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Mapping The Landscape of Fraudulent Financial Statement Research: A Systematic Literature Review and Bibliometric Analysis

Memetakan Lanskap Penelitian Laporan Keuangan yang Curang: Tinjauan Literatur Sistematis dan Analisis Bibliometrik

Elsa Sari Yuliana
Program Doktor Ilmu Manajemen, FEB, Universitas Tanjungpura
elsa_sariyuliana@yahoo.com

**Coresponding Author:*

ABSTRACT
This study systematically maps the development of research on fraudulent financial statements and identifies future research directions through a combined systematic literature review and bibliometric analysis. Using the Scopus database, 432 documents published between 1999 and November 16, 2025 were initially identified, and after applying predefined inclusion and exclusion criteria, 88 journal articles were retained for in-depth analysis. Bibliometric techniques supported by VOSviewer were employed to examine publication trends, country and institutional contributions, core journals, influential authors, and frequently co-occurring keywords, thereby revealing the intellectual structure of this research domain. The findings show that scholarly attention to fraudulent financial statements has grown significantly in the last decade, with Indonesia emerging as the most productive country, followed by the United States and several other developed and emerging economies. Conceptually, the literature converges on four main indicator groups—financial ratios, corporate governance mechanisms, behavioral indicators, and technological developments—while commonly used proxies include profitability, leverage, growth measures, audit and governance characteristics, executive behavior, and industry factors. This review highlights that research remains concentrated in developing countries and calls for broader evidence from developed markets, stronger integration of advanced analytics such as artificial intelligence and natural language processing, and more interdisciplinary approaches that link accounting, criminology, and behavioral perspectives. The study provides an evidence-based agenda for future research and offers practical insights for auditors, regulators, and corporate decision-makers seeking to enhance the detection and prevention of fraudulent financial reporting.
Keywords: *Systematic Literature Review, Bibliometric Analysis, Fraudulent Financial Statement, Vosviewer.*

ABSTRAK
Studi ini secara sistematis memetakan perkembangan penelitian tentang laporan keuangan yang curang dan mengidentifikasi arah penelitian masa depan melalui gabungan tinjauan literatur sistematis dan analisis bibliometrik. Dengan menggunakan basis data Scopus, 432 dokumen yang diterbitkan antara tahun 1999 dan 16 November 2025 awalnya diidentifikasi, dan setelah menerapkan kriteria inklusi dan eksklusi yang telah ditentukan sebelumnya, 88 artikel jurnal dipertahankan untuk analisis mendalam. Teknik bibliometrik yang didukung oleh VOSviewer digunakan untuk memeriksa tren publikasi, kontribusi negara dan institusi, jurnal inti, penulis berpengaruh, dan kata kunci yang sering muncul bersamaan, sehingga mengungkapkan struktur intelektual dari domain penelitian ini. Temuan menunjukkan bahwa perhatian ilmiah terhadap laporan keuangan yang curang telah tumbuh secara signifikan dalam dekade terakhir, dengan Indonesia muncul sebagai negara paling produktif, diikuti oleh Amerika Serikat dan beberapa negara maju dan berkembang lainnya. Secara konseptual, literatur tersebut berkonvergensi pada empat kelompok indikator utama—rasio keuangan, mekanisme tata kelola perusahaan, indikator perilaku, dan perkembangan teknologi—sementara proksi yang umum digunakan meliputi profitabilitas, leverage, ukuran pertumbuhan, karakteristik audit dan tata kelola perilaku eksekutif, dan faktor industri. Tinjauan ini menyoroti bahwa penelitian masih terkonsentrasi di negara-negara berkembang dan menyerukan bukti yang lebih luas dari pasar negara maju, integrasi yang lebih kuat dari analitik canggih seperti kecerdasan buatan dan pemrosesan bahasa alami, dan

pendekatan interdisipliner yang lebih banyak yang menghubungkan akuntansi, kriminologi, dan perspektif perilaku. Studi ini memberikan agenda berbasis bukti untuk penelitian masa depan dan menawarkan wawasan praktis bagi auditor, regulator, dan pengambil keputusan perusahaan yang berupaya meningkatkan deteksi dan pencegahan pelaporan keuangan yang curang.
Kata Kunci: Tinjauan Literatur Sistematis, Analisis Bibliometrik, Laporan Keuangan Curang, Vosviewer.

1. Introduction

Fraudulent financial statements are actions that manipulate financial reports for the benefit of a specific person or group of people. These actions can be detected through financial ratios and reported financial information. Conducting *a systematic literature review* (SLR) of variables related to fraudulent financial statements (FFS) is very important for several reasons that advance academic understanding and practical application. First, SLR provides a comprehensive analysis of existing research, enabling the identification of key variables related to FFS and highlighting gaps that require further study. For example, " reviewed 622 articles to uncover inconsistencies in measurement and research questions posed to address unexplored areas. Second, the rigorous and structured SLR methodology ensures the inclusion of high-quality studies, facilitating the evaluation of diverse detection techniques ranging from traditional financial ratios to sophisticated machine learning algorithms (Ramzan & Lokanan, 2025) ; (Abbas et al., 2023) . Third, SLR integrates various theoretical perspectives, such as the Fraud Triangle and criminology theory, which enrich the conceptual framework and aid in the development of effective fraud detection strategies (Soepriyanto et al., 2021) ; Ramzan & Lokanan, 2025). Fourth, the findings from SLR inform practitioners and policymakers by synthesizing evidence on effective detection methods and guiding improvements in auditing, regulatory frameworks, and corporate governance (Shahana et al., 2023) ; (Jahja et al., 2024)). Finally, SLR guides future research by revealing emerging trends and encouraging innovative approaches, such as the application of unstructured data analysis and artificial intelligence in fraud detection (Ashtiani & Raahemi, 2022) ; (Dong et al., 2016)).

By systematically reviewing and integrating empirical evidence, SLR on financial statement variables containing fraud provides a strong knowledge base that can guide further innovation in forensic accounting, risk management, and financial reporting practices. Thus, SLR critically advances academic literature and professional standards in response to the evolving landscape of corporate fraud risk.

The systematic literature review (SLR) on Fraudulent financial statement *s* primarily focuses on identifying and synthesizing the internal and external factors that trigger such fraud, including pressure, opportunity, rationalization, and competence, as well as examining the role of corporate governance mechanisms such as audit committees and whistleblowing systems in detecting and preventing fraud. The SLR also evaluates the effectiveness of traditional financial ratios and advanced techniques such as machine learning and forensic data analytics to improve the accuracy of fraud detection. In addition, the SLR highlights research gaps and encourages an interdisciplinary approach by integrating accounting, criminology, and behavioral theories to better understand the motivations and methods behind fraudulent reporting. Ultimately, SLR aims to provide a structured, evidence-based foundation to guide future research, improve auditing practices, and inform regulatory policies aimed at comprehensively mitigating financial statement fraud. The research questions posed are:

Research Question 1: Is the exploration of Fraudulent financial statement*s* a subject that continues to have significance for future scientific research?

Research Question 2: How are research investigations related to Fraudulent financial statement*s* currently allocated?

Research Question 3: What are the theoretical and practical implications from a future research perspective?

This study answers the three research questions through a Systematic Literature Review (SLR) and Bibliometric Analysis approach. The use of the SLR method is considered appropriate for synthesizing existing research results. In addition, this method provides evidence-based insights that can contribute to the development of future policies, practices, and research. This approach ensures that conclusions are drawn from a broad and representative collection of studies, while identifying areas that still require further exploration (Snyder, 2019).

This study focuses on analyzing publications on Fraudulent Financial Statements from various academic journals, covering articles published up to November 16, 2025. A bibliometric analysis was conducted to complement the review using VOSviewer and the Scopus database. This methodological combination enables comprehensive mapping of research developments in this field, providing a deeper understanding of the dynamics, trends, and future directions of research.

2. Literature Review

Fraudulent financial statements are manipulative acts deliberately committed by management or internal parties of a company through falsification, omission, or misleading presentation of financial information, with the aim of obtaining personal or organizational gain, deceiving stakeholders, and presenting financial conditions that do not reflect the economic reality of the company. This practice usually involves inflating revenue, assets, and profits; concealing or reducing expenses and liabilities; and disclosing inadequate information, thereby causing material misstatements in financial reports and threatening the reliability and integrity of financial reporting.

Research on fraudulent financial statements (FFS) shows that their detection and prevention require a multidimensional approach that encompasses financial, governance, behavioral, and technological aspects. Traditional financial ratios such as liquidity, ROE, total debt, and fixed assets have proven relevant in identifying audit risks and indications of fraud, although profitability is often distorted by reporting manipulation. On the other hand, the effectiveness of FFS detection is determined by big data competence, the self-efficacy of internal auditors, and the tone at the top that reflects the organization's ethical culture. Corporate governance factors such as industry characteristics, board changes, and the existence of audit committees act as controls on fraud mechanisms, while whistleblowing systems and managerial ownership strengthen internal oversight. A new text sentiment analysis-based approach expands *fraud* detection through linguistic signals in financial reports, although it still requires quantitative verification. Overall, FFS research is moving toward the integration of financial ratio analysis, data forensics, artificial intelligence, and the strengthening of ethics and governance as a holistic fraud detection and prevention system. Integratively, the direction of FFS research is now moving towards a hybrid approach that combines traditional ratio analysis, data forensics, strengthening organizational ethics, and utilizing analytical technology (big data and natural language processing*)* as a system for detecting and providing early warning of financial reporting fraud.

Research on fraudulent financial statement focuses primarily on understanding and detecting the manipulation of financial statements that is carried out deliberately to obtain personal or organizational gain, which has a significant impact on stakeholders and economic stability. Initial studies define fraudulent financial statement as a form of deviation and error in the presentation of financial statements that do not comply with Generally Accepted Accounting Principles (GAAP), such as inflating revenue, reducing expenses, or concealing important material information (Setiorini et al., 2021; Suryani & Fajri, 2022). This practice not only causes financial losses to companies but also undermines public trust and the integrity of the capital market as a whole. Furthermore, research has developed towards identifying the causal factors and characteristics of fraud perpetrators through theoretical frameworks such as the fraud triangle, fraud diamond, and fraud hexagon (Sari et al., 2022; Rezarta et al., 2021). This approach opens up space for analysis of the aspects of pressure, opportunity, rationalization, capability, competence, and managerial arrogance as the main determinants of financial statement manipulation.

Recent research points to the role of corporate governance mechanisms (audit committees, boards of commissioners, and institutional ownership) as moderating factors that can reduce the tendency for fraud (Sari et al., 2022; Faccia et al., 2024), while also highlighting broader socioeconomic impacts such as decreased investor confidence and capital scarcity (Dewi et al., 2024; Handoko & Natasya, 2019).

Table 1. Definition of Fraudulent Financial Statement Elements

No	Definition of Fraudulent financial statement	Reference
1.	A Fraudulent financial statement is a manipulated financial report that can be detected through financial ratios and reported financial information.	Rezarta, S., Elena, M., Elsia, G. (2021)
2.	A Fraudulent financial statement is an intentional error in the preparation of financial statements. The presentation of financial statements that do not comply with Generally Accepted Accounting Principles (GAAP).	Setiorini, K. R., Rahmawati, Payamta, & Hartoko, S. (2021)
3	Fraudulent financial statement involve the manipulation of financial statements for personal gain and pose a major threat to stakeholders and the economy.	Dewi, N. S., Said, J., Faiza, S. N., & Julian, L. (2024)
4	Intentional Fraudulent financial statement containing misstatements, arising from management errors or negligence, with the aim of misleading users of financial statements.	Sari, M. P., Mahardika, E., Suryandari, D., & Raharja, S. (2022).
5	Fraudulent financial statement are intentional misstatements or omissions about how much or what is disclosed in financial statements to deceive readers. This can occur by using inappropriate accounting principles and disclosure procedures.	Nurcahyono, N., Hanum, A. N., Kristiana, I., & Pamungkas, I. D. (2021).
6	Fraudulent financial statement involve intentional misrepresentation, omission, or manipulation of financial information to deceive stakeholders.	Faccia, A., McDonald, J., & George, B. (2024)
7	Fraudulent financial statement include actions planned by individuals both inside and outside the company to mislead users of financial data through data manipulation and intentional misstatements.	Novatiani, R. A., Kusumah, R. W. R., Yadiati, W., Rachmat, R. A. H., & Rachman, A. A. (2024)
8	Fraudulent financial statement occur when a company fails to record revenue, falsifies payment	Besusparienė, E., & Niskanen,

	documents, or commits other fraud involving fixed assets, current assets, cash, or equity.	V. A. (2023)
9	Fraudulent financial statement involve falsifying, altering, or manipulating financial records and supporting documents, deliberately omitting important events or information, and deliberately omitting information about accounting principles.	Suryani, E., & Fajri, R. R. (2022).
10	Fraudulent financial statement are the most damaging form of fraud because they involve the deliberate falsification of a company's financial statements to gain an advantage over others without their consent, carried out through the inflation of income, assets, and profits, the reduction of expenses and liabilities, accompanied by inadequate disclosure, thereby causing material misstatements in the financial statements that are the subject of the audit.	Handoko, B. L., & Natasya. (2019).

3. Methods

A systematic literature review using a bibliometric approach was conducted to quantitatively evaluate the literature in order to identify trends, patterns, and key entities in a particular field of study. This approach, which adopts a framework such as PRISMA, ensures a comprehensive and replicable literature review process and provides a transparent representation of the topic under review (Chotisarn & Phuthong, 2025; Hadi et al., 2020).

The research inclusion criteria include: (1) articles published up to November 16, 2025, (2) publications in English, and (3) articles focusing on the topic of fraudulent financial statements. Bibliometric analysis using VOSviewer visualizes bibliographic data to explore citation networks, collaborations between authors, and frequently co-occurring keywords, thereby revealing the intellectual structure and dynamics within the research domain. The combination of bibliometric analysis and systematic review helps researchers synthesize empirical findings and map the landscape of research activities, including identifying key contributors and emerging trends (Ni & Abdullah, 2025). The integration of these two approaches provides a comprehensive understanding of the development, historical flow, and future direction of this field of research, making it very useful in interdisciplinary studies to gain deeper insights (Marzi et al., 2025; Wang & Yi, 2025). Bibliometric analysis is also used for strategic purposes in scientific publications, introduced by Bertrand et al. (1970) to evaluate scientific journals based on their economic weight.

The initial stage in this scientific study involves selecting keywords using a macro (top-down) approach, which moves from a broad search to a more specific study topic. Given the limitations of previous studies and the lack of studies on fraudulent financial statements, this study places this phrase as the main focus in the article title, abstract, and keywords. In addition, the Scopus database was utilized for various research purposes, including conducting a literature review, identifying experts in this field, and monitoring emerging research trends.

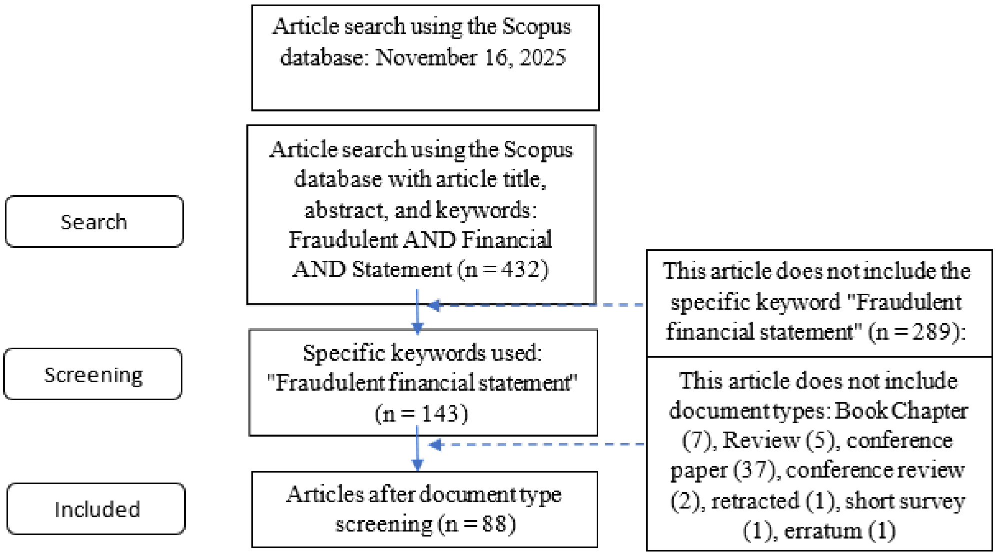

Figure 1. Information flow of *systematic literature review* using PRISMA

Based on the search results conducted on November 16, 2025, from the Scopus database using the article title, abstract, and keywords "Fraudulent AND Financial AND Statement" covering various academic disciplines since the first publication in 1999 to 2025, a total of 432 documents related to the topic of fraudulent financial statements were found (see Figure 1). Next, a screening process was carried out based on document type classification, whereby articles such as book chapters (7 documents), reviews (5 documents), conference papers (37 documents), conference reviews (2 documents), retracted articles (1 document), short surveys (1 document), and erratums (1 document) were eliminated, resulting in a total of 48 documents being removed. The final result of the filtering process based on document type yielded 88 articles that were relevant for further analysis.

These documents were then further analyzed in this study to answer Research Question 1: Is the exploration of Fraudulent financial statement *s* a subject that continues to be significant for scientific research in the future? Research Question 2: How are research investigations related to Fraudulent financial statement *s* currently allocated? Research Question 3: What are the theoretical and practical implications from a future research perspective?

4. Result and Discussion

The results of this study focus on findings from 88 articles identified in the Scopus database regarding fraudulent financial statements. The data includes the number of articles published, the distribution of publications over the years, and the sources of the journals in which they were published. The study also highlights the key factors that are most influential in the field of fraudulent financial statements, including author contributions, institutional affiliations, and countries that play an active role in this research. Thus, this analysis provides a comprehensive overview of the literature and key players contributing to the development of this field of study.

Research Question 1: Is the exploration of Fraudulent financial statement a subject that continues to be significant for scientific research in the future?

Based on data taken from the Scopus database, it has been confirmed that over four decades, scientific works on Fraudulent financial statement *s* consisted of 88 articles; this shows that research on Fraudulent financial statement is still relatively rare, as illustrated in Figure 1. The exploration *of* Fraudulent financial statement began its progressive development over the last decade, particularly since 2022. The inaugural study was conducted byF.(1999) , entitled "The Case of VIP Scandinavia," which marked the emergence of the term now known as Fraudulent financial statement. Currently, the development of research on Fraudulent financial statement remains a serious issue that has a broad impact on corporate ethics, public trust, and company value. Various studies show that social factors such as social control and external pressure can reduce the tendency for *fraud* to occur, while weaknesses in auditor oversight and workload can hinder the effectiveness of *fraud* detection.

On the other hand, new technology-based approaches such as NLP models and optimization algorithms offer innovative solutions for efficiently detecting financial statement manipulation. Qualitative and quantitative studies in various country contexts also confirm that executive behavior, debt structure, and manipulative corporate strategies play an important role in the occurrence of fraud. Overall, these findings emphasize the need for synergy between social oversight, improved auditor competence, the application of smart technology, and reporting transparency to minimize the potential for fraud and maintain corporate legitimacy and value in the financial markets.

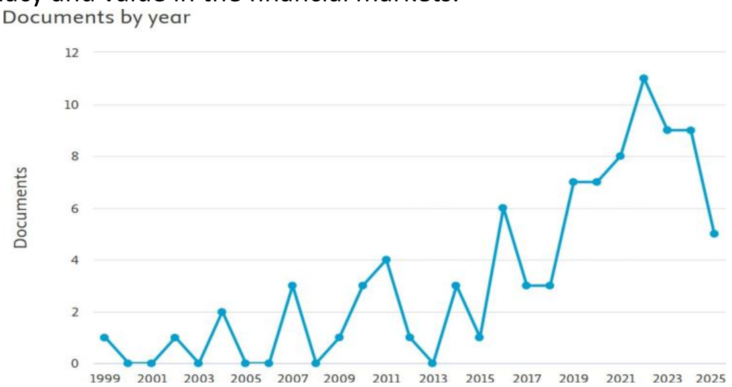

Figure 2. Number of Publications on Fraudulent financial statement

Source: Scopus Database

Since 1999, the literature on fraudulent financial statements has been limited due to the low number of studies published in reputable journals, opening opportunities for future researchers to fill this gap. This study is very important to broaden the understanding of fraudulent financial statements, which influence individual behavior as well as the development of conceptual frameworks in this field. Thus, this study can support a deeper understanding of the practical application and sustainability of fraudulent financial statements in various industrial sectors and disciplines.

Research Question 2: How are research investigations related to Fraudulent financial statement currently allocated?

An analysis of the distribution of research on fraudulent financial statement in 88 articles was conducted by categorizing articles based on classifications such as country, geographical region, institutional affiliation, publication source, and author, focusing on the top 10 articles in each category. This in-depth study is expected to benefit academics and practitioners in determining the future research agenda, particularly in the sustainable development of the fraudulent financial statement paradigm.

In the category based on country or geographical region, Indonesia dominated the number of publications with 37 articles, followed by the United States with 11 articles, Malaysia with 8 articles, China with 6 articles, Taiwan with 5 articles, Canada with 4 articles, India with 4 articles, Greece with 3 articles, France with 2 articles, Nigeria with 2 articles, Slovakia with 2 articles, the United Kingdom with 2 articles, and Albania, Colombia, Finland, Hong Kong, Jordan, Lithuania, the Netherlands, Norway, Portugal, Saudi Arab , Spain, Thailand, Turkey, the United Arab Emirates, and Yemen with 1 article each (see Figure 3).

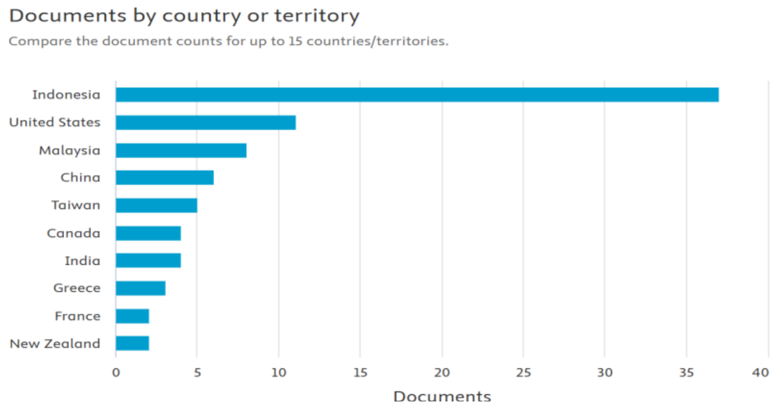

Figure 3. Number of Publications by Country

Source: Scopus Database

The allocation of scientific studies related to Fraudulent financial statement categorized by country or region shows Indonesia's superiority with 37 manuscripts, followed by the United States with 11 manuscripts. In addition, several other countries that have made significant contributions to this research include Malaysia with 8 articles and China with 6 articles. These findings indicate that the issue of Fraudulent financial statement has gained attention not only in developing countries but also in developed countries, reflecting the global relevance of the topic. Researchers will also analyze the relationships between countries involved in Fraudulent financial statement research using VOSviewer software. This stage is important in formulating a systematic prospective research agenda. VOSviewer findings in this study show the interrelationships between countries in researching the subject *of* Fraudulent financial statement (see Figure 4).

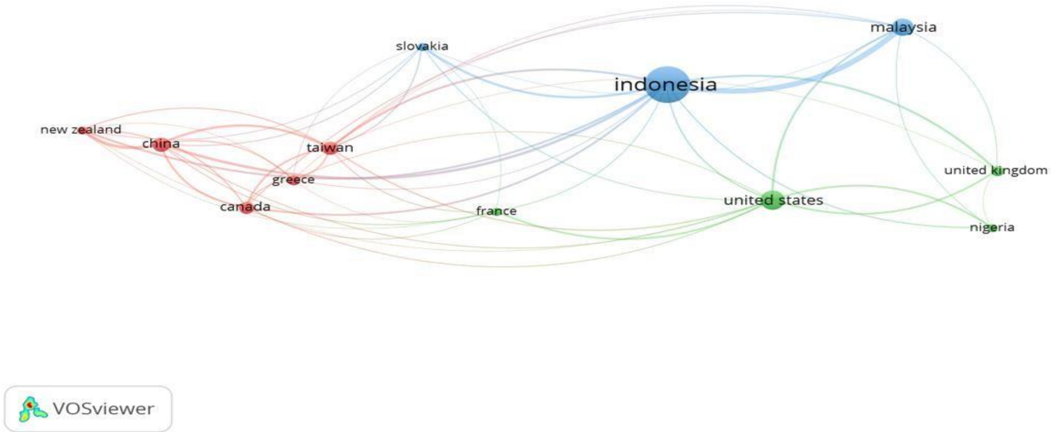

Figure 4. Visualization of the Inter-Country Network

Source: VOSviewer software output

These findings further reinforce the idea that Fraudulent financial statement are not only a concern in developing countries such as Indonesia and Malaysia, but also in developed countries such as the United States and China.

Second, the allocation of scholarships related to Fraudulent financial statement based on institutional affiliation is largely marked by Universiti Teknologi Mara (Malaysia) with 7 articles, Bina Nusantara University (Indonesia) with 6 articles, Diponegoro University (Indonesia) with 5 articles, Dian Nuswatoro University (Indonesia) with 5 articles, Airlangga University (Indonesia) with 4 articles, Padjadjaran University (Indonesia) with 3 articles, National Taipei University of Business (China) with 3 articles, Islamic University of Indonesia with 3 articles, Univerzita Komenskeho v Bratislave (Slovakia) with 2 articles, and Massey University (New Zealand) with 2 articles (see Figure 4).

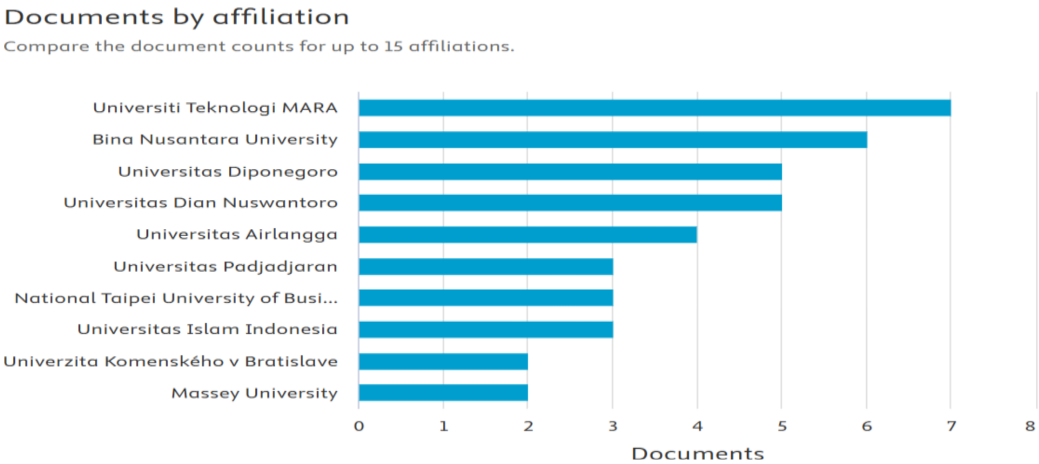

Figure 5. Visualization of the Inter-University Network

Source: Scopus Database

The distribution of studies *on* Fraudulent financial statement *s* in the 10 main publications based on affiliation shows that this study not only attracts academic interest in academic institutions located in developing countries (such as Malaysia and Indonesia), but also attracts the attention of educational institutions in developed countries (such as China and New Zealand).

Third, the allocation of questions about Fraudulent financial statement based on source was dominated by Religion with 4 articles, Cogent Business and Management with 4 articles, WSEAS Transactions on Business and Economics with 4 articles, Journal of Financial Crime with 3 articles, Management and Accounting Review with 3 articles, Decision Support Systems with 2 articles, International Journal of Ethics and Systems with 2 articles, International Journal of Scientific and Technology with 2 articles (see Figure 6).

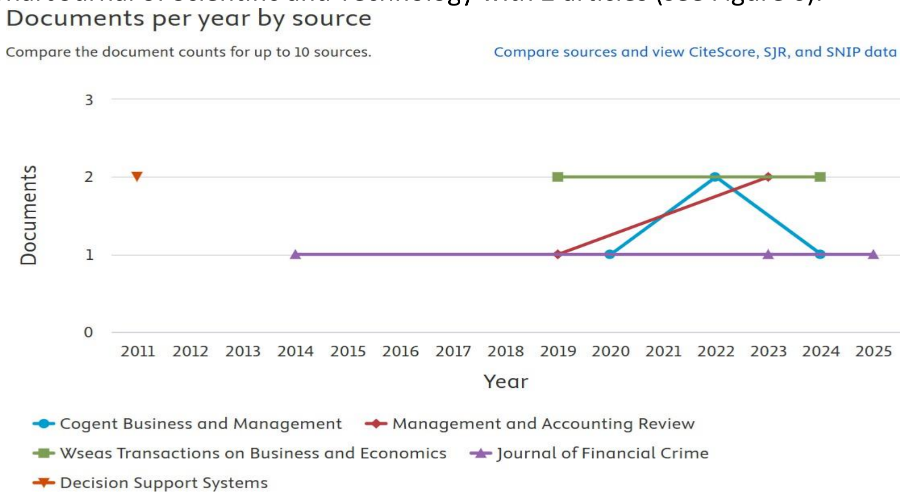

Figure 6. Number of Articles Based on Source (Top 5 Journals)

Source: Scopus Database

Fourth, the distribution of research related to Fraudulent financial statement based on authors does not show a clear dominance. Among the top 10 authors, Pamungkas, I.D. wrote 5 articles, 2 authors (Ghozali, I., and Handoko, B.L.) wrote 3 articles each, and 7 other authors (Byington, J.R.; Chen, J.; Chen, S.; Maulidi, A.; McGee, J.A.; Papik, M.) each wrote 2 articles. (see Figure 7).

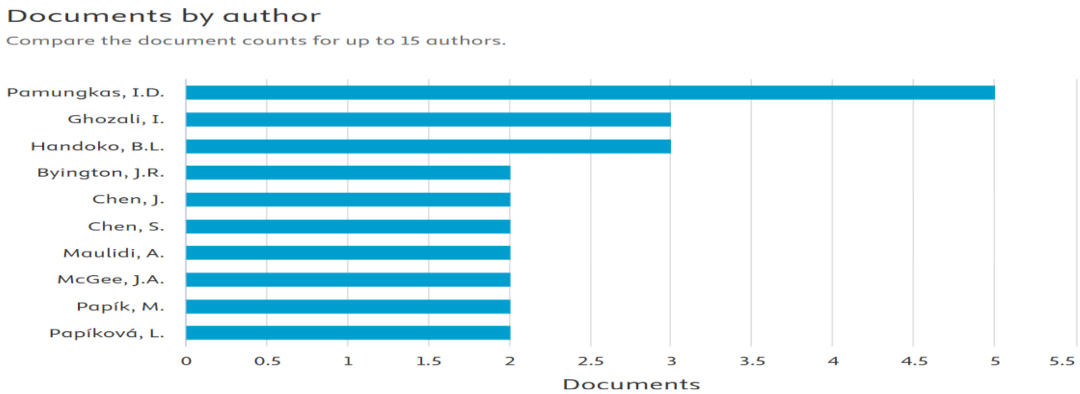

Figure 7. Number of Publications by Author (Top 10 Authors)

Source: Scopus Database

Research Question 3: What are the theoretical and practical implications of future research perspectives?

This study used 88 manuscripts taken from the Scopus repository and analyzed them with VOSviewer software to show the potential theoretical and practical implications that can be directed at future research on fraudulent financial statements. Metadata analysis conducted with VOSviewer will facilitate a deeper understanding by researchers and practitioners of the assumptions and findings related to fraudulent financial statements. Through bibliometric analysis, variables that have been extensively researched and those that have been under-exploited can be identified, which can serve as a basis for further research. From a practitioner's perspective, the results of this analysis assist in the continuous detection of fraudulent financial statements by mapping research trends, identifying key variables, and strengthening understanding of emerging patterns and indicators of fraud. In addition, the analysis supports the development of more effective audit strategies, the improvement of internal control systems, and the strengthening of evidence-based corporate governance frameworks. Thus, practitioners can take more proactive steps in anticipating and reducing the risk of financial statement fraud through the use of cutting-edge technology and integrated multidisciplinary approaches. From Figure 8, the emergence of keywords Fraudulent financial statement *s* (41), Finance (40), Financial statements (38), Crime (34), Fraudulent financial statement (32), *Fraud* (31), *Fraud* detection (27), Financial statement *fraud* (19), Rationalization (18), Financial *fraud* (18).

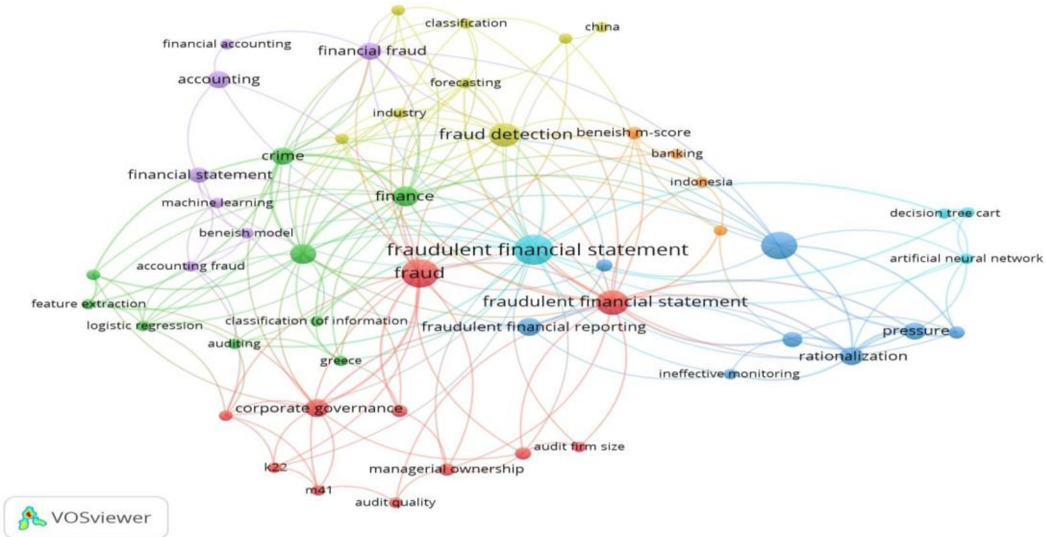

Figure 8. Keywords related to Fraudulent financial statement

Source: VOSviewer software output

Table 1. Author Keywords

Rank	Keyword	Total link strength
1	Fraudulent financial statements	41
2	Finance	40
3	Financial statements	38
4	Crime	34
5	Fraudulent financial statement	32
6	Fraud	31
7	Fraud detection	27
8	Financial statement fraud	19
9	Rationalization	19
10	Financial fraud	18

Source: Vosviewer Software Output

Based on the mapping and evaluation of previous studies, there is a gap in the literature, which mostly focuses on developing countries (see Figure 3 and Figure 5). Therefore, it is highly recommended that further research be conducted in developed countries to fill this gap. This study is expected to provide a more comprehensive contribution to the understanding of fraudulent financial statement studies, particularly in identifying indicators of fraudulent financial statement actions. These indicators are taken from various references and are shown in Figure 9.

Figure 9. Indicators of Fraudulent Financial Statement

Source: Adapted from previous studies by Nurcahyono, et al (2021), Suryani, et al (2023), B. Li, et al (2024), Rostami & Rezaei (2022), Sudarman, et al (2021), Indiraswari, et al (2025), Huang, et al (2017), Burlacu, et al (2025), Rao & Mandhala (2024), Archna & Bhagat (2024), R. Gupta, et al (2024), Craja, et al (2020), Churyk, et al (2009), Tammana, et al (2024), Zayed, et al (2024),

Fraudulent financial statements pose a major risk to investors, companies, and overall economic stability. To detect such fraud, analysis of various interrelated aspects is required. Financial ratio analysis can help identify anomalies in company performance, such as unusual profit growth or suspicious changes in capital structure. The corporate governance structure needs to be assessed to determine the extent to which oversight mechanisms are effective and whether there are weaknesses that open up opportunities for manipulation. In addition, signs of individual behavior within the company, such as management pressure or high turnover rates, can be early warning signs of *fraud.* Technological support such as artificial intelligence, data analysis, and automatic detection systems also play an important role in accelerating and improving the accuracy of identifying unusual financial reports.

Financial Ratios

Financial ratios play an important role in detecting potential fraud in financial statements. Low or negative profitability ratios can put pressure on management to manipulate figures to make the company appear healthier financially, which is one of the early indications of fraud. Liquidity ratios that indicate a lack of cash or current assets can also trigger fraudulent actions to make the company appear capable of meeting its obligations. Similarly, solvency ratios with high debt-to-equity ratios are often a sign of financial pressure, motivating fraudulent reporting to cover up the real problems. Several specific ratios, such as declining gross profit margins and unreasonable accounts receivable to revenue ratios, are also often associated with fraudulent revenue recognition practices. These ratios, which are in line with traditional financial analysis, provide important insights into the operational health of a company and help identify discrepancies that require further investigation.

Empirical research supports that a combination of profitability, liquidity, and solvency ratios, as well as specific ratios related to revenue and expenses, is effective in uncovering indications of fraud in financial statements. Therefore, financial ratio analysis is a very useful tool for auditors, investors, and regulators in maintaining the integrity of financial reporting and preventing losses due to manipulative practices. (Nurcahyono, et al.: 2021, Sawangarreerak & Thanathamathee: 2021).

Corporate Governance

The structure of *corporate* governance plays an important role in reducing the risk of financial reporting fraud. Effective governance mechanisms, such as the existence of an independent board of commissioners, can increase oversight and reduce the likelihood of *fraud*. In addition, a strong and professional audit committee can strengthen internal oversight so that it is able to detect and prevent fraudulent practices more effectively. On the other hand, excessive ownership by management can create conflicts of interest that increase the risk of fraud. Research shows that good and strong corporate governance can significantly reduce the potential for financial reporting fraud, especially when companies face financial pressure or difficulties. Therefore, strengthening the corporate governance structure is one of the main strategies for maintaining the integrity of financial reports and protecting the interests of company stakeholders. (Rostami & Rezaei: 2022, Sudarman, et al: 2021, Indiraswari, et al (2025).

Behavioral Indicators

Behavioral indicators are non-financial signs that reflect the potential for fraud within an organization. These indicators arise from behavior, attitudes, and interpersonal dynamics, especially between employees and management. For example, high employee turnover can indicate job dissatisfaction, internal conflict, or distrust of unethical management policies. These conditions can create an unstable work environment, opening opportunities for frustrated individuals to manipulate data or violate ethics in order to achieve personal goals or cope with pressure. In addition, pressure from management to achieve unrealistic financial targets is often a major trigger for fraudulent behavior. In this situation, employees or managers may feel pressured to adjust financial report figures to meet the expectations of shareholders or top management. When this kind of pressure occurs systematically, patterns of behavior such as information manipulation, justification of unethical actions, and rationalization of fraud emerge. Therefore, monitoring behavioral indicators is an important step in an early detection system to prevent *fraud* before irregularities occur in financial reports. (Huang, et al:2017, Burlacu, et al: 2025).

Technological Developments

Technological developments, particularly artificial intelligence (AI) and data analysis, have revolutionized how organizations detect fraud. Through machine learning algorithms, systems are able to quickly process and analyze large amounts of data to identify patterns or anomalies that are not detected by traditional methods. For example, algorithms can compare historical transaction trends with current financial behavior to find suspicious irregularities, such as sudden changes in income or expenditure patterns. This technology not only improves detection accuracy but also speeds up the process of identifying potential fraud, allowing companies to take preventive measures earlier and reduce losses due to financial statement manipulation. (Rao & Mandhala: 2024, Archna & Bhagat: 2024, R. Gupta, et al (2024).

The use of *Natural Language Processing* (NLP) in fraud detection enables in-depth analysis of textual data that was previously difficult to process automatically. This technology can examine the language used in annual reports, particularly in the management discussion and analysis section, to look for unusual linguistic patterns or tones of communication. For example, the use of overly optimistic words, ambiguous statements, or avoidance of sensitive topics can be signals of potential information manipulation. By combining NLP and machine learning, the system can detect indications of fraud risk more subtly and accurately, complementing traditional quantitative methods in financial reporting oversight. (Craja, et al: 2020, Churyk, et al: 2009).

Automated fraud detection systems provide high efficiency and minimize human error in the financial monitoring process. Using advanced algorithms, these systems are capable of monitoring financial transactions in real-time to detect suspicious patterns or deviations from normal activity. Automation enables rapid analysis of thousands of simultaneous transactions without manual intervention, so that potential fraud can be identified as soon as it occurs. In addition, these systems can continuously learn from new data to improve detection accuracy, making them an important tool in maintaining corporate financial integrity and transparency. (Tammana, et al: 2024, Zayed, et al: 2024).

Overall, efforts to identify fraudulent financial reporting require a comprehensive and complementary approach. Financial ratio analysis helps uncover irregularities in a company's performance, while understanding the company's governance structure allows for an assessment of the effectiveness of internal control mechanisms. On the other hand, observation of behavioral indicators can provide early signals regarding pressures, rationalizations, or opportunities that encourage fraud. The use of technologies such as artificial intelligence, data analysis, and automated systems further strengthens detection capabilities by providing fast and accurate results. The combination of all these aspects not only improves the effectiveness of *fraud* prevention and detection but also maintains investor confidence and the integrity of the financial market as a whole.

In the field of Fraudulent financial statement research, various proxies are used to detect and predict fraudulent activity. These proxies often originate from financial ratios, changes in financial metrics, and other indicators that are in line with established fraud theories such as *the Fraud Triangle* and *Fraud Diamond*. The following are some commonly used proxies:

Table 2. Proxies for Fraudulent Financial Statement

Type of Proxy	Example	Purpose	Reference

Profitability Ratios	ROA, ROE, EBT to Total Assets	Assessing financial stability	Agustini, et al (2022); Craja, et al (2020)
Leverage and Debt Ratios	DER, Changes in Total Assets	Detecting financial pressure	Oktarigusta (2017), Maherliana & Ariyanto (2022)
Growth Indicators	Revenue Growth, Rapid Asset Growth	Evaluating Performance Anomalies	Aviantara (2021); Achmad, et al (2022); Rahmatika, et al (2019)
Audit and Governance	Auditor Replacement, Board Independence	Assessing audit quality and governance	Apristiana, et al (2025); Jing Li (2025)
Behavioral Indicators	CEO Performance, Executive Compensation	Detecting Management Behavior Anomalies	Agata, et al (2025); Tarjo, et al (2022)
Industry Factors	Industry Type, Company Size	Contextual risk assessment	Triyanto (2020); Resimasari (2023)

Profitability ratios such as ROA, ROE, and EBT to total assets are used to assess a company's financial stability. Abnormalities or anomalies in these ratios may indicate profit manipulation as a form of *fraud*. *Leverage* and debt ratios, such as DER and changes in total assets, are useful for detecting financial pressures that may prompt management to commit accounting fraud. Growth indicators include rapid revenue and asset growth, which are used to evaluate anomalies in company performance.

The governance, audit, and oversight aspects are represented by auditor rotation and board independence, which aim to assess audit quality and internal control mechanisms in preventing *fraud*. Behavioral indicators such as CEO performance and executive compensation serve to detect anomalies in management behavior that are often associated with patterns of fraud. Industry factors, including industry type and company size, are used in conducting contextual risk assessments that can affect the level of vulnerability to financial statement fraud.

These proxies, when used in combination, provide a robust framework for detecting and predicting fraudulent financial statements, utilizing traditional financial metrics and advanced analytical techniques.

5. Conclusion

This investigation reviewed 88 academic publications from the Scopus repository and produced five main conclusions. First, research related to Fraudulent financial statement has been relatively rare in the four decades since its inception in 1999. Second, studies on Fraudulent financial statement are spread across various countries, but their distribution is uneven. Third, studies on Fraudulent financial statement are not only conducted and concentrated in developing countries (such as Malaysia and Indonesia), but are also growing in developed countries (such as the United States, China, Canada, France, and several other countries). Fourth, the attributes of Fraudulent financial statement *s* can be identified through several indicators, namely: financial ratios, corporate governance, behavior, and technological developments. Fifth, proxies commonly used in detecting Fraudulent financial statement *s* are profitability ratios, *leverage* and debt ratios, growth indicators, audit and governance, behavioral indicators, and industry factors.

Finally, the researchers also acknowledge the limitations of this study. First, this study only uses publications taken from the Scopus database, so it may have limitations in terms of generalization. Future research is expected to combine findings from the Scopus and Web of Science databases to improve the completeness of the research results. Future research can further explore relevant areas to enrich the findings. Finally, although the researchers applied a rigorous methodology to minimize interpretation bias, future studies could use new research techniques to complement the results of this study.

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