

ANALYZING THE EFFECTIVENESS OF EXTERNAL AND INTERNAL AUDITORS IN DETECTING FRAUD WITH ARTIFICIAL INTELLIGENCE SUPPORT: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

Fraud is a serious threat to both public and private sectors, requiring the effective role of auditors in its detection. This study aims to examine the various factors influencing the ability of internal and external auditors to detect fraud, as well as to evaluate the development of modern audit technologies that support the detection process. The research employs a Systematic Literature Review (SLR) method using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach, which involves identifying, selecting, and analyzing 23 relevant academic articles. The results show that independence, professionalism, professional skepticism, auditor experience, and the effectiveness of internal controls are key factors in successful fraud detection. Additionally, psychological aspects such as self-efficacy and professional ethics further strengthen auditor effectiveness. The use of technologies such as artificial intelligence, big data, and statistical models has been proven to improve detection efficiency, although challenges related to auditor competence and AI interpretability remain. This study concludes that enhancing auditor competencies, adopting adaptive audit technologies, and implementing accountability-based institutional reforms are essential in addressing audit challenges in the digital era.

Key words: Fraud Detection; Auditor Effectiveness; Internal and External Audit; Artificial Intelligence

INTRODUCTION

Fraud in the financial and business sectors remains one of the primary challenges faced today. Fraud can manifest in various forms, including financial statement manipulation, asset misappropriation, and corruption involving both public and private sectors. The presence of fraud not only causes financial losses to the involved organizations but also undermines public trust in financial systems and governance, and negatively impacts economic stability. Therefore, audit mechanisms play a crucial role in detecting and preventing fraudulent practices to maintain economic stability and business integrity.

Auditing is a systematic process of evaluating the accuracy and reliability of financial information and ensuring compliance with applicable regulations. In the context of fraud detection, the effectiveness of audit mechanisms depends on several factors, such as auditor independence, the application of technology in the audit process, and the regulatory frameworks governing audit practices in different countries. Southeast Asian countries exhibit varying levels of audit effectiveness, influenced by institutional, legal, and economic policy factors. Furthermore, transparency in financial reporting, legal sanctions against fraud perpetrators, and collaboration between audit institutions and law enforcement agencies significantly affect the success of audit mechanisms in uncovering fraud.

Amid technological advancements and globalization, audit practices have undergone significant transformations, including the integration of data analytics and artificial intelligence in financial examinations. Digitalization in auditing enables auditors to detect suspicious transaction patterns more swiftly and accurately. However, this also brings new challenges, such as increasingly complex fraud schemes and regulatory limitations concerning technology-based audit mechanisms.

The success of external auditors in uncovering fraud is also highly dependent on auditor independence. In some cases, pressure from internal company stakeholders or external interference can hinder audit effectiveness. Moreover, the quality of audits conducted by external auditors is often influenced by factors such as ethical standards, professional experience, and the technological support available during the audit process. Hence, it is essential to understand the extent to which these factors contribute to the success or failure in detecting fraud.

1. Agency Theory

Agency theory, introduced by Jensen and Meckling, explains the relationship between principals and agents who often have differing interests, particularly in the context of potential fraud. This relationship arises when management (agents) is given authority by owners or investors (principals) to carry out the company's operations. In such situations, principals require transparency regarding managerial actions, especially those related to the use of funds or investments, making accountability reports from agents crucial. This divergence of interests can create a risk of fraud if not properly monitored (Adrian dkk., 2024).

2. Fraud

The term "fraud" has been defined in various ways by scholars, researchers, and authors, but generally refers to illegal actions carried out through deception, concealment of facts, or abuse of trust to gain undue personal benefit. Fraud can take the form of embezzlement, misrepresentation of financial information, bribery, forgery, theft, or misuse of assets. Adeyemo emphasizes that fraud does not necessarily involve physical force, while Mutesi views it as a criminal act deliberately designed to manipulate facts for personal gain (AKANNI, 2020). According to the Association of Certified Fraud Examiners (ACFE, 2012), fraud is classified into three main categories: asset misappropriation, financial statement fraud, and corruption. Asset misappropriation involves the theft or improper use of an organization's assets, while financial statement fraud is typically committed by management or executives to manipulate financial information. Corruption refers to the abuse of authority for personal gain and is considered the most difficult type of fraud to trace. A survey by ACFE Indonesia Chapter in 2019 revealed that corruption is the most prevalent form of fraud in Indonesia, accounting for 64.4% of cases. This highlights that fraud poses a serious threat to the sustainability of both public and private sector organizations (Gae & Maulana, 2023).

3. Auditor Independence

Auditor independence can be viewed from three main aspects. First, actual independence refers to the auditor's ability to act honestly, objectively, and free from external influence while performing audit tasks. Second, perceived independence relates to how external stakeholders view the auditor's relationship with the client, particularly in terms of maintaining a professional distance. Third, independence in terms of competence reflects how capable and skilled the auditor is in carrying out and completing their duties without reliance on any specific field of expertise. These three dimensions are interrelated and play a crucial role in ensuring the auditor's effectiveness in detecting fraud in a reliable and objective manner (Runturambi dkk., 2024).

4. Auditor Professionalism

Auditor professionalism reflects the responsibility to act beyond merely fulfilling legal obligations, by upholding the professional ethics established by the Indonesian Institute of Accountants (IAI). Auditors are expected to perform their duties based on knowledge, training, and experience, in accordance with applicable auditing standards and accounting principles. Professionalism also involves the auditor's ability to exercise sound professional judgment throughout the audit process. This professional attitude is essential to ensure audits are conducted with competence and due care, enabling auditors to detect potential fraud more effectively and responsibly (Adrian dkk., 2024).

5. Auditor Experience

Experience plays a vital role in fraud detection, as auditors require knowledge and expertise to make sound judgments. An auditor's level of experience can be measured by their length of service, the number of assignments handled, and prior involvement in similar cases. The more experience an auditor has, the more skilled, efficient, and capable they become in completing tasks. Work experience not only enhances performance but also provides an advantage in identifying patterns of fraud, making it highly beneficial for auditors in fulfilling their responsibilities (Sembiring, 2023).

6. Internal Control

Internal control refers to the systems and methods implemented by an organization to safeguard assets, provide accurate information, and enhance operational efficiency. Over time, internal control has evolved in both theory and practice to support the achievement of management's objectives. The effectiveness of internal control plays a crucial role in preventing and detecting fraud as well as unethical behavior. Organizations with strong internal controls are more likely to identify fraudulent activities at an early stage. Moreover, the effectiveness of internal control also reflects the organization's level of compliance with applicable laws and regulations (Adrian dkk., 2024).

7. AI in Fraud Detection

The use of Artificial Intelligence (AI) and Machine Learning (ML) has significantly transformed fraud detection in the banking sector, particularly in the UAE and Qatar, by enhancing the accuracy and efficiency of identifying suspicious transactions. AI has evolved from being a supplementary tool to becoming a primary mechanism for fraud prevention, driven by increasing digitalization and regulatory demands. However, challenges arise regarding the transparency and interpretability of AI models—especially deep learning models—which often function as "black boxes," making it difficult to explain decision-making processes and undermining trust and accountability (Yaseen & Al-Amarnah, 2025).

METHOD

This study is a systematic literature review titled Analyzing the Effectiveness of External and Internal Auditors in Detecting Fraud With Artificial Intelligence Support: A Systematic Literature Review. It adopts the

Systematic Literature Review (SLR) method and is guided by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework. The research procedure involves several key steps:

1. Identifying relevant keywords and developing search strategies to retrieve appropriate studies from databases such as Scopus and Google Scholar.
2. Selecting studies based on established inclusion and exclusion criteria, in accordance with the PRISMA flowchart stages: identification, screening, eligibility, and inclusion.
3. Extracting essential data from the selected articles, including author details, publication year, research methods, and key findings.

In this study, the reference gathering process was carried out using the Covidence tool. Researchers used the Covidence application, which is connected to the Scopus and Google Scholar databases through an API key, to conduct the literature search. Scopus was chosen to access high-quality, peer-reviewed scientific publications, while Google Scholar was selected to broaden the search and include more general academic sources.

The search process resulted in a total of 471 articles: 171 from Scopus and 300 from Google Scholar, all published between 2020 and 2025. The next step involved screening the articles by reviewing their topics and abstracts to determine relevance to the research focus. This screening phase narrowed the selection to 170 articles that met the inclusion criteria. A full-text review of these articles was then conducted, leading to the exclusion of 147 articles. As a result, 23 articles were deemed appropriate for further analysis and discussion.

The results of the literature search conducted using Covidence are presented in the image below:

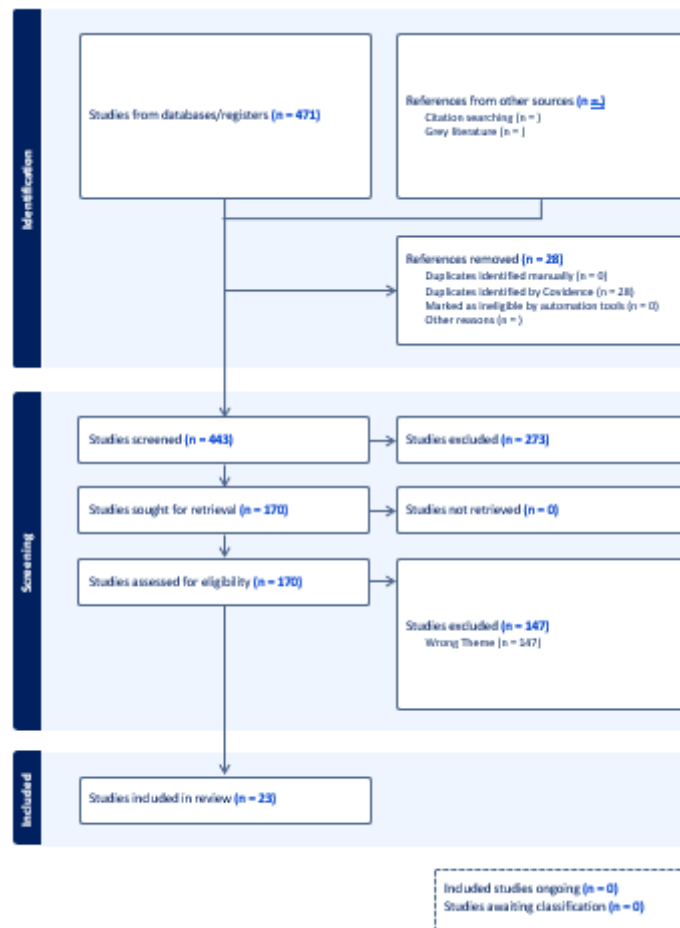


Figure 1. Output Covidence (Prisma Method)

RESULTS AND DISCUSSION

Result

From the synthesis of 23 reviewed studies, it appears that auditors' ability to detect and prevent fraud is greatly influenced by a combination of competence, independence, professional skepticism, and technological support and internal control systems. Many studies (e.g., (Adrian dkk., 2024); (Runturambi dkk., 2024); (Saridewi dkk., 2022) show that auditors with high technical competence and professional independence are able to identify fraud more effectively. However, the variables of individual morality (Adrian dkk., 2024) and professional skepticism (Noviana & Asmara, 2023) do not always have a significant influence. On the other

hand, the effectiveness of fraud detection increases when supported by whistleblowing systems, forensic audits, and the implementation of strong regulations and legal standards (Gae & Maulana, 2023); (Mahsun, 2024).

Technological developments are an important catalyst in the transformation of modern audit processes. A number of studies (Jam'iah dkk., 2024); (Rosnidah, 2022); (Romero-Carazas, 2024); (Otaibi & Mohamed, t.t.); (Yaseen & Al-Amarnah, 2025) confirm that the application of big data analytics, artificial intelligence (AI), and digital auditing has been proven to improve accuracy and efficiency in detecting anomalies and financial fraud. For example, the application of the Double Benford's Law model (Wiryadinata, 2023) can increase detection accuracy to 93%, while data-based forensic auditing (Jam'iah dkk., 2024) and the application of AI in auditing (SAIFUDIN dkk., 2025) can strengthen auditors' responses to indications of fraud in real time. However, the adoption of this technology is still constrained by the limitations of auditor competence and digital infrastructure readiness, especially in developing countries such as Indonesia.

Discussion

Based on the systematic review of 23 articles in this study, several key findings emerged regarding the effectiveness of internal and external auditors in detecting fraud. The main factors consistently found to have a significant influence on fraud detection include independence, professionalism, professional skepticism, auditor experience, and the effectiveness of internal control systems. In general, auditors with a high level of independence are more capable of acting objectively and free from influence, which enhances their ability to detect fraudulent activities. Likewise, auditors with strong professionalism and extensive experience demonstrate greater proficiency in identifying fraud patterns, particularly when supported by a critical skeptical attitude toward audit evidence.

Several studies highlight differences in the contributions of internal and external auditors. A notable finding from (Anandita dkk., 2025) indicates that professional skepticism only moderates the relationship between experience and fraud detection effectiveness for internal auditors, but not for external auditors. This suggests the need for different capacity-building approaches for the two auditor groups.

From a technological perspective, the role of artificial intelligence (AI) and big data analytics in fraud detection is becoming increasingly prominent. Research shows that data-driven forensic auditing (AFDA) and models such as SHAP, LIME, and Double Benford's Law are effective in improving the accuracy and efficiency of identifying suspicious transactions. However, challenges such as limited auditor competence, AI interpretability, and the reliability of information systems remain key obstacles. Therefore, technology-based training and stronger regulatory support are highly recommended to encourage the adoption of advanced audit technologies.

On the institutional side, studies emphasize the importance of synergy between audit practices and legal policies. The implementation of whistleblowing systems and regulatory enforcement has proven effective in strengthening fraud prevention efforts. However, resistance from audited entities and limited coordination with law enforcement, as observed in the Indonesian context, remain significant barriers. Thus, institutional reform and the strengthening of public governance integrity are needed.

Overall, this review highlights that fraud detection effectiveness relies not only on the individual competence of auditors but also on strong internal control environments, the application of modern audit technologies, and synergy between legal frameworks and organizational accountability. These findings have important implications for promoting more adaptive public and private audit reforms in response to the growing risks of fraud in the digital era.

In addition to technical factors such as competence and experience, several articles highlight the importance of psychological and ethical aspects—particularly self-efficacy and moral commitment—in fraud detection. Auditors with strong confidence and integrity tend to be more proactive in uncovering fraudulent activities. Furthermore, differences in financial reporting systems across countries also affect audit effectiveness. A comparative study between Malaysia and Indonesia indicates that the adoption of IFRS promotes transparency and facilitates fraud detection, making the harmonization of standards an essential global strategy.

Technological competency gaps also remain a concern. While technologies such as AI and big data have proven beneficial, many auditors are not yet equipped to utilize them effectively. Therefore, technology-based training must be strengthened. On another front, statistical models like the Beneish M-Score and F-Score have been shown to be effective as preliminary tools in identifying potential fraud cases, although they do not fully replace manual auditing. These findings underscore the importance of combining technical, ethical, and technological approaches to enhance the effectiveness of fraud detection.

CONCLUSION

Technological advancements in auditing, such as artificial intelligence, big data analytics, and statistical models like the Beneish M-Score and F-Score, have created new opportunities to improve the efficiency and accuracy of fraud detection. However, limitations in auditors' technological competencies and challenges related to AI interpretability remain obstacles that must be addressed through continuous training and stronger regulatory support. Institutionally, the synergy between audit systems, law enforcement, and organizational governance plays a vital role in creating an environment conducive to fraud prevention and detection. Therefore,

strengthening individual auditor capacity, developing adaptive audit technologies, and implementing institutional reforms focused on transparency and accountability are strategic steps needed to meet the challenges of auditing in the current digital era.

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