

Internal Audit Quality and Fraud Detection Effectiveness in Manufacturing, Banking, and Oil and Gas Sectors: A Systematic Review

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Abstract

Fraud remains one of the most significant threats to organizational performance, accountability, and long-term sustainability across both public and private sectors. Despite considerable investments in internal control systems, organizations continue to experience financial losses resulting from fraudulent activities such as financial statement manipulation, procurement fraud, cybercrime, and asset misappropriation. In response to these challenges, internal auditing has evolved beyond its traditional compliance role to become a strategic governance mechanism for risk management and fraud prevention. This paper reviews existing theoretical and empirical literature on the relationship between internal audit quality and fraud detection effectiveness in the manufacturing, banking, and oil and gas sectors. Drawing on Agency Theory, Fraud Triangle Theory, and Institutional Theory, the study examines how factors such as auditor independence, professional competence, technological capability, and regulatory compliance influence organizations' ability to detect and prevent fraud. The review further highlights how industry-specific characteristics shape the effectiveness of internal audit functions and fraud management practices. The findings indicate that organizations with strong internal audit systems are generally more successful in identifying control weaknesses, detecting fraudulent activities, and enhancing overall governance performance. While the banking sector demonstrates relatively higher fraud detection effectiveness due to advanced technology and strict regulatory oversight, the oil and gas sector faces persistent governance challenges despite significant audit investments. Manufacturing firms, on the other hand, continue to grapple with operational vulnerabilities associated with inventory management and procurement processes. By providing a comparative synthesis across multiple sectors, this study extends existing literature that has largely focused on single-industry investigations. The paper concludes that strengthening auditor independence, embracing technological innovation, and investing in continuous professional development are essential for improving fraud detection effectiveness and promoting organizational accountability.

Keywords: Internal audit quality, fraud detection effectiveness, corporate governance, fraud risk management, internal control, auditing.

Introduction

Fraud remains one of the most significant threats to organizational performance, accountability, and sustainability in the contemporary business environment. The increasing complexity of organizational operations, rapid expansion of digital financial systems, globalization of business activities, and persistent governance weaknesses have created new opportunities for fraudulent behaviour to flourish (National Commission on Fraudulent Financial Reporting, 1987).

Consequently, organizations across both developed and developing economies continue to grapple with various forms of fraud, including financial statement manipulation, cyber fraud, procurement fraud, corruption, and asset misappropriation. Beyond the direct financial losses incurred, these fraudulent practices erode stakeholder confidence, weaken corporate reputation, discourage investment, and threaten broader economic stability (Okaro & Okafor, 2013). The growing sophistication of fraud schemes further complicates detection efforts, making it imperative for organizations to strengthen internal control systems and establish effective monitoring mechanisms capable of identifying irregularities before they escalate into major organizational crises (Popoola et al., 2014).

In response to these challenges, internal auditing has emerged as a critical component of corporate governance and organizational risk management. While traditionally viewed as a function concerned primarily with compliance verification and financial control, the scope of internal auditing has expanded considerably over time. Contemporary internal audit functions now play a strategic role in evaluating governance processes, assessing enterprise-wide risks, supporting forensic investigations, reviewing cybersecurity controls, and enhancing operational efficiency (Institute of Internal Auditors [IIA], 2020; Sawyer, 2012). This transformation reflects a broader shift in organizational expectations, where internal auditors are increasingly required to provide assurance not only on compliance matters but also on the effectiveness of risk management and fraud prevention frameworks. As a result, internal audit quality has become a central determinant of an organization's capacity to identify vulnerabilities, strengthen internal controls, and improve fraud detection effectiveness (Arena & Azzone, 2009).

The growing emphasis on internal audit quality is supported by a substantial body of empirical evidence. Research suggests that organizations with well-structured and adequately resourced internal audit functions are better equipped to detect control deficiencies, mitigate operational risks, and reduce exposure to fraudulent activities (Mihret & Yismaw, 2007). More importantly, high-quality internal auditing contributes to organizational transparency and enhances the credibility of financial reporting processes. Abbott et al. (2016) found that internal audit quality significantly improves audit reliability, operational performance, and the timeliness of financial reporting, indicating that its value extends beyond fraud detection alone. Similarly, Alzeban and Gwilliam (2014) demonstrated that factors such as management support, auditor competence, and organizational independence substantially influence internal audit effectiveness. These findings suggest that fraud detection effectiveness is not merely a function of audit existence but is largely dependent on the quality of the audit process itself.

Nevertheless, the relationship between internal audit quality and fraud detection effectiveness is neither straightforward nor uniform across industries. Organizational environments differ considerably in terms of regulatory requirements, operational complexity, technological infrastructure, and risk exposure. In the banking sector, for instance, sophisticated financial transactions and highly digitized service delivery systems create vulnerabilities that require advanced auditing techniques and continuous monitoring mechanisms. Manufacturing firms, by contrast, are more exposed to risks associated with procurement activities, inventory management, production processes, and supply chain operations. The oil and gas sector presents a different set of challenges, as the large volume of financial transactions, extensive contractual arrangements, and resource-based operations increase susceptibility to corruption, contract inflation, procurement irregularities, and revenue diversion (WorldCom Bankruptcy Examiner, 2003). These sector-specific characteristics imply that the effectiveness of internal audit

functions may vary depending on the nature of operational risks and organizational structures within each industry.

Despite increasing scholarly interest in internal auditing and fraud management, the existing literature remains fragmented and often confined to specific sectors, organizations, or geographical contexts. Much of the available research focuses on empirical investigations within individual industries, making it difficult to develop a holistic understanding of how internal audit quality influences fraud detection effectiveness across diverse organizational settings. Consequently, important insights regarding sectoral similarities, differences, and best practices remain underexplored. Furthermore, emerging technologies such as artificial intelligence, machine learning, blockchain applications, and advanced cybersecurity systems have fundamentally transformed both the methods used to perpetrate fraud and the tools available for detecting it. These developments call for a broader theoretical reassessment of internal auditing practices and their relevance in addressing contemporary fraud risks.

Against this backdrop, this paper presents a comparative theoretical review of internal audit quality and fraud detection effectiveness within the manufacturing, banking, and oil and gas sectors. By integrating conceptual, theoretical, and empirical perspectives, the study seeks to deepen understanding of how sector-specific characteristics influence the effectiveness of internal audit functions and shape organizational approaches to fraud management. Rather than examining these sectors in isolation, the paper adopts a comparative lens to identify common patterns, distinctive challenges, and emerging opportunities for strengthening fraud detection systems.

The primary objective of this study is to examine the relationship between internal audit quality and fraud detection effectiveness across the manufacturing, banking, and oil and gas sectors. Specifically, the paper seeks to examine the concept of internal audit quality, discuss the nature and determinants of fraud detection effectiveness, evaluate sectoral variations in internal auditing practices, assess the theoretical foundations explaining internal audit effectiveness, and propose recommendations for strengthening fraud detection systems across organizations. The remainder of the paper is organized into eight sections. These include a review of the conceptual and empirical literature, the theoretical framework, sectoral analysis of internal audit quality and fraud detection effectiveness, comparative analysis across sectors, examination of the importance of internal audit quality in fraud management, discussion of challenges affecting internal audit effectiveness, recommendations, and conclusion.

Review of Literature

Internal audit quality has attracted considerable scholarly and professional attention because of its critical role in strengthening governance systems, enhancing accountability, and improving fraud detection mechanisms. The concept extends beyond routine compliance monitoring to encompass auditor competence, independence, objectivity, technological capability, and adherence to professional standards (Arena & Azzone, 2009). High-quality internal auditing is generally characterized by the ability of auditors to provide reliable assurance and consulting services that improve organizational governance, risk management, compliance, and internal control systems. In contemporary organizations, internal auditors are increasingly expected to possess expertise in data analytics, cybersecurity auditing, forensic accounting, artificial intelligence, blockchain auditing, and continuous monitoring systems to address emerging organizational risks effectively (Popoola et al., 2014).

The evolution of internal auditing reflects broader changes in organizational environments. The rapid growth of digital transactions, electronic payment systems, and cyber-enabled fraud has transformed the scope and complexity of audit activities globally. Consequently, internal audit functions have shifted from traditional compliance-oriented approaches to proactive, risk-based auditing frameworks capable of identifying emerging fraud patterns in real time. According to the Institute of Internal Auditors (2024), modern internal auditors must combine professional skepticism with technological competence to respond effectively to increasingly sophisticated fraud schemes. The revised Global Internal Audit Standards further emphasize auditor independence, ethical conduct, quality assurance, and strategic risk management as fundamental pillars of audit quality.

Evidence from the literature consistently demonstrates that high-quality internal audit functions contribute to stronger organizational control environments. Arena and Azzone (2009) observed that organizations characterized by independent and competent internal audit units tend to exhibit more effective internal control systems and improved operational efficiency. Similarly, Mihret and Yismaw (2007) argued that internal auditing plays a significant role in promoting accountability and strengthening organizational risk management processes, particularly within public sector institutions. These studies collectively suggest that internal audit quality serves as a critical mechanism through which organizations enhance governance effectiveness and reduce exposure to operational and financial risks.

Recent empirical research has further expanded understanding of the determinants of internal audit quality. Adegbite and Uwuijbe (2023) found that organizations with technologically advanced audit departments demonstrate stronger fraud prevention capabilities and more efficient internal control systems. Likewise, Chukwuani and Egiyi (2024) reported that management support, continuous auditor training, and the deployment of digital auditing tools significantly improve audit effectiveness within Nigerian public enterprises. These findings indicate that technological competence and organizational support have become increasingly important components of internal audit quality in the digital era.

The relationship between internal audit quality and fraud detection effectiveness has emerged as a major theme within contemporary auditing literature. Fraud detection effectiveness refers to the ability of organizational systems, internal controls, and audit mechanisms to identify, investigate, and prevent fraudulent activities promptly, accurately, and efficiently. Effective fraud detection encompasses the identification of financial irregularities, cyber fraud, asset misappropriation, procurement manipulation, and other forms of occupational fraud before they result in substantial operational or financial losses (Treadway Commission, 1987). As fraud schemes become increasingly sophisticated, organizations have expanded their reliance on continuous auditing systems, artificial intelligence, predictive analytics, and data mining technologies to strengthen fraud detection capabilities.

The integration of technology into auditing and fraud management has significantly altered traditional approaches to fraud detection. The Association of Certified Fraud Examiners (2024) reported that organizations utilizing data analytics and continuous monitoring systems detect fraud more rapidly and recover a greater proportion of lost assets than organizations relying solely on manual control systems. Similarly, the Institute of Internal Auditors (2024) noted that technology-enabled audit functions possess greater capacity to identify anomalies, monitor risks in real time, and detect fraudulent activities before substantial losses occur. These developments

suggest that technological innovation is no longer merely a supportive tool but has become a strategic component of fraud risk management.

A growing body of literature also highlights the contribution of forensic accounting techniques to fraud detection effectiveness. Popoola et al. (2014) argued that forensic accounting competence enhances fraud risk assessment and investigative capacity within organizations. Supporting this position, Olayinka and Abdulrasheed (2023) found that forensic audit technologies such as transaction tracing software, biometric verification systems, digital evidence analysis, and electronic transaction monitoring significantly improve fraud identification within Nigerian banking institutions. Likewise, Nwankwo and Salawu (2024) concluded that integrating forensic accounting techniques with internal audit functions strengthens fraud risk assessment processes and facilitates earlier detection of financial irregularities.

Sector-specific studies further demonstrate how internal audit quality influences fraud detection effectiveness under different organizational conditions. In the banking sector, Ibrahim and Hassan (2023) reported that internal audit quality positively influences the detection of electronic fraud, insider abuse, and unauthorized transactions. Their findings revealed that automated audit software, real-time transaction monitoring, and computerized internal controls significantly strengthen fraud detection processes. Similarly, Al-Matari and Alosaimi (2025) concluded that financial institutions implementing artificial intelligence-assisted audit systems experience lower operational losses arising from fraudulent transactions.

Within public sector organizations, Chukwuani and Egiyi (2024) found that entities characterized by effective whistleblowing systems, ethical compliance mechanisms, and independent internal audit departments demonstrate higher fraud detection efficiency. Management commitment to transparency and accountability was also identified as a significant factor influencing the success of organizational fraud control strategies. These findings suggest that technological capability alone may be insufficient; effective fraud detection also requires supportive organizational cultures and strong governance structures.

The oil and gas sector presents a distinct governance environment characterized by procurement fraud, contract inflation, revenue diversion, bribery, and corruption risks. Yusuf and Ibrahim (2025) revealed that organizations implementing integrated compliance monitoring systems and enterprise risk management frameworks exhibit stronger fraud detection capacities and improved operational accountability. Similarly, Eze and Okon (2024) found that continuous auditing systems significantly reduce procurement-related fraud and financial leakages within extractive industries. These findings underscore the importance of tailoring audit approaches to sector-specific risk profiles.

Despite the substantial evidence supporting the positive influence of internal audit quality on fraud detection effectiveness, the literature does not present a uniformly positive picture. In many developing economies, structural and institutional constraints continue to undermine audit effectiveness. Okaro and Okafor (2013) identified management interference, weak internal controls, and inadequate auditor independence as major contributors to audit failure and fraudulent financial reporting. More recently, Akinyomi and Olutoye (2025) reported that internal auditors in several Nigerian public institutions face challenges arising from political influence, inadequate technological infrastructure, and limited professional development opportunities. These findings suggest that investments in technology alone may not guarantee improved fraud detection outcomes if underlying governance weaknesses remain unresolved.

Furthermore, recent studies emphasize the growing importance of organizational culture and ethical leadership in enhancing fraud detection effectiveness. According to Adegbite and Uwuigbe (2023), employee awareness programmes, whistleblower protection mechanisms, and fraud reporting systems contribute significantly to the early detection of operational irregularities and financial misconduct. Ezejiofor, Okoye, and Nwakoby (2024) similarly observed that organizations characterized by independent audit units, ethical leadership, and strong compliance cultures demonstrate greater accountability and lower incidences of fraud. These findings reinforce the argument that fraud detection effectiveness depends on a combination of technical competence, ethical governance, and organizational commitment to accountability.

Although the literature overwhelmingly supports a positive relationship between internal audit quality and fraud detection effectiveness, important methodological and contextual limitations remain. A substantial proportion of existing studies rely on questionnaire-based perceptions of auditors and managers rather than objective measures of fraud reduction. Consequently, empirical evidence regarding the long-term effectiveness of emerging technologies such as artificial intelligence, blockchain verification systems, and machine learning algorithms remains limited. Moreover, much of the existing research focuses on individual industries, making meaningful cross-sector comparisons difficult.

Overall, the literature demonstrates that auditor independence, professional competence, management support, technological capability, ethical leadership, and governance quality are central determinants of internal audit quality and fraud detection effectiveness (Alzeban&Gwilliam, 2014; Ezejiofor, Okoye, & Nwakoby, 2024). However, the relative importance of these factors varies across industries. Banking institutions derive substantial benefits from advanced monitoring technologies and strict regulatory oversight; manufacturing firms rely more heavily on operational controls and supply-chain monitoring mechanisms; while oil and gas organizations face unique governance challenges associated with procurement activities, political influence, and resource management. These sectoral differences justify the need for a comparative assessment of internal audit quality and fraud detection effectiveness across manufacturing, banking, and oil and gas industries and highlight an important gap in the existing literature that this study seeks to address.

Theoretical Framework

Understanding the relationship between internal audit quality and fraud detection effectiveness requires a theoretical foundation that explains why fraud occurs, how organizational control systems influence behaviour, and why firms adopt particular governance mechanisms. Given the multidimensional nature of fraud management, this study draws on Agency Theory, Fraud Triangle Theory, and Institutional Theory. Together, these theories provide complementary explanations for the role of internal auditing in reducing fraud risks and strengthening organizational accountability across manufacturing, banking, and oil and gas sectors.

Agency Theory

Agency Theory, developed by Jensen and Meckling (1976), explains the relationship between owners (principals) and managers (agents) within organizations. The theory is based on the premise that managers often possess more information about organizational activities than shareholders, creating information asymmetry that can be exploited for personal gain. In situations where monitoring mechanisms are weak, managers may pursue self-interested actions

that conflict with the objectives of shareholders, thereby increasing the risk of fraud, financial manipulation, and inefficient resource utilization.

Within this context, internal auditing serves as an important governance mechanism for reducing agency conflicts. By independently reviewing organizational activities, evaluating internal controls, and assessing compliance with policies and regulations, internal auditors help limit managerial opportunism and improve transparency. The literature reviewed earlier demonstrates that organizations characterized by strong internal audit quality tend to exhibit better governance outcomes, enhanced accountability, and improved fraud control. From an agency perspective, therefore, high-quality internal auditing reduces opportunities for managerial misconduct and strengthens fraud detection effectiveness by increasing oversight and accountability (Jensen & Meckling, 1976).

The relevance of Agency Theory is particularly evident in sectors such as banking and oil and gas, where the complexity of operations and the magnitude of financial resources involved create significant information asymmetries between managers and stakeholders. In such environments, effective internal auditing becomes essential for safeguarding organizational assets and maintaining stakeholder confidence.

Fraud Triangle Theory

While Agency Theory explains the governance rationale for internal auditing, Fraud Triangle Theory provides insight into the underlying conditions that motivate fraudulent behaviour. Developed by Cressey (1953), the theory proposes that fraud is most likely to occur when three elements coexist: pressure, opportunity, and rationalization. Pressure refers to financial or personal incentives that motivate individuals to commit fraud; rationalization involves the justification of unethical behaviour; and opportunity represents weaknesses in control systems that allow fraudulent acts to occur undetected.

Among these three elements, opportunity is the factor most directly influenced by internal audit quality. Effective internal auditing strengthens internal controls, enhances monitoring systems, and promotes compliance with organizational policies, thereby reducing opportunities for fraud. The growing adoption of continuous auditing systems, forensic accounting techniques, artificial intelligence, and data analytics further enhances the ability of internal auditors to identify control weaknesses and detect suspicious activities in real time. Consequently, organizations with high-quality internal audit functions are better positioned to limit fraud opportunities and improve fraud detection effectiveness (Cressey, 1953).

The theory aligns closely with the empirical evidence discussed in the literature review, which indicates that organizations with stronger control environments, technologically enabled audit systems, and independent audit functions generally experience more effective fraud detection outcomes. Fraud Triangle Theory therefore provides an important behavioural explanation for why investments in internal audit quality contribute to improved fraud management.

Institutional Theory

Institutional Theory offers a broader organizational perspective by explaining how external pressures shape governance practices and control systems. The theory suggests that organizations adopt structures, policies, and procedures not only to improve efficiency but also to gain legitimacy and conform to societal expectations, regulatory requirements, and industry norms.

As a result, organizational practices often reflect pressures exerted by governments, regulators, professional bodies, investors, and other stakeholders.

This perspective is particularly relevant to internal auditing because the design and effectiveness of audit functions frequently vary across industries. Highly regulated sectors such as banking and oil and gas are subject to extensive oversight from regulatory agencies and professional institutions. These external pressures encourage organizations to establish sophisticated internal audit systems, implement advanced monitoring technologies, and maintain stronger compliance frameworks. In contrast, organizations operating in less regulated environments may adopt less rigorous audit structures, potentially affecting fraud detection effectiveness.

Institutional Theory therefore helps explain the sectoral differences identified in the literature review. Variations in regulatory intensity, stakeholder expectations, and governance requirements contribute to differences in internal audit quality and fraud management practices across industries. Consequently, organizations in sectors facing stronger institutional pressures are generally more likely to invest in advanced internal auditing capabilities and comprehensive fraud control mechanisms.

Synthesis of the Theoretical Framework

Taken together, Agency Theory, Fraud Triangle Theory, and Institutional Theory provide a comprehensive framework for understanding the relationship between internal audit quality and fraud detection effectiveness. Agency Theory emphasizes the monitoring role of internal auditing in reducing conflicts of interest and information asymmetry. Fraud Triangle Theory explains how effective auditing reduces opportunities for fraudulent behaviour through stronger internal controls and monitoring systems. Institutional Theory highlights the influence of external regulatory and stakeholder pressures in shaping audit practices across industries.

The integration of these theories is particularly relevant to this study because it facilitates a comparative examination of manufacturing, banking, and oil and gas sectors. While Agency Theory and Fraud Triangle Theory explain the mechanisms through which internal audit quality influences fraud detection, Institutional Theory provides insight into why these mechanisms may differ across sectors. Together, the theories offer a robust foundation for analysing how internal audit quality contributes to fraud detection effectiveness in diverse organizational contexts.

Methodology

This study adopts a qualitative descriptive research design based on a systematic review of conceptual, theoretical, and empirical literature on internal audit quality and fraud detection effectiveness across the manufacturing, banking, and oil and gas sectors. The approach is appropriate because it facilitates a comprehensive examination of existing knowledge, identifies emerging patterns and sectoral differences, and provides a basis for evaluating how internal audit quality influences fraud management under varying organizational conditions.

Discussion

Sectoral Analysis of Internal Audit Quality and Fraud Detection Effectiveness

The literature reviewed and the theoretical perspectives discussed earlier collectively suggest that internal audit quality is a critical determinant of fraud detection effectiveness. However, the extent to which internal auditing contributes to fraud management varies across industries because organizations operate under different regulatory environments, technological conditions,

governance structures, and operational risks. Agency Theory highlights the monitoring role of internal auditing in reducing information asymmetry, while Fraud Triangle Theory emphasizes the importance of minimizing opportunities for fraud through effective controls. Institutional Theory further explains why audit practices differ across sectors as organizations respond to varying regulatory and stakeholder pressures. Against this backdrop, an examination of the manufacturing, banking, and oil and gas sectors provides valuable insight into how internal audit quality influences fraud detection effectiveness under different organizational realities.

Manufacturing Sector

The manufacturing sector operates within an environment characterized by complex production processes, extensive procurement activities, inventory management systems, warehousing operations, and multifaceted supply chains. These operational characteristics create numerous points at which fraud can occur, making effective internal auditing essential for maintaining accountability and operational efficiency. Unlike financial institutions, where fraud often revolves around digital transactions, manufacturing firms are particularly vulnerable to inventory diversion, procurement manipulation, payroll irregularities, asset misappropriation, and financial misstatements.

Within this context, internal audit functions extend beyond traditional financial reviews to encompass inventory verification, procurement assessment, cost-control evaluation, production efficiency analysis, and compliance monitoring. The effectiveness of these activities largely depends on the quality of the internal audit function. High-quality internal auditing strengthens oversight mechanisms, improves transparency across procurement processes, and enhances the reliability of inventory management systems. According to the Institute of Internal Auditors (2024), risk-based auditing and continuous monitoring significantly improve governance and accountability within production-oriented organizations.

A recurring theme in the literature is that technological innovation has become increasingly important in addressing fraud risks within manufacturing firms. Traditional manual monitoring systems are often insufficient to detect sophisticated fraud schemes involving inventory records, procurement transactions, and production costs. Consequently, organizations are increasingly adopting Enterprise Resource Planning (ERP) systems, continuous auditing frameworks, radio-frequency identification technologies, and real-time inventory tracking systems to improve audit effectiveness. Ezejiofor, Okoye, and Nwakoby (2024) found that manufacturing firms with independent and technologically enabled internal audit units demonstrate stronger occupational fraud prevention and improved operational accountability. Similarly, Adegbite and Uwuigbe (2023) reported that digital auditing systems and automated inventory management technologies significantly reduce procurement fraud and inventory manipulation within Nigerian manufacturing firms.

The growing integration of data analytics and automated compliance systems has further strengthened fraud detection capabilities. Chukwuani and Egiyi (2024) observed that technology-enabled auditing facilitates the early identification of unusual transactions and operational anomalies that might otherwise remain undetected. Recent advancements in artificial intelligence and predictive analytics have also expanded the ability of internal auditors to identify emerging fraud patterns. Al-Matari and Alosaimi (2025) noted that organizations implementing artificial intelligence-assisted audit systems experience improved fraud detection accuracy and reduced operational losses. Likewise, Adeyemi and Sanni (2026) argued that machine learning

algorithms and blockchain-based inventory systems are transforming manufacturing audit practices by enhancing transparency, traceability, and fraud prevention.

Despite these advancements, fraud detection effectiveness within manufacturing organizations remains uneven. The persistence of management interference, weak governance cultures, inadequate auditor independence, and insufficient employee training often limits the full benefits of technological innovation. In many developing economies, institutional weaknesses and corruption continue to undermine the effectiveness of internal audit systems. This suggests that technology alone cannot guarantee effective fraud management. Rather, sustainable improvements in fraud detection require a combination of technological capability, organizational commitment, ethical leadership, and strong governance structures. Consequently, manufacturing firms that integrate advanced audit technologies with robust governance frameworks tend to demonstrate greater resilience against fraud and operational inefficiencies.

Banking Sector

Among the three sectors examined, the banking industry arguably presents the most demanding environment for fraud management. The sector processes enormous volumes of transactions daily, operates within highly digitized systems, and faces constant exposure to cyber threats, insider abuses, compliance violations, and financial crimes. These realities make internal audit quality not merely a governance requirement but a strategic necessity for maintaining financial stability and public confidence.

The scope of internal auditing in banking has expanded significantly in response to these challenges. Modern internal auditors are expected to evaluate compliance frameworks, review cybersecurity controls, monitor anti-money laundering systems, assess digital banking operations, and conduct risk-based audits of complex financial activities. Consequently, the quality of internal auditing directly influences a bank's ability to detect and respond to fraudulent activities in a timely manner.

Unlike manufacturing firms, where fraud often involves physical assets and operational processes, banking fraud is increasingly technology-driven. Electronic fraud, identity theft, unauthorized transfers, insider abuse, phishing attacks, loan fraud, and cyber-enabled financial crimes represent some of the most significant threats facing financial institutions. To address these risks, banks have invested heavily in artificial intelligence, automated transaction monitoring systems, biometric verification technologies, predictive analytics, and continuous auditing platforms.

The effectiveness of these investments is reflected in recent empirical evidence. Ibrahim and Hassan (2023) found that banks utilizing automated auditing systems experience lower incidences of insider abuse, unauthorized transactions, and financial reporting manipulation. Their findings further indicate that real-time transaction monitoring significantly improves both the speed and accuracy of fraud detection. Similarly, Olayinka and Abdulrasheed (2023) reported that forensic audit technologies, including predictive analytics and digital tracing systems, enhance fraud identification and risk management within Nigerian deposit money banks. Al-Matari and Alosaimi (2025) further demonstrated that artificial intelligence-assisted audit systems strengthen fraud prevention by identifying suspicious behavioural patterns and abnormal financial activities in real time.

A key factor distinguishing the banking sector from other industries is the intensity of regulatory oversight. Regulatory authorities require banks to maintain independent audit committees, robust

compliance frameworks, cybersecurity governance structures, and anti-money laundering controls. According to the Association of Certified Fraud Examiners (2024), financial institutions implementing continuous auditing and advanced analytics systems recover fraud-related losses more effectively and reduce the duration of fraudulent schemes.

Furthermore, cybersecurity auditing has become a strategic component of internal audit quality within banking institutions. Adeyemi and Sanni (2026) noted that internal auditors increasingly evaluate cybersecurity controls, digital payment systems, and online banking infrastructures to safeguard organizations against evolving cyber threats. This development reflects the broader transformation of internal auditing from a reactive compliance function into a proactive mechanism for identifying and mitigating emerging risks.

Nevertheless, challenges remain. Insider collusion, regulatory non-compliance, technological vulnerabilities, and inadequate staff training continue to pose significant risks to fraud management efforts. However, compared with manufacturing organizations, banks generally exhibit higher fraud detection effectiveness because of stronger regulatory frameworks, greater technological sophistication, and more advanced monitoring systems.

Conclusion

This paper examined the relationship between internal audit quality and fraud detection effectiveness across the manufacturing, banking, and oil and gas sectors. Drawing on conceptual, theoretical, and empirical evidence, the study demonstrates that internal audit quality remains a fundamental component of effective fraud management and organizational governance. The analysis reveals that high-quality internal audit functions enhance fraud detection effectiveness through stronger monitoring systems, improved internal control evaluation, enhanced regulatory compliance, technological integration, and more effective risk management processes.

The comparative analysis further indicates that the influence of internal audit quality varies across sectors because of differences in operational structures, technological sophistication, governance arrangements, and regulatory environments. The banking sector exhibits the highest level of fraud detection effectiveness, largely due to advanced technological infrastructures, stringent regulatory oversight, and continuous monitoring frameworks. The oil and gas sector similarly demonstrates the strategic importance of internal auditing because of its exposure to high-value transactions, procurement risks, and compliance obligations. However, governance weaknesses, political interference, and institutional challenges may reduce fraud detection effectiveness in some jurisdictions. Manufacturing firms, while increasingly embracing digital auditing technologies, continue to face operational vulnerabilities associated with inventory management, procurement activities, and relatively lower levels of technological integration.

Viewed through the lenses of Agency Theory, Fraud Triangle Theory, and Institutional Theory, the findings reinforce the argument that effective internal auditing reduces opportunities for fraud, strengthens accountability, and enhances organizational legitimacy. The study therefore highlights that fraud detection effectiveness is influenced not only by technological capability but also by auditor independence, professional competence, ethical governance, and institutional support.

Overall, the evidence suggests that strengthening internal audit quality remains essential for improving organizational resilience in an increasingly complex and technology-driven business environment. Investments in technological innovation, continuous professional development, auditor independence, ethical leadership, and effective regulatory enforcement will be critical for

enhancing fraud detection effectiveness and sustaining organizational accountability. As fraud risks continue to evolve, organizations that adopt proactive, technology-enabled, and governance-driven internal audit practices will be better positioned to prevent financial misconduct, protect stakeholder interests, and achieve long-term sustainability.

Recommendations

Based on the findings of this study, the following recommendations are made;

- i. First, organizations should prioritize strengthening internal audit independence to minimize management interference and enhance professional objectivity. As highlighted in both Agency Theory and the empirical literature, internal auditors are more effective when they can perform their responsibilities without undue influence from management. Establishing independent audit committees, strengthening board oversight, and ensuring direct reporting lines between internal auditors and governance bodies can significantly improve audit credibility and fraud detection effectiveness. Such measures not only enhance accountability but also reinforce stakeholder confidence in organizational governance systems.
- ii. Second, organizations should invest continuously in professional capacity development for internal auditors. The discussion of sectoral experiences demonstrated that emerging fraud risks are increasingly technology-driven and require specialized expertise beyond traditional auditing skills. Consequently, training programmes should focus on areas such as forensic accounting, cybersecurity auditing, artificial intelligence applications, enterprise risk management, digital forensics, and fraud investigation techniques. Continuous professional development will enable auditors to identify evolving fraud patterns, assess emerging risks, and utilize advanced technological tools more effectively in fraud management processes.
- iii. A further priority involves the adoption of advanced audit technologies. Evidence from the banking, manufacturing, and oil and gas sectors consistently indicates that technology-enabled auditing enhances fraud detection accuracy and timeliness. Organizations should therefore invest in artificial intelligence applications, blockchain verification systems, continuous auditing platforms, machine learning algorithms, and data analytics tools to strengthen monitoring capabilities. Real-time transaction monitoring, predictive analytics, and automated compliance systems can facilitate the early identification of suspicious activities, thereby reducing the likelihood of significant financial and operational losses.
- iv. Regulatory authorities also have an important role to play in strengthening fraud management systems. Given the sectoral differences identified in this study, regulators should intensify monitoring and enforcement of auditing standards, corporate governance requirements, and compliance obligations. Stronger whistleblower protection mechanisms, anti-corruption frameworks, and regulatory monitoring systems are essential for promoting transparency and encouraging the timely reporting of fraudulent activities. Enhanced regulatory oversight is particularly important in sectors such as oil and gas, where governance challenges and political influence may undermine internal control effectiveness.
- v. In addition, organizations should cultivate ethical cultures that support transparency, accountability, and compliance with professional standards. The literature reviewed

demonstrates that internal audit quality is most effective when supported by ethical leadership and strong governance structures. Ethical organizational cultures encourage employees to report irregularities, strengthen compliance behaviour, and reduce opportunities for fraud. Accordingly, management should promote integrity-based leadership, reinforce ethical values through regular training, and establish effective mechanisms for reporting and investigating misconduct.

- vi. Finally, organizations should adopt a more integrated approach to fraud management by combining technological innovation, auditor competence, governance reforms, and risk-based auditing practices. Sustainable fraud prevention is unlikely to be achieved through isolated interventions. Rather, organizations must develop comprehensive fraud management frameworks that align internal audit functions with broader governance, risk management, and compliance objectives. Such an integrated approach will enhance organizational resilience and improve the overall effectiveness of fraud detection systems.

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