



Enhancing Financial Integrity in Ghanaian Microfinance Institutions Through Forensic Auditing: Assessing Its Role in Fraud Reduction



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Abstract: Microfinance institutions (MFIs) play a critical role in promoting financial inclusion and driving economic growth, especially in developing economies. However, the prevalence of fraud has increasingly threatened the stability and credibility of these institutions, particularly in Ghana. This study investigates the impact of forensic auditing as a mechanism to mitigate fraud in deposit-taking MFIs, with a focus on the Ghanaian context. Forensic audit, a specialised area of auditing aimed at uncovering financial misconduct, is examined for its effectiveness in reducing fraudulent activities. Data were collected from 92 professional accountants using a purposive sampling method and a structured questionnaire based on a 5-point Likert scale. One hypothesis was formulated to assess the relationship between forensic auditing and fraud reduction, and regression analysis was conducted using the Statistical Package for Social Sciences (SPSS). The results revealed that, at a 5% significance level, the coefficient of the dummy variable representing forensic audit implementation was 2.57. This indicates that the reduction of fraud in MFIs implementing forensic audits was, on average, 2.57% higher compared to those without such audits. These findings underscore the importance of forensic auditing in enhancing financial integrity within MFIs and suggest that its mandatory enforcement by shareholders and regulatory bodies could significantly improve investor confidence in the sector. The study contributes to the limited body of research on forensic auditing in the context of Ghana and highlights its potential to strengthen the financial governance of MFIs, thereby promoting their long-term sustainability.

Keywords: Forensic auditing; Fraud mitigation; Microfinance institutions (MFIs); Financial integrity; Ghana

1. Introduction

Microfinance is widely recognised as a powerful tool for alleviating poverty (Russell et al., 2021), promoting financial inclusion, and driving the economic growth and development of many nations (Geremewe, 2019; Mecha, 2017). The microfinance industry has evolved to offer a broad range of financial services, including micro-savings, loans, remittances, and insurance, targeted at underserved populations, low-income earners, and small-scale enterprises (Adnan & Kumar, 2021; Nasrin et al., 2017). In Ghana, MFIs are crucial to the banking sector, providing financial services to economically active but underserved households, thereby playing a significant role in closing the financial inclusion gap (Odoom et al., 2019). The microfinance sector in Ghana supports more than eight million customers, 62% of whom are women (Kusi et al., 2019), and provides employment for over 16 million individuals (Ashley & Arhenful, 2020). However, the long-term success and sustainability of MFIs are heavily reliant on maintaining trust and integrity in their operations.

Ghana's microfinance sector comprises a diverse array of institutions, categorised into four tiers:

- Tier 1 includes rural and community banks, as well as savings and loans companies, which are classified as formal financial institutions.
- Tier 2 encompasses microfinance companies, deposit-taking non-governmental financial organisations, and credit unions.
- Tier 3 consists of money lenders and non-deposit-taking financial non-governmental organisations.

- Tier 4 covers susu collectors and independent money lenders.

The regulatory framework governing Ghana's microfinance sector is shaped by three key legislative acts: the Non-Bank Financial Institutions Act, 2008 (Act 774), the Bank of Ghana Act, 2002 (Act 612), and the Banking Act, 2004 (Act 673) (Atiase & Dzansi, 2019).

Ghana witnessed substantial growth in microfinance businesses during the 2000s (World Bank Group, 2016). Notwithstanding the important contributions of MFIs to the development of the Ghanaian economy, fraudulent practices and insolvency appear to have drawn Ghana's microfinance business into corruption, resulting in a significant loss of public trust in the sector. These fraudulent practices occurred in several ways, including the Board of Directors abusing their positions to acquire facilities exceeding the regulated limit for insider-related loans without the intention to repay such facilities (Bank of Ghana, 2019). Also, there were suppressions of customers' accounts by some employees of the MFIs through alterations of documents, card fraud, and forgery (Bank of Ghana, 2019). In some instances, employees created ghost accounts to take loans, including recorded artificial expenditures (Dadzie-Dennis et al., 2018). Again, there were reports of software used to delete recorded transactions (Boateng et al., 2016). Other fraudulent practices included collection of international remittances by persons who were not specified as recipients, as well as fraudulent transfers through hacked email accounts (Boateng et al., 2020; Sarpong, 2020).

These events have compelled the Bank of Ghana to report the directors of 30 MFIs to the Economic and Organized Crime Office (EOCO) for investigations and prosecution into misappropriation and deception (GhanaWeb, 2021). In 2013, about 50 MFIs collapsed in Ghana due to the unsustainability of their operations (Boateng et al., 2020). In addition, 70 MFIs were closed down due to their failure to comply with Bank of Ghana requirements in 2016 (Ussif & Yussif, 2020). Furthermore, in 2019, the Bank of Ghana withdrew the licenses of 347 MFIs. These activities left only 137 MFIs operating in the microfinance industry in Ghana (Ussif & Ertugrul, 2020). Consequently, a significant number of local investors, particularly small-scale traders, lost significant part or all their investments (Odoom et al., 2019). These activities did not only undermine the financial health of the institutions but also erode the confidence of clients, investors, and other stakeholders, ultimately impeding the overall goal of financial inclusion and poverty alleviation.

Many financial statement users assume that auditors are responsible for verifying that the accounting and internal control systems set up by management are effective and properly followed to prevent fraud (Akeem, 2015; Sule et al., 2019). Effective accounting and internal control systems ensure that fraudulent practices in organisations are controlled (Imoniana et al., 2016). Auditors are mandated to conduct audits in line with the International Standard on Auditing to ensure, with reasonable certainty, that the financial statements in their entirety are free from material errors or fraud (IAESB, 2019). Consequently, the auditor's opinion on the financial statements can significantly impact stakeholders' confidence, especially investors and creditors (Henry & Ganiyu, 2017; Niyonzima & Soetan, 2018; Rena et al., 2016). However, the literature reports that financial audit has failed in reducing frauds confronting businesses globally. Both internal and external auditors often lack the necessary training in forensic audit to detect and prevent sophisticated modern crimes such as securities fraud, money laundering by organised criminals and other illegal financial transactions (Henry & Ganiyu, 2017; Matar, 2023; Tonui et al., 2018). While financial audit may reveal some crimes, the thorough disclosure and prosecution of these crimes require specialised techniques, which are believed to be provided by forensic audit (Ocansey, 2017).

Fraud can have an adverse effect on any business due to its debilitating impact (Maulidi & Ansell, 2021). Addressing fraud within MFIs would therefore require a multifaceted approach, and one increasingly recognised as effective is the utilisation of forensic audit (Boateng et al., 2020; Mosoti et al., 2022; Odoom et al., 2019). John et al. (2022) described forensic audit as an activity of examining and evaluating the financial records of an organisation for good governance and to establish whether or not fraud has been committed. As stated by Oyedokun (2017), forensic audit is a technique employed to determine whether accounting transactions are in agreement with various accounting and legal requirements and ultimately determine whether any fraud has been committed. With expertise such as having an investigative mindset, knowledge of fraud schemes, experience in handling fraud cases, proficiency in analytical and technology-driven techniques, and an understanding of legal processes, forensic auditors are able to investigate fraud, gather evidence, assist in the recovery of funds, and/or establish a basis for civil or criminal action (Madzivire et al., 2020; Perera & Undugoda, 2020). By applying the requisite knowledge and skills, forensic auditors are able to "look behind the numbers" to probe into the cause of fraud (Coenen, 2022) and be able to recommend mechanisms for strengthening internal controls, with the aim of protecting the organisation against fraud, that can threaten the long-term viability of the organisation (Nandini & Ajay, 2021).

Clearly, forensic audit is a specialised investigative technique that involves the review and evaluation of transactions, financial records, and other pertinent evidence to uncover instances of fraud or financial misconduct. In the context of MFIs in Ghana, forensic audit holds significant potential in detecting, preventing, and mitigating fraudulent activities. As far as the researchers are aware, no recent studies have examined the impact of forensic audit on frauds in deposit-taking MFIs in Ghana. Ocansey (2017) investigated the relevance of applying forensic accounting methods to combat economic crimes in Ghana using a survey research design. The study only surveyed

66 employees of the Economic and Organized Crime Office, potentially restricting the generalisability of the findings to MFIs. This study was an attempt to fill that gap in forensic audit and fraud literature by providing empirical evidence and practical insights regarding the specific role and impact of forensic audit in reducing financial frauds in deposit-taking MFIs, particularly in the context of Ghana. This study was constituted to achieve the following objectives (RO):

RO1. To determine the role of forensic audit in reducing fraud within MFIs.

RO2. To determine whether forensic audit should be employed by MFIs to reduce fraud.

RO3. To ascertain the effectiveness of forensic audit in reducing fraud within MFIs.

The study would provide valuable information to management of microfinance and other financial institutions, in addition to policy makers to implement forensic strategies that can contribute to strengthening the integrity, stability, and sustainability of the microfinance sector, ultimately advancing financial inclusion and socioeconomic development in the country.

The remainder of the paper is organised as follows: the following section discusses the theoretical underpinnings of the study, as well as a thorough examination of the concepts of fraud and forensic audit. The subsequent sections detail the methodology utilised in the study and present the findings derived from the data analysis. The paper concludes with a thorough discussion of these results and the overall implications of the study.

2. Literature Review and Hypothesis Development

2.1 The Fraud Triangle and Fraud Diamond Theories

The Fraud Triangle, developed by Cressey (1953), is the most widely accepted theory for explaining the reasons behind fraudulent behaviour (Perera & Undugoda, 2020; Puspasari, 2015). The Fraud Triangle Theory posits that three factors (each forming a side of the triangle) collectively lead to fraudulent behaviour. These factors are pressure, opportunity and rationalisation. Pressure represents the financial force stimulating the person to commit the fraud; opportunity is the ability to commit the fraud secretly without being caught; and rationalisation is the ability of the perpetrator to justify the illegal act in his or her mind. Wolfe & Hermanson (2004) extended the Fraud Triangle into a four-cornered diamond by adding “capacity” as a fourth factor that helps explain why individuals commit fraud. The authors argued that while a perpetrator may have the pressure, opportunity, and rationalisation to commit fraud, the perpetrator must also possess the capability to conceal it. The Fraud Triangle and Fraud Diamond theories are pertinent to the current research because they can provide context to the consequences of fraudulent acts and available evidence, which could enable the final results to be traced back to their causes by the forensic auditors to identify the perpetrators for prosecution and recovery of the funds. Also, these theories may provide managements who are accountable for the detection and prevention of corporate fraud with an insight into the factors that could be exposed and dealt with before any fraud is committed.

2.2 The Meaning of Fraud

Fraud is a worldwide phenomenon that impacts every organisation irrespective of their size, the industry, or the country in which they operate (Bhasin, 2013). Fraud occurs when someone intentionally deceives another by misrepresenting, hiding, or omitting facts about promised goods or services to gain financial benefits (Stanford Center on Longevity, 2015). Albrecht et al. (2011) describe fraud as a deceptive act involving false representations about a material fact, made either deliberately or recklessly, which the victim believes to be true. Van Driel (2018) posits that fraud occurs when individuals in positions of trust or responsibility prioritise their personal interests over public interests by deviating from established standards and rules. Fraud, therefore, involves exploiting or misleading someone about specific facts with the intent of obtaining property or financial gain. According to Boateng et al. (2020), fraud usually succeeds where there are complex processes, confusion, or a large amount of disorganised financial transactions.

As stated by Van Vlasselaer et al. (2015), fraud includes an unusual, well-thought-out, unnoticeably concealed, time-consuming, and usually carefully organised crime that occurs in various forms. In developing the fraud profile for specific organisations, Thompson (2022) categorised fraud into three parts, namely: asset misappropriation, in which employees steal or misuse the organisation’s resources; corruption, in which employees influence business transactions to gain direct or indirect benefits; and financial statements fraud, in which employees intentionally cause misstatements or omissions of significant information in the organisation’s financial statements. In a recent study, Li & McMurray (2022) classified fraud broadly into two main groups: internal frauds, where employees in positions of trust identify an opportunity to commit acts of fraud; and external fraud, where individuals or entities outside the organisation, including service providers and suppliers, perpetrate against organisations. Specific to the microfinance sector, Akinyomi (2012) identified common types of fraud such as cheque kiting, account opening fraud, cash theft, collusion in loan issuance, falsification of financial data, improper loan write-offs, and ghost loans.

2.3 Forensic Audit

In recent years, there has been high demand for forensic auditing due to the inability of statutory audit to prevent corporate fraud cases (Madzivire et al., 2020; Nandini & Ajay, 2021). Forensic audit, which is part of forensic investigation has been defined as the use of accounting techniques to trace and gather forensic evidence, typically for the prosecution of fraudulent activities (www.businessdictionary.com). According to Oyerogba (2021), forensic audit is an activity of examining and evaluating the financial records of an organisation for good governance and to establish whether or not fraud has been committed. Similarly, Oyedokun (2017) describes forensic audit as a method used to determine whether accounting transactions are in agreement with various accounting and legal requirements and ultimately determine whether any fraud has been committed. Forensic audit combines accounting, investigative, and auditing expertise to determine fraud and to pierce the veil of a corporate entity to establish the intentions of the perpetrators of the fraud (Kumari Tiwari & Debnath, 2017). “Forensic” implies suitable for use in a court of law (Crumbley et al., 2005).

In accounting, the term “forensic” means using accounting information for resolving disputes by a law court. Forensic audit is an element in forensic investigations. As far as Adesina et al. (2020) are concerned, forensic audit is a specialised service in external audit of financial statements, focusing on fraud detection (John et al., 2022) and to improve management accountability, corporate governance, and the financial reporting system (Agyei-Mensah, 2018). Oyedokun (2015) identifies seven steps involved in forensic auditing, namely: (1) meeting with the client; (2) performing a potential conflict assessment (3) performing an initial investigation; (4) developing an action plan. (5) obtaining the relevant evidence; (6) performing the analysis; (7) preparing and presenting the report to the appropriate appointing party. Forensic audit reports are typically detailed and thoroughly supported, featuring a well-documented chronology of events (Olagunju et al., 2020).

According to Mircheska et al. (2020), the main difference between forensic and financial audits is their purpose. Financial audit verifies the accuracy of financial records to assure investors and creditors, while forensic audit addresses specific issues like employee fraud or disputes, as defined by the audit client. The methodologies used in forensic auditing include detailed evidence collection, fraud detection techniques, interviews, transaction tracing, legal coordination, and expert testimony. These methodologies clearly distinguish forensic audits from general financial audit which involves reviewing financial statements, assessing internal controls, sampling, substantive testing, analytical procedures, compliance testing, and reporting (Đukić et al., 2023).

In summary, forensic audit includes a broad spectrum of investigative procedures, frequently carried out to pursue legal action against individuals or entities involved in fraud, embezzlement, or other financial crimes.

2.4 The Role and Impact of Forensic Audit in Reducing Fraud

Several studies have demonstrated that forensic audit is more effective than independent audit in reducing fraud within financial institutions (Adeniyi, 2016; Đukić et al., 2023; Enofe et al., 2015; Tonui et al., 2018). The Association of Certified Fraud Examiners (ACFE) in its “Report to the Nations” consistently emphasised the role of forensic audit in uncovering and preventing fraud. Organisations that employ forensic auditors or conduct regular forensic audits tend to have lower incidences of fraud (Association of Certified Fraud Examiners, 2024). Forensic auditors use their investigative mindset, understanding of fraud schemes, experience with fraud issues, and expertise in analytical, technology-driven, and legal processes to investigate fraud, gather evidence, aid in fund recovery, and support civil or criminal actions (Madzivire et al., 2020; Perera & Undugoda, 2020). By applying the requisite knowledge and skills, forensic auditors are able to “look behind the numbers” to probe into the cause of fraud (Coenen, 2022) and be able to recommend mechanisms for strengthening internal controls, with the aim of protecting the organisation against fraud, that can threaten the long-term viability of the organisation (Nandini & Ajay, 2021).

Concerning the effectiveness of forensic audit in reducing financial fraud, Adeniyi (2016) investigated the impact of forensic audit on financial fraud in Nigeria and found that forensic audits significantly improve fraud control and enhance court adjudication of financial fraud cases. Similarly, Onodi et al. (2015) found that forensic auditing has a significant impact on reducing fraud in the Nigerian banking sector, demonstrating a strong relationship between forensic audits and fraud reduction. Evidence of forensic audit was usually obligatory in the prosecution of fraud cases. Again, the study by Tonui et al. (2018) demonstrated that forensic audit has a positive and significant impact on fraud detection and prevention, suggesting that forensic audit is an effective tool for combating fraud within MFIs in Kenya. MFIs, especially in Bomet County of Kenya actively applied forensic audit in probing suspect financial transactions, thereby strengthening the internal control systems of such institutions. A similar study by Mosoti et al. (2022) indicates that employing forensic auditing techniques has led to a decrease in fraud in deposit-taking MFIs in Kenya. As a result, the study suggests that MFI management ought to prioritise increased investment in auditing and investigation techniques to enhance their financial performance.

Henry & Ganiyu (2017) maintained that the implementation of forensic audit provides banks in Nigeria with the needed tools to reduce fraud. The implementation of forensic audit enables the core banking operations to be

tested from time to time. In the same jurisdiction, John et al. (2022) examined the relationship between forensic auditing and fraud management, focusing on Pabod Breweries in Port Harcourt, Nigeria. Data was collected from staff using questionnaires, and the analysis employed percentages and Pearson correlation. The findings revealed a significant positive relationship between forensic auditing and both fraud detection and prevention in the private sector. The study concluded that forensic audits are effective in identifying and preventing fraud. The authors recommended that companies conduct forensic audits annually, even if not legally mandated, to enhance fraud detection within their organisations.

A recent study by Khan & Thakur (2023) evaluated the role of forensic audit in managing fraud within MFIs in India based on secondary data. The findings demonstrated that forensic audit is an effective tool in preventing fraud in MFIs. Accordingly, the authors recommended incorporating advanced AI technologies, such as text mining, into forensic auditing practices to enhance fraud management in Indian MFIs. In Ghana, Tawiah (2017) examined how forensic auditing tools have been used to prevent and reduce financial fraud in financial institutions. However, the study primarily employed a descriptive approach and was confined to Barclays Bank's Tamale Main Branch, located in the Tamale Metropolis of Ghana's Northern Region. The findings revealed security risks, as valuable documents and assets were exposed to unauthorised individuals, including customers. The study recommended that constant training is essential to maintain the effectiveness of fraud detection and prevention strategies.

The reviewed literature revealed that most of the previous research on forensic audit and fraud reduction in MFIs was conducted outside of Ghana, where cultural and regulatory environments differ considerably. Furthermore, the scope of similar studies in Ghana was too narrow. The studies used small or specific samples, such as employees of a single organisation or region, which may not reflect broader trends in forensic auditing practices. Given these gaps, there is a strong need for research that provides a more comprehensive understanding of the specific role and impact of forensic audit in reducing financial frauds within deposit-taking MFIs in Ghana.

Based on the literature reviewed, one hypothesis was formulated and tested at a significant level of 5% as follows:

H1. Forensic audit serves as an effective tool for reducing financial fraud within MFIs.

3. Methods

This study employed a quantitative survey strategy to examine the role of forensic audits in reducing financial malpractices within deposit-taking MFIs in Ghana. The choice of the survey strategy was to gather data from the sample of individuals of interest more quickly and in a highly economical manner than would otherwise have been the case (Ponto, 2015). In this case, primary data was collected from 92 professional accountants in Ghana, experienced in auditing and forensic services. These accountants play a crucial role in preparing and auditing financial statements and are key decision-makers in organisations. The purposive sampling method was used to target participants with specific expertise relevant to the study (Niyonzima & Soetan, 2018). As stated by Serra et al. (2018), purposive sampling can introduce selection bias by including only those who meet the researcher's specific criteria. To mitigate this, clear and objective criteria were used to select a varied group of participants with relevant expertise for the study.

Data was collected using a structured, paper-based Likert scale questionnaire with five response options, ranging from strongly disagree (1) to strongly agree (5), to generate dependable quantitative data and ensure clarity in coding and analysing the responses (Alhassan et al., 2022). The development of the questionnaire was guided by the research objectives. The items of the questionnaire were carefully adapted from prior studies that evaluated and measured comparable research objectives (Adeniyi, 2016; Mosoti et al., 2022). The questionnaire was divided into four parts. Part 1 gathered demographic information of respondents; Part 2 collected data about respondents' level of satisfaction with the effectiveness of independent audit in reducing fraud and whether or not they would demand forensic audit instead of independent audit as a means of reducing fraud; Part 3 collected data about respondents' opinions regarding the impact of forensic audits on fraud reduction in MFIs. In Part 4, respondents were allowed to provide additional comments on fraud and forensic auditing. The researchers personally administered the questionnaires. This method of administering the questionnaire produced a high rate of response because individual attention was given to the respondents. To ensure validity, the questionnaire was double-checked, and pretested with academic experts in accounting and finance, who carefully made necessary modifications to enhance its relevance and appropriateness for the study's subject matter (Gani et al., 2020). The reliability of the questionnaire was assessed using Cronbach's alpha, yielding a result of 0.85. The Cronbach's alpha value exceeded the 0.7 threshold, indicating that the questionnaire was highly reliable (Tavakol & Dennick, 2011). The questionnaire design ensured anonymity because the names of respondents were not required on the questionnaires that were administered (Perera & Undugoda, 2020). The responses to the questionnaires were examined using descriptive statistics with SPSS (version 25), and a linear dummy variable regression was conducted to assess the effectiveness of forensic audit in reducing financial fraud in MFIs.

4. Results

4.1 Respondents' Demographic Characteristics

A total of 92 responses, representing 92% of the 100 questionnaires distributed to professional accountants in Ghana, were deemed to contain useful information for the study. As shown in Table 1, the majority of respondents (63%) were male, while 37% were female. The data further indicated that approximately 81.5% of respondents were between the ages of 31 and 50 (65.2% between 31 and 40, and 16.3% between 41 and 50), a demographic typically regarded as the experienced working age bracket. Additionally, Table 1 reveals that the majority of respondents (68.5%) held Master's degrees, alongside their professional accounting qualifications.

Table 1. Respondents' demographic characteristics

Characteristics	Frequency	Percent
Gender		
Male	58	63.0
Female	34	37.0
Age group (in years)		
> 20-30	7	7.6
31-40	60	65.2
41-50	15	16.3
< 50	10	10.9
Educational qualification		
Higher National Diploma (HND); ICAG	5	5.4
Bachelor degree; ICAG	24	26.1
Master's degree; ICAG	63	68.5

Source: Field data summary, 2023

4.2 Level of Satisfaction with the Effectiveness of Independent Audit in Reducing Fraud

The study first examined the respondents' level of satisfaction with the effectiveness of independent audit in reducing financial fraud and whether they would demand forensic audit instead of independent audit as a means of reducing financial malpractices in MFIs. Table 2 below clearly indicates that the majority of respondents (51.09%) were not satisfied with the use of independent audit in reducing financial fraud in MFIs. Cumulatively, only 34.78% (10.87%+23.91) were satisfied or very satisfied with independent audit as a means of reducing financial malpractices within MFIs in Ghana. This finding aligns with existing literature that conventional internal control systems and auditing have not been successful in reducing financial fraud (refer to Odoom et al., 2019; Tonui et al., 2018). This suggests that the continuous reliance on independent audit against forensic audit will continue to increase fraud cases not only in the MFIs, but also in other organisations across all sectors, which will eventually hinder economic growth and development.

Table 2. Level of satisfaction with the effectiveness of independent audit in reducing fraud

Response	Frequency	Percent
Very satisfied	10	10.87
Satisfied	22	23.91
Average	9	9.78
Somewhat satisfied	4	4.35
Not satisfied	47	51.09
Total	92	100.0

Source: Field data summary, 2023

Table 3. Demand for forensic audit as a tool for reducing fraud

Response	Frequency	Percent
Yes	80	87.0
No	12	13.0
Total	92	100.0

Source: Field data summary, 2023

With the majority of respondents not satisfied with the use of independent audit to reduce financial fraud in MFIs, the next analysis sought to determine whether respondents would demand forensic audit instead of independent audit as a means of reducing financial malpractices within MFIs (refer to Table 3). The results clearly

indicate that the majority of the respondents (87.0%) demand the use of forensic audit other than independent audit for fraud reduction in MFIs in Ghana.

The variables in Table 4 are the indicators of the respondents' opinions regarding the role of forensic audit in reducing fraud in MFIs.

Table 4. Forensic audit's role indicators

E1 = Forensic audit provides sufficient and appropriate evidence for legal proceedings in cases of fraud.
E2 = Forensic audit assists in the recovery of misappropriated funds.
E3 = Forensic audits serve as a highly effective tool for uncovering financial fraud.
E4 = Forensic audit is an effective mechanism for identifying related party transactions.
E5 = Forensic audit helps management to be more diligent in performing their functions.
E6 =Forensic audits link the accounting and legal professions, playing a key role in reducing fraud.
E7 =Forensic audit aids in assessing and reviewing an organisation's current policies.
E8 =Forensic audit enhances control systems, aiming to safeguard the business from financial crimes.
E9 =Forensic audit helps government agencies and regulatory bodies to enforce regulatory requirements.
E10 =Forensic auditors make management accountable to shareholders and other stakeholders to ensure good corporate governance.
E11 =Forensic auditing facilitates clear and effective communication between management and staff.
E12 = Forensic auditing helps clients reduce reputational risk and commercial loss

Source: Field data summary, 2023

Table 5 presents the responses to the roles of forensic audit in reducing fraud in MFIs. From this table, group 1 is the category of responses of those who either disagreed or strongly disagreed, while group 2 is the category of responses of those who either agreed or strongly agreed to forensic audit as an indicator in reducing fraud.

Table 5 reveals that all twelve exact significant values of 0.000 are less than 0.05 ($p < .005$), suggesting that the respondents were unanimous on the roles of forensic audit in reducing fraud. Notably, based on the significant factors from Table 5, about 88% of the respondents either agreed or strongly agreed that "forensic audits serve as a highly effective tool for uncovering financial fraud in MFIs," while 82% of the respondents pointed out that "forensic audit enhances control systems, aiming to safeguard the business from financial crimes." This is followed by about 81% of the respondents who also agreed or strongly agreed that "forensic audit provides sufficient and appropriate evidence for legal proceedings in case of frauds" and "forensic assist in recovery of misappropriated funds" (79%). The study further revealed a tie among the opinions of the respondents that forensic audit "is an effective mechanism for identifying related party transactions" (73%); "links the accounting and legal professions, playing a key role in reducing fraud" (73%); and "helps clients to reduce reputational risk and commercial loss" (73%).

Hypothesis testing

This section sought to examine the effectiveness of auditing tools used in fraud reduction in MFIs using a linear dummy variable regression equation $Y = \beta_0 + \beta_1 D$, where Y is the respondents' rating of forensic audit's ability to reduce financial fraud and D is auditing tool category (the value of the financial audit as the dummy variable is 0, and 1 for the forensic audit). The main assumption of linear dummy variable regression is that the relationship between the dependent variable and the independent variables, including the dummy variables, is linear (Allen, 1997). The application of linear dummy variable regression allows for the inclusion of independent variables with a nonlinear relationship to the dependent variable. By converting these variables into dummy variables, nonlinearity is no longer an issue, as dummy variables are treated as regular variables in the analysis (Miller & Erickson, 1974).

From Table 6, the results indicate that the association between the respondents' rating of forensic audit's ability to reduce financial fraud and auditing tool category is statistically significant because the p-values (that is, 0.000) are below the significance level of 0.05. The regression equation is $\hat{y} = 5.63 + 2.57 D$ auditing tool.

According to the regression analyses performed for this data (refer to Table 6), the coefficient of the dummy variable was positive, which means that it had an impact increase in MFIs' ability to reduce fraud. It is statistically significant at the 5% threshold, indicating that forensic audits have a positive impact on MFIs' ability to reduce fraud. Thus, the coefficient of the D dummy variable (forensic audit) was found to be 2.57. This means that, the ability to reduce financial fraud is higher in MFIs where forensic audit implemented than in MFIs where forensic audit is not implemented by 2.57% on average. We evaluated the overall fit of the model using R-squared and adjusted R-squared to check how well the independent variable (including dummy variable) explains the variance in the dependent variable.

From Table 7, the results also show that the R^2 value of the model is 69.2%, implying that 69.2% of the variability in the respondents' assessment of how effectively forensic audit reduces fraud is attributed to the model that includes auditing tool categories as predictor variables. Also, the R^2_{adj} of 68.9% represents the proportion of variance explained by the predictors in the model, suggesting that it provides a good fit for the data. Thus, the findings revealed that the model relating auditing tool category is appropriate in estimating the respondents'

evaluation of forensic audit's effectiveness in reducing fraud.

Next, we performed an Analysis of Variance (ANOVA) to evaluate the model's effectiveness in predicting the relationship between the independent and dependent variables, specifically the link between forensic audit and fraud reduction. The results of this analysis are presented in Table 8 below.

Table 5. Responses to role of forensic audit in reducing fraud

		N	Observed Prop.	Test Prop.	Exact Sig. (2-Tailed)
E1	Group 1	16	0.19	0.50	0.000
	Group 2	70	0.81		
	Total	86	1.00		
E2	Group 1	18	0.21	0.50	0.000
	Group 2	68	0.79		
	Total	86	1.00		
E3	Group 1	10	0.12	0.50	0.000
	Group 2	76	0.88		
	Total	86	1.00		
E4	Group 1	23	0.27	0.50	0.000
	Group 2	63	0.73		
	Total	86	1.00		
E5	Group 1	23	0.28	0.50	0.000
	Group 2	60	0.72		
	Total	83	1.00		
E6	Group 1	23	0.27	0.50	0.000
	Group 2	62	0.73		
	Total	85	1.00		
E7	Group 1	21	0.25	0.50	0.000
	Group 2	63	0.75		
	Total	84	1.00		
E8	Group 1	15	0.18	0.50	0.000
	Group 2	67	0.82		
	Total	82	1.00		
E9	Group 1	20	0.24	0.50	0.000
	Group 2	65	0.76		
	Total	85	1.00		
E10	Group 1	22	0.26	0.50	0.000
	Group 2	64	0.74		
	Total	86	1.00		
E11	Group 1	27	0.31	0.50	0.001
	Group 2	59	0.69		
	Total	86	1.00		
E12	Group 1	23	0.27	0.50	0.000
	Group 2	63	0.73		
	Total	86	1.00		

Source: SPSS output

Table 6. Coefficient table

	Coef.	SE	T	P
Constant	5.63	0.149	37.82	0.000
Auditing tool	2.57	0.182	14.07	0.000

Source: SPSS output

Table 7. Model summary

S	R-Sq	R-Sq (adj)
0.8158	69.2%	68.9%

Source: SPSS output

Table 8. ANOVA on forensic audit and fraud reduction

Source	DF	SS	MS	F	P
Regression	1	131.76	131.76	197.97	0.000
Residual Error	88	58.57	0.67		
Total	89	190.32			

Source: SPSS output

From Table 8, the computed F value is 197.97 and the p-value is 0.000. The p-value of 0.000 is below the 0.05 threshold ($p < 0.005$). Therefore, we can infer that a linear relationship exists between the variables in the model. This finding suggests that forensic audit serves an effective tool for reducing financial fraud within MFIs.

5. Discussion

Fraud is a global phenomenon that affects every organisation irrespective of their size, the industry or country in which they operate (Bhasin, 2013; Maulidi & Ansell, 2021). Notwithstanding the important contributions of MFIs to the development of the Ghanaian economy, fraudulent practices and insolvency appear to have drawn the Ghanaian microfinance industry into improbity. Auditing fails to detect and prevent sophisticated modern crimes and other illegal financial transactions, which eventually results in investors and other stakeholders losing trust in the microfinance sector.

This study examines the role and impact of forensic audit in reducing financial fraud within deposit-taking MFIs with specific reference to Ghana. The study employed a quantitative survey strategy to collect primary data from professional accountants with experience in auditing and forensic services in Ghana. A total of 92 responses were analysed by SPSS to assess the research hypothesis. The results of the study reveal that forensic audit assists in detecting financial fraud, strengthening control mechanisms, providing sufficient and appropriate evidence for legal proceedings in cases of fraud, and assisting in the recovery of misappropriated funds. The findings of the current study align with existing literature, indicating that incorporating forensic audit into the audit process helps organisations strengthen internal controls, improve risk management, and support governance (Đukić et al., 2023; Matar, 2023; Nadaf, 2023). These roles are essential in increasing investor confidence in the microfinance and broader financial sectors. However, as Đukić et al. (2023) suggest, for forensic audit to effectively combat financial fraud, a multidisciplinary approach is necessary, incorporating forensic accountants, auditors, investigators, and legal experts. It would also require improved training programs to equip forensic auditors with the necessary competencies to provide higher-quality forensic auditing services capable of combating financial fraud.

The study also confirmed a significant relationship between forensic audit and fraud reduction. This means that forensic audits play a meaningful and measurable role in decreasing the occurrence of fraud. In other words, the implementation of forensic auditing practices effectively contributes to reducing fraudulent activities within MFIs. This finding is consistent with the research by Henry & Ganiyu (2017) and Mosoti et al. (2022), both of which reported a strong correlation between forensic audit and fraud reduction within MFIs in Nigeria and Kenya, respectively. Other studies (John et al., 2022; Khan & Thakur, 2023) have affirmed that forensic audit techniques play a crucial role in reducing financial misconduct within MFIs. With their accounting, investigative and analytical skills and mindsets, forensic auditors can help managements as well as internal and external auditors of MFIs to be more diligent in carrying out their functions to be able to reduce financial fraud (Coenen, 2022). Frequent employment of forensic audits can deter future fraud and promote a culture of accountability and ethical behaviour within an organisation (Đukić et al., 2023). Thus, even if forensic audit is not legally mandated, when employees know that their actions are being monitored, they are more likely to act responsibly and adhere to ethical standards.

6. Conclusions

The research concludes that forensic audit is an indispensable means of reducing financial fraud. Without overstating, the employment of forensic audit will help restore investor and public confidence in organisations and the economy as a whole, thereby promoting strong corporate governance. Policymakers could rely on the study's results to design more effective regulations and standards to mitigate financial irregularities within the microfinance sector, particularly in Ghana. The Bank of Ghana and professional accounting bodies such as the Institute of Chartered Accountants (Ghana) should work collaboratively with industry stakeholders to promote the adoption of standardised forensic audit practices within MFIs. This may involve developing guidelines, training programs, and certification processes to ensure that forensic auditors possess the necessary skills and competencies to effectively uncover and address fraud. With the existence of a standardised forensic audit framework, the Bank of Ghana and the Ghana Microfinance Institutions Network (GHAMFIN), which serves as the umbrella organisation for MFIs operating in Ghana, can mandate forensic auditing as a regulatory requirement, reinforcing the role of MFIs in maintaining financial integrity. Management of MFIs should prioritise capacity building by sponsoring staff to undergo specialised forensic auditing training and certifications. This will improve MFI's ability to effectively detect and mitigate fraud risks.

Although this article specifically explores the impact of forensic audits on reducing financial fraud to improve financial integrity within Ghanaian MFIs, the findings have broader relevance beyond Ghana and are applicable to other countries as well. The study may encourage collaboration between MFIs across similar economies, facilitating knowledge sharing and the development of best practices for fraud detection and prevention to improve governance, transparency, and accountability in MFIs across various emerging markets. The current study is

limited to using only professional accountants in Ghana. In addition, the sample size was small compared to the total population of professional accountants in the country. Consequently, the findings may not be generalised to all professional accountants in Ghana and other countries. A similar study is recommended to employ a larger sample size of professional accountants and also include the responses of other professionals, such as accounting academics who are responsible for training forensic auditors, attorneys who are the consumers of forensic audit services, in addition to managers who have major responsibility towards fraud in the organisations. Further research could be conducted to examine the challenges of employing forensic audit in reducing financial fraud in modern business establishments. This would help organisations build greater resilience against financial fraud, ensuring more robust financial management and integrity. Additionally, a longitudinal study could be conducted to track the long-term impact of forensic auditing on fraud reduction in Ghana.

Data Availability

The data used to support the research findings are available from the corresponding author upon request.

Conflicts of Interest

The authors declare no conflict of interest.

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