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Bibliometric Analysis of Forensic Accounting and Fraud Detection Research Trends

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ABSTRACT

Forensic accounting and fraud detection have become increasingly critical in mitigating financial crimes and ensuring corporate transparency. This study conducts a bibliometric analysis to explore the research trends, key contributors, and emerging themes in forensic accounting and fraud detection. Using data exclusively from the Scopus database and analyzed through VOSviewer, the study identifies influential publications, prominent authors, and evolving research directions. The findings indicate a shift from traditional forensic accounting methods to technology-driven approaches, such as big data analytics, artificial intelligence, and blockchain. The co-authorship analysis highlights significant international collaborations, particularly among scholars in the Middle East and Europe. Despite these advancements, challenges remain, including regulatory inconsistencies and the need for standardized forensic accounting frameworks. This study contributes to the literature by providing a structured overview of forensic accounting research trends and offering insights for academics, practitioners, and policymakers to enhance fraud prevention strategies and financial accountability.

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1. INTRODUCTION

Forensic accounting and fraud detection have gained increasing attention in both academic research and professional practice over the past few decades. The rise of financial scandals, corporate fraud, and cybercrimes has highlighted the critical need for forensic accounting as a tool for investigating and preventing fraudulent activities [1]. Companies and financial institutions worldwide are facing growing challenges in maintaining transparency and accountability, making forensic accounting an essential discipline within the accounting and auditing profession. As a result, scholars have extensively explored various aspects of forensic accounting and fraud detection, including methodologies, emerging technologies, and legal implications [2].

The role of forensic accountants has evolved significantly with advancements in

technology and the increasing complexity of financial transactions. Traditional auditing techniques are no longer sufficient to detect sophisticated fraudulent schemes, prompting the adoption of forensic tools such as data analytics, artificial intelligence (AI), and blockchain technology [3]. The integration of these technologies has transformed forensic accounting, allowing professionals to identify patterns of fraud more effectively and provide critical evidence in legal proceedings [4]. Moreover, the rise of big data has further enhanced forensic accounting practices by enabling real-time fraud detection and predictive analytics [5]. Academic research on forensic accounting and fraud detection has expanded significantly in recent years, reflecting the growing interest in this field. Bibliometric analysis serves as an effective method for assessing research trends, identifying influential studies, and mapping the evolution of knowledge within a specific domain [6]. By analyzing publications, citation networks, and keyword trends, bibliometric analysis provides valuable insights into the development of forensic accounting research. This approach helps researchers understand the key themes, emerging topics, and potential gaps in the literature [7].

Despite the increasing volume of research, forensic accounting still faces challenges related to standardization, regulatory frameworks, and practical implementation. Different countries have varying legal systems and regulatory requirements, leading to discrepancies in forensic accounting practices [8]. Additionally, there is a need for more interdisciplinary research that integrates forensic accounting with fields such as criminology, cybersecurity, and artificial intelligence. By bridging these gaps, forensic accounting can further enhance its effectiveness in combating fraud across diverse industries and jurisdictions [9]. Given the dynamic nature of fraud and financial crimes, continuous research is required to adapt forensic accounting methodologies to emerging threats. Fraudsters are constantly developing new techniques to exploit weaknesses in financial systems, requiring forensic accountants to remain vigilant and innovative [10]. Understanding the trajectory of forensic accounting research through bibliometric analysis can help scholars and practitioners identify key trends, influential authors, and research collaborations, ultimately contributing to the advancement of the field [11].

Despite the extensive body of literature on forensic accounting and fraud detection, there remains a lack of comprehensive studies that systematically analyze the research trends and development of this field. Existing reviews often focus on specific aspects such as forensic techniques, regulatory challenges, or case studies, without providing a holistic view of the discipline's evolution. A bibliometric analysis can fill this gap by mapping the intellectual structure of forensic accounting research, identifying key contributors, and highlighting influential publications. Therefore, this study seeks to address the need for a structured and data-driven approach to understanding research trends in forensic accounting and fraud detection. This study aims to: (1) identify the most influential publications and authors in forensic accounting research, (2) analyze citation patterns and co-authorship networks, (3) examine keyword trends to understand emerging topics, and (4) provide insights into future research directions in the field.

2. LITERATURE REVIEW

The field of forensic accounting has undergone significant evolution over the past few decades, largely driven by major financial scandals and regulatory changes. Early studies on forensic accounting primarily focused on fraud examination techniques and the role of forensic accountants in litigation support [12]. Over time, research expanded to include areas such as financial statement fraud, forensic auditing methodologies, and fraud prevention strategies. The introduction of Sarbanes-Oxley Act (SOX) in 2002 marked a turning point in forensic accounting

research, as it emphasized corporate governance, internal controls, and financial transparency [13]. Several theoretical frameworks have been used to study forensic accounting and fraud detection. One of the most widely cited models is Cressey's Fraud Triangle, which explains fraud as a function of opportunity, pressure, and rationalization. This model has been expanded upon with alternative perspectives such as Wolfe and Hermanson's Fraud Diamond, which introduces the element of capability as a fourth factor influencing fraud. Additionally, the Fraud Pentagon incorporates arrogance and competence as critical elements in understanding fraudulent behavior. These frameworks provide valuable insights into why fraud occurs and how forensic accountants can detect and prevent it [14]–[17].

With the advancement of technology, forensic accounting has integrated innovative methods such as artificial intelligence (AI), machine learning, and blockchain technology to enhance fraud detection [18]. AI-powered forensic accounting tools can analyze large datasets in real time, identify anomalies, and predict fraudulent activities with greater accuracy than traditional methods [19]. Similarly, blockchain technology has been increasingly explored for its potential to improve transparency and traceability in financial transactions, reducing opportunities for fraud [20]. These technological advancements are shaping the future of forensic accounting by increasing efficiency and reducing human errors. Despite significant progress, forensic accounting research faces several challenges, including the lack of standardized methodologies, variations in regulatory frameworks across jurisdictions, and ethical concerns surrounding fraud investigations [21]. Moreover, there is a need for more interdisciplinary research that integrates forensic accounting with criminology, psychology, and data science to develop more comprehensive fraud detection models [22]. Addressing these challenges requires collaboration between academics, regulatory bodies, and industry professionals to establish best practices and ensure the reliability of forensic accounting techniques.

3. METHODS

This study employs bibliometric analysis to comprehensively examine research trends in the field of forensic accounting and fraud detection over the past two decades. The data for this analysis is sourced exclusively from the Scopus database, which includes a wide range of peer-reviewed journals and conference papers. This methodological approach is structured around three key analytical techniques: citation analysis, co-authorship network analysis, and keyword analysis. Citation analysis is utilized to pinpoint the most influential articles and researchers within the domain. By analyzing the citation frequency and patterns, this study identifies the foundational papers and thought leaders that have shaped the field of forensic accounting and fraud detection. Co-authorship network analysis is applied to uncover the collaborative networks among scholars. This analysis helps in understanding how researchers are interconnected and which clusters or groups are leading the academic discourse. Keyword analysis is conducted to trace the evolution of themes and to detect emerging topics that are gaining traction among researchers. This reveals shifts in research focus and highlights innovative areas that may dictate future studies. Through the utilization of VOSviewer, complex networks of citations and collaborations are rendered into comprehensible visual maps, facilitating better insights into the structural and dynamic aspects of the field. This comprehensive application of bibliometric methods enables a nuanced understanding of the development and currents of thought within forensic accounting and fraud detection, making it possible to anticipate future directions and identify gaps in the existing literature.

4. RESULTS AND DISCUSSION

4.1 Keyword Co-Occurrence Network Visualization

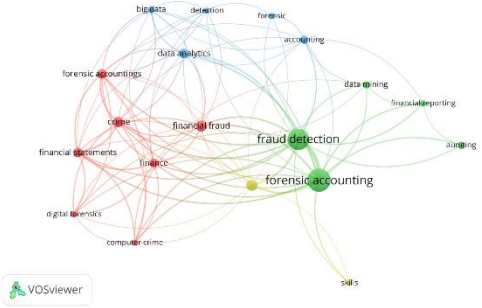

Figure 1. Network Visualization
Source: Data Analysis, 2025

This visualization represents a bibliometric network analysis of forensic accounting and fraud detection research trends. The nodes in the network represent keywords that frequently co-occur in the literature, while the edges signify the strength of co-occurrence relationships between these keywords. Larger nodes indicate more frequently occurring keywords, and different colors represent clusters of related topics. The network provides valuable insights into the thematic structure of forensic accounting research. At the center of the visualization, the terms "fraud detection" and "forensic accounting" appear as the most prominent nodes, indicating their central role in the literature. These keywords are heavily interconnected with other terms, highlighting their broad relevance across multiple research domains. The clustering around these key terms suggests that fraud detection and forensic accounting are foundational areas that link various subtopics, including digital forensics, financial fraud, and auditing.

The red cluster focuses on topics related to crime and financial fraud. Keywords such as "crime," "financial statements," "forensic accountings," and "finance" are interconnected, indicating a strong relationship between forensic accounting practices and crime investigation. The presence of terms like "digital forensics" and "computer crime" suggests an increasing academic interest in cyber-related financial crimes, which have become more prevalent in the digital age. This cluster reflects the growing importance of forensic techniques in addressing financial misconduct and criminal activities. The blue cluster, featuring terms like "big data," "data analytics," and "detection," highlights the role of technology and advanced analytical tools in forensic accounting. The interconnections in this cluster suggest that researchers are increasingly exploring the application of data-driven techniques to detect fraudulent activities more efficiently. This aligns with recent developments in artificial intelligence and machine learning, which are being integrated into forensic accounting to enhance fraud detection capabilities.

The green cluster revolves around auditing, financial reporting, and data mining. The presence of "financial reporting" and "auditing" indicates a strong link between forensic accounting and corporate governance, emphasizing the role of forensic accounting in ensuring financial transparency. The inclusion of "skills" in this cluster suggests that research is also addressing the competencies required for forensic accountants, including data mining techniques and expertise in regulatory compliance. This cluster underscores the multidisciplinary nature of forensic accounting, which combines traditional auditing methods with modern data-driven approaches.

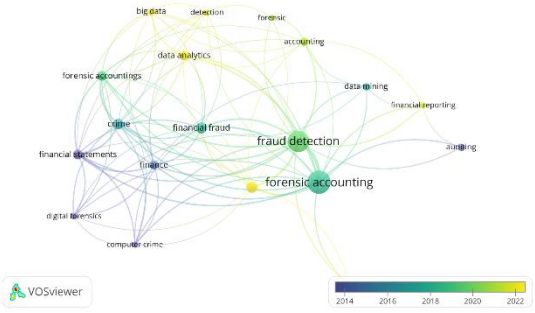

Figure 2. Overlay Visualization
Source: Data Analysis, 2025

This visualization is a bibliometric analysis of forensic accounting and fraud detection research, displaying the evolution of key topics over time. The color gradient, ranging from purple (older studies) to yellow

(more recent studies), provides insights into the development of research themes. The larger nodes, such as "fraud detection" and "forensic accounting," indicate central and frequently occurring keywords, highlighting their significance in the field. The interconnected nature of the nodes suggests a multidisciplinary approach, integrating aspects of finance, data analytics, and auditing. Older research (purple and blue nodes) focused primarily on traditional fraud investigation techniques, financial statements, and forensic auditing. Terms such as "financial statements," "crime," and "digital forensics" indicate an early emphasis on detecting fraud through document analysis and investigative procedures. This period was characterized by a reliance on established auditing techniques and legal frameworks to combat financial fraud. The connections between these older terms suggest that forensic accounting was initially concentrated on identifying and analyzing financial irregularities using manual methods. Recent studies (yellow and green nodes) show an increasing emphasis on technology-driven fraud detection methods, including "big data," "data analytics," and "data mining." The shift toward these modern techniques reflects the integration of artificial intelligence, machine learning, and blockchain in forensic accounting research. The presence of these newer terms suggests that recent academic interest has been directed toward improving fraud detection accuracy and efficiency through automation and predictive modeling. This trend aligns with the increasing complexity of financial crimes and the need for more advanced forensic accounting tools to address emerging threats.

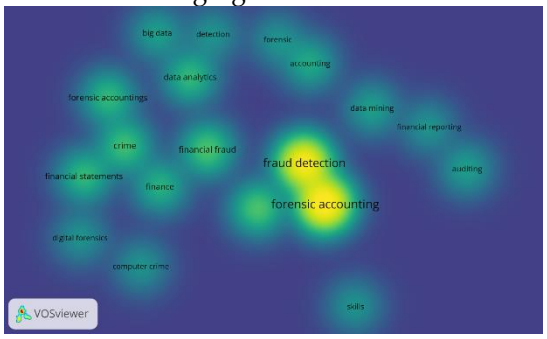

Figure 3. Density Visualization

Source: Data Analysis, 2025

This heatmap visualization, generated using VOSviewer, represents the density of research activity related to forensic accounting and fraud detection. The brighter (yellow) areas indicate the most frequently occurring keywords in the analyzed literature, whereas the darker (blue) regions signify less frequently used terms. "Fraud detection" and "forensic accounting" are the most prominent terms, suggesting that these two areas are central to the field. Surrounding them, terms such as "financial fraud," "crime," "finance," and "forensic accountings" appear in moderately dense areas, indicating their relevance but slightly lower occurrence compared to the core terms. The dispersion of keywords in the heatmap highlights the evolution of forensic accounting research. Keywords related to traditional forensic accounting practices, such as "financial statements," "auditing," and "digital forensics," are present but less intense compared to emerging technological trends. Terms like "big data," "data analytics," and "data mining" are gaining traction, signifying the shift toward technology-driven fraud detection methodologies. This visualization suggests that forensic accounting research is evolving from conventional financial investigation techniques toward more advanced, data-driven approaches to detect and prevent fraud more effectively.

4.2 Co-Authorship Network

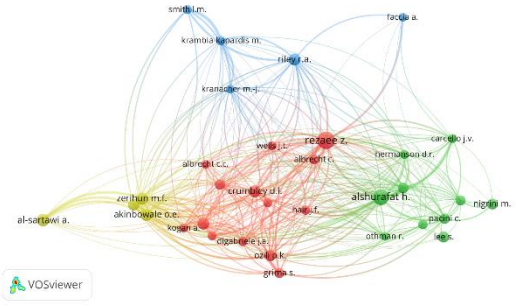

Figure 4. Author Visualization

Source: Data Analysis, 2025

This visualization represents a co-authorship network analysis in forensic accounting and fraud detection research, where nodes represent authors, and edges indicate collaboration frequency. The size of

each node reflects the author's influence in the field based on publication volume and citation impact. The different colors signify distinct research clusters or collaborative groups. The red cluster, centered around influential scholars like Rezaee Z., Crumbley D.L., and Albrecht C., indicates a highly interconnected group contributing significantly to forensic accounting literature. The blue cluster, including authors like Riley R.A. and Smith L.M., represents another major research network focused on forensic methodologies. The green cluster, featuring Alshurafat H., Pacini C., and Hermanson D.R., suggests a separate collaboration stream within the field. Additionally, isolated nodes like Al-Sartawi A. in yellow indicate researchers working independently or in smaller teams.

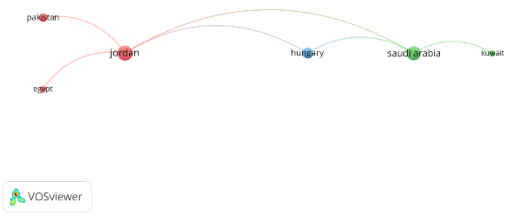

Figure 5. Country Visualization
Source: Data Analysis, 2025

This visualization represents a co-authorship network based on country affiliations in forensic accounting and fraud detection research. Each node represents a country, with larger nodes indicating higher contributions to the field. The edges signify collaboration between countries, with stronger connections reflecting more frequent research partnerships. Jordan appears as a central hub in the network, maintaining strong research collaborations with Egypt and Pakistan on one side and Hungary and Saudi Arabia on the other. Saudi Arabia also shows a link with Kuwait, suggesting regional collaboration in forensic accounting research. The presence of Hungary in the network highlights an international connection outside the Middle Eastern region. This visualization indicates that research in forensic accounting is forming regional clusters, with Jordan and Saudi Arabia playing key roles in facilitating cross-country academic collaboration.

DISCUSSION

The bibliometric analysis conducted in this study provides valuable insights into the evolution of forensic accounting and fraud detection research. The findings indicate that forensic accounting has transitioned from a focus on traditional auditing and fraud investigation techniques toward incorporating advanced data analytics and artificial intelligence. The most frequently occurring keywords suggest a strong emphasis on fraud detection, financial fraud, and forensic auditing, highlighting the relevance of this research field in combating financial crimes. The co-authorship analysis reveals that forensic accounting research is highly collaborative, with multiple research clusters emerging based on regional and institutional affiliations. Prominent authors such as Rezaee Z. and Crumbley D.L. have contributed significantly to the field, influencing research directions and methodologies. The analysis also highlights strong international collaborations, particularly between researchers from Jordan, Saudi Arabia, and Hungary, demonstrating the global relevance of forensic accounting research.

Furthermore, the findings indicate an increasing reliance on technology-driven forensic techniques. The growing prominence of terms like “big data,” “data mining,” and “machine learning” suggests that researchers are exploring automated fraud detection methods to enhance efficiency and accuracy. This shift aligns with industry trends, where forensic accountants are leveraging AI-powered tools to detect anomalies and patterns indicative of fraud. Despite these advancements, challenges remain in standardizing forensic accounting practices across different jurisdictions. Variations in regulatory frameworks and the lack of universally accepted methodologies pose barriers to the widespread adoption of forensic accounting techniques. Future research should focus on developing standardized frameworks that integrate

technological advancements while addressing legal and ethical considerations. The study underscores the importance of forensic accounting in maintaining financial integrity and preventing fraud. By leveraging bibliometric analysis, researchers and practitioners can identify key trends, influential authors, and emerging research areas, ultimately contributing to the continued advancement of forensic accounting and fraud detection.

5. CONCLUSION

This study provides a comprehensive bibliometric analysis of forensic accounting and fraud detection research trends, offering valuable insights into the evolution, key contributors, and emerging themes within the field. The findings indicate a significant shift from traditional fraud detection methodologies toward the integration of advanced technologies such as big data analytics, artificial intelligence, and blockchain. The co-authorship analysis highlights strong international collaborations, particularly among researchers in the Middle East and Europe, reflecting the global relevance of forensic accounting in combating financial fraud. Despite these advancements, challenges remain, including the need for standardized frameworks and regulatory consistency across jurisdictions. Future research should focus on addressing these challenges by developing unified methodologies and leveraging technological innovations to enhance fraud detection and financial integrity. By identifying key research trends and influential authors, this study contributes to a deeper understanding of forensic accounting, providing valuable direction for academics, practitioners, and policymakers in strengthening financial accountability and fraud prevention strategies.

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