk-based capital rules. *Capital Adequacy Beyond Basel: Banking, Securities, and Insurance*, 284.
- Yiallourou, K. (2019). The limitations of the VAT gap measurement. *EC Tax Review*, 28(4).