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Forensic Accounting Techniques and Occupational Fraud

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Abstract
Purpose: The study was to examine forensic accounting techniques and occupational fraud in Calabar muncipal council. The specific objectives were to: examine the effect of Benford's law on occupational fraud in Calabar municipal council; ascertain the effect of data mining on occupational fraud in Calabar municipal council; investigate the effect of computer –Assisted Audit technique on occupational fraud in Calabar municipal council.
Methodology: The study adopted a survey research design. The population of the study was 108 respondents from Calabar municipal. Purposive sampling was used in the study. Taro Yamane was used to determine the sample size of 85 staff. Appropriate information for this study was gathered from two main sources: the primary and secondary sources. The study adopted structured questionnaire.
Results and Conclusion: Multiple regression was used in the study. The major findings included: Benford's law has a positive significant effect on occupational fraud in Calabar muncipal council, data mining has a positive and non-significant effect on occupational fraud in Calabar muncipal council, computer-assisted audit tool has a positive significant effect on occupational fraud in Calabar muncipal council. This study concluded that forensic accounting is a powerful tool for combating occupational fraud, but its effectiveness depends largely on institutional capacity, technological readiness, and regulatory enforcement.
Implication of findings: Accordingly, Hence, the study recommended that organizations should integrate forensic accounting techniques into their internal control systems. Continuous training of forensic accountants should be prioritized properly. Governments should mandate forensic audits in high-risk sectors. There should be adoption of advanced technologies

Keywords: Forensic accounting techniques, occupational fraud, Benford's law, occupational fraud, data mining, computer –Assisted Audit technique.

1. Introduction

Forensic accounting has emerged as a strategic response to these deficiencies. It represents a multidisciplinary field that integrates accounting, criminology, data analytics, law, and investigative techniques to proactively identify, analyze, and present financial evidence suitable for litigation (Nursansiwi, 2024). Unlike statutory auditing, forensic accounting adopts a proactive, skeptical, and evidence-driven approach, focusing not only on whether fraud exists but also on how it is perpetrated. Furthermore, the integration of advanced technologies—such as artificial intelligence (AI), blockchain systems, and big data analytics—has significantly enhanced the scope and effectiveness of forensic accounting practices. As noted by Ali et al. (2024), predictive analytics and anomaly detection algorithms enable real-time fraud detection, thereby shifting fraud management from reactive to preventive paradigms. Despite these advancements, occupational fraud remains pervasive, particularly in developing countries like Nigeria, where institutional weaknesses, corruption, and limited adoption of forensic techniques persist (Ajagun et al., 2025). This paradox—availability of advanced forensic tools alongside persistent fraud—raises critical questions regarding implementation effectiveness, institutional capacity, and regulatory enforcement.

Forensic accounting has gained significant importance in Nigeria, particularly in the wake of global financial crises and specific corporate scandals. The need for enhanced scrutiny and accountability has driven the demand for forensic accounting practices to mitigate financial irregularities and restore trust in financial reporting. The aspects of forensic accounting, such as investigative accounting and litigation

support, help discover flaws and irregularities in financial data that could otherwise go unnoticed. Forensic accounting, a specialized branch of accounting, focuses on utilizing investigative techniques to uncover financial irregularities, detect fraudulent activities, and evaluate internal controls. By combining accounting expertise, investigative skills, and legal knowledge, forensic accountants play a pivotal role in uncovering financial misconduct, ensuring compliance with regulatory frameworks, and enhancing corporate governance practices. The application of forensic accounting in corporate settings enhances performance by promoting transparency, safeguarding assets, and ensuring accountability. Techniques such as asset tracing, data mining and computer Assisted techniques are designed to uncover unethical practices and mitigate their impact on organizational performance. Conversely, occupational fraud refers to fraudulent actions perpetrated by employees, management, or third parties against a company. This transpires when an employee misappropriates an employer's asset for personal purposes. This may happen when an employee borrows or misappropriates funds for personal use. It pertains to deception perpetrated by individuals against the entities that employ them. The research examined the impact of forensic accounting methods on occupational fraud.

The persistence of occupational fraud despite the proliferation of forensic accounting techniques represent a fundamental paradox in contemporary financial management. While organizations increasingly recognize the importance of fraud detection mechanisms, the actual incidence of fraud continues to rise, suggesting a disconnection between theoretical effectiveness and practical application. In Nigeria and similar developing economies, this problem is exacerbated by several structural and institutional deficiencies (Ogbaini et al., 2024). Moreover, traditional auditing practices remain dominant in many organizations, despite their well-documented limitations in fraud detection. These practices are inherently reactive and are not designed to uncover intentional deception, particularly when fraud involves management override or collusion (Odeyemi et al., 2024; Alkali et al., 2025). Empirical evidence further reveals inconsistencies in the effectiveness of forensic accounting across sectors and regions. While some studies report strong positive impacts, others highlight implementation challenges that limit its practical relevance (Ozili, 2023). This inconsistency suggests the need for a more nuanced understanding of the contextual factors influencing forensic accounting effectiveness. Therefore, the central problem addressed in this study is not merely the existence of occupational fraud, but the ineffective translation of forensic accounting knowledge into practical fraud mitigation outcomes. The specific objectives were to: examine the effect of Benford's law on occupational fraud in Calabar municipal council; ascertain the effect of data mining on occupational fraud in Calabar municipal council; investigate the effect of computer –Assisted Audit technique on occupational fraud in Calabar municipal council.

2. Literature review

Concept of Forensic Accounting techniques

Forensic means suitable for use in a court of law and it is a forensic accountant work. That is, it is the application of investigative and research skills, and an understanding of the legal process for the purpose of identifying, interpreting financial or other data or issues in connection with litigation services. Various definitions have been given to describe forensic accounting. Forensic accounting is the practice of applying accounting, auditing, and investigative talents to detect and explore fraud and other financial misrepresentations in court proceedings. Ozili (2023) described forensic accounting as an investigative style of accounting used to determine whether an individual or organization has engaged in any illegal financial activities. It provides an accounting analysis that is suitable in the court which will form the basis of discussion, debate and ultimately dispute resolution. The Fraud Triangle theory serves as the

study's foundation. According to the hypothesis, pressure, opportunity, and rationalisation are the root causes of fraud. Despite being widely accepted, the theory has come under fire for oversimplifying human behaviour and failing to take organisational and technological complexity into account (Ozili, 2023). By bolstering internal controls and monitoring systems, forensic accounting techniques directly address the opportunity component. They are less successful, nevertheless, in dealing with psychological factors like rationalisation, indicating the necessity for complementing ethical and behavioural frameworks.

Forensic accounting has evolved from a reactive investigative tool into a strategic governance mechanism. Early studies focused primarily on fraud detection, while recent literature emphasizes prevention, risk management, and corporate governance (Guellim et al., 2024). However, there is ongoing debate regarding whether forensic accounting should be institutionalized as a mandatory function or remain a specialized intervention tool. Modern forensic accounting increasingly relies on AI-driven analytics. These tools enable continuous monitoring and predictive fraud detection. However, concerns exist regarding data privacy, algorithmic bias, and high implementation costs (Ali et al., 2024b). Digital forensics has become indispensable due to the digitization of financial transactions. It enables the recovery and analysis of electronic evidence. Nonetheless, its effectiveness is constrained by cybersecurity limitations and lack of technical expertise (Alkali et al., 2025).

Occupational fraud has increasingly become a systemic threat to organizational sustainability, corporate governance, and economic development, particularly within emerging economies characterized by weak institutional frameworks. The Association of Certified Fraud Examiners (ACFE) consistently reports that organizations lose approximately 5% of their annual revenues to fraud, with occupational fraud representing the most prevalent category globally (Ozili, 2023). This underscores the urgency of adopting more sophisticated detection and prevention mechanisms. In contemporary organizational environments, fraud has evolved from simple asset misappropriation schemes to highly sophisticated, technology-driven manipulations involving complex financial instruments, cyber-enabled fraud, and collusive networks. Traditional auditing systems—largely compliance-driven and retrospective—have proven inadequate in identifying such dynamic and concealed fraudulent activities (Odeyemi et al., 2024). These limitations arise primarily from their dependence on sampling techniques, periodic reviews, and lack of investigative orientation.

Benford's Law and occupational fraud

This forensic accounting method, commonly referred to as the first-digit law, is a mathematical tool that can be used to ascertain if a variable under investigation is the product of fraud or inadvertent mistakes. The variable under study is carefully explored when such a phenomena is found. According to Benford's law, the pattern of manufactured figures is different from that of random figures. The processes of Benford's law are simple: after identifying the variable of financial significance, the variable's leftmost digits are extracted and summarised for the entire population. The summarisation is finished by determining the first digit field and computing the observed count percentage. Benford's law has numerous uses in underlying financial data that typically represent enormous data sets. Therefore, it's critical to avoid making fraudulent financial statements. Frequently, auditors are unable to completely prove the existence of errors in the financial accounts because of insufficient authorisation or a lack of specific knowledge. These circumstances necessitate the use of experts, such as forensic accountants, and the use of suitable analytical methods, models, and procedures, particularly when it comes to demonstrating abnormalities. Therefore, based on the above presumptions, the hypothesis below is formulated:

H1: Benford's law is positive and significantly related to occupational fraud in Calabar muncipal council

Data Mining and occupational fraud

The process of looking for previously undiscovered relationships in data is known as data mining. An organization can quickly query the system to identify questionable behaviours, like several payments for a single invoice or to a single recipient on a certain day, by using data mining to a data warehouse as a tool for controlling incorrect payments. Enquiries can also be made using data mining software, which contains pre-written queries that could be used frequently in the system. The auditing industry has been using data mining more frequently in recent years. Data mining makes it easier to evaluate large amounts of data in the attest function, which is a necessary part of auditing. Computer assisted audit software (CAATs) is used by auditors to improve the process' accuracy and dependability. The three fundamental ways of data mining are logic-based, distance-based, and mathematical-based. Neural networks, which are networks of nodes modelled after neurones or neural circuits that resemble the human brain, are used in the first method, which is mathematical in nature. The auditing profession uses these neural networks for a variety of tasks, including risk assessment, fraud and error detection, establishing a company's viability, assessing financial distress, and predicting bankruptcy. Therefore, based on the above presumptions, the hypothesis below is formulated:

H2: Data mining is positive and significantly related to occupational fraud in Calabar muncipal council

Computer-Assisted Audit Techniques and occupational fraud

Computer-assisted auditing is the ability to use technology to help auditors complete audit activities and generate accurate and timely results. The outcome contributes to increased audit efficiency. With CAATs, auditors can select transactions, fulfil predetermined requirements, get additional data about the effectiveness of controls, and test 100% of populations. CAATs are computer programs and tools that auditors use to process audit-relevant data from the organization's information systems. CAATs are methods and tools that are used to both directly examine the internal logic of an application and draw indirect conclusions about its logic by analysing the data it processes. Therefore, based on the above presumptions, the hypothesis below is formulated:

H3: Computer-Assisted Audit Techniques is positive and significantly related to occupational fraud in Calabar muncipal council

Empirical Literature

Ajagun et al. (2025) investigated forensic accounting techniques and fraud incidence using survey data from Nigerian public sector institutions, found that forensic accounting techniques significantly reduce fraud incidence. However, their study relied heavily on perceptual data, raising concerns about response bias and subjectivity. Similarly, Alkali et al. (2025) employed regression analysis to examine the relationship between forensic accounting and fraud prevention. Their findings indicated a strong positive relationship, particularly for fraud risk assessment and document examination. Nevertheless, the study was regionally limited, reducing its generalizability.

Ogbaini et al. (2024) adopted a case study approach and demonstrated that forensic accounting enhances internal control systems and promotes transparency. While insightful, case study methods often lack statistical robustness. At the global level, Ali et al. (2024) utilized advanced data analytics models and found that anomaly detection significantly improves fraud identification rates. This study represents a methodological advancement but may not be easily applicable in developing economies due to technological constraints. Guellim et al. (2024), through a systematic review, concluded that forensic

accounting contributes positively to organizational governance. However, they highlighted the lack of standardized frameworks for measuring its effectiveness. Importantly, Ozili (2023) argued that the effectiveness of forensic accounting is context-dependent, influenced by institutional quality, legal systems, and cultural factors. This suggests that forensic accounting is not a universal solution but must be adapted to specific environments.

Okoye et al. (2019) conducted a study investigating the effectiveness of forensic accounting in preventing fraud and its role in recovering lost funds through forensic litigation within selected Nigerian firms. The research utilized questionnaires distributed to accounting personnel at Nigeria Breweries Plc, Cadbury Nigeria Plc, Nigeria Bottling Company, and Dupril Forma Nigeria Ltd in Aba, Abia State, with a sample size of 190. The study employed descriptive statistics such as mean and standard deviation, alongside regression analysis, to assess hypotheses. Results indicated a significant positive influence of forensic accounting on fraud detection and prevention. However, forensic litigation did not show a significant effect on recovering fraudulently lost funds.

Ewa (2022) assessed the application of forensic accounting techniques in managing fraud within Nigeria's public sector ministries, departments, and agencies (MDAs). The study investigated the use of data mining, accounting ratios, and trend analysis tools in detecting and preventing fraud among 350 respondents including accountants, auditors, and IT specialists from Nigeria's South-South geopolitical zone. Employing multiple regression analysis and descriptive statistics, the research found that adopting forensic accounting tools significantly improves fraud detection and prevention within MDAs. The study also identified gaps in the application of these techniques and highlighted the importance of enhancing trend analysis practices.

Ariyo-Edu et al. (2024) investigated the impact of forensic accounting on the detection and prevention of public sector fraud in Kwara State, Nigeria, focusing on 15 MDAs. The scope of the study encompassed a survey conducted among 100 participants comprising accountants and internal auditors across diverse sectors within Kwara State. The research employed a structured questionnaire as the primary research tool and utilized both descriptive and inferential statistics for analysis. Finding revealed that forensic accounting techniques demonstrated a positive impact on fraud detection and prevention, particularly through data mining and ratio analysis.

Ehioghiren and Atu (2016) examined the forensic accounting and fraud management: evidence from Nigeria. The primary data used were sourced through a well - structured questionnaire administered to the sample 572 respondents. The study adopted ordinary least square regression technique and the result revealed that forensic accounting significantly influences fraud detection and control. Also, there was significant difference between the duties of professional forensic accountants and that of traditional eternal auditors.

Chukwuma et al. (2023) conducted quantitative research examining the impact of forensic accounting on the financial performance of deposit money banks in Nigeria. They used data from the Nigerian Central Bank's annual bulletins and Nigerian Stock Exchange publications from 2001 to 2020. Employing panel data analysis, the study employed a fixed-effect regression model, demonstrating the positive influence of forensic accounting on these banks' financial performance. The analysis highlighted a strong connection between using forensic accounting tools and the financial performance of these institutions. Pearson Correlation analysis further confirmed a significant and positive relationship between utilizing forensic accounting instruments and achieving success performance of deposit money banks.

Okoroyibo and Omoregie (2022) investigated the impact of forensic accounting on the performance of the Nigerian banking sector. The data for the study were collected from the annual reports and accounts of First Bank and United Bank of Africa (UBA) Plc over a twelve-year period (2007-2018). Multiple regression analysis was used in the research, employing forensic audit (FAUD) as the proxy for forensic accounting, treated as the independent variable. Meanwhile, net profit margin (NPM), profit after tax (PAT), and dividend per share (DPS) were considered as dependent variables. Results revealed a significant effect of forensic audit on the net profit margin of the selected Nigerian banks. Additionally, it was observed that forensic audit influences the profit after tax of these banks. The study also demonstrated a significant impact of forensic audit on retained earnings and dividend per share in the Nigerian banking sector.

Agboare (2021) investigated how forensic accounting affects the detection of financial fraud in Deposit Money Banks (DMBs) in Nigeria. The study utilized a survey research design and primarily relied on structured Likert scale questionnaires for collecting data. The obtained data were analysis through descriptive statistics and regression analysis. Results from the study revealed that employing forensic accounting techniques such as investigation, financial transaction analysis, and reconstructing incomplete accounting records significantly impacts the detection of financial fraud in Nigerian deposit money banks.

Taiya et al. (2021) investigated the effectiveness of forensic accounting techniques in curbing revenue leakage within Federal Universities in Nigeria. They employed primary data collection via a research questionnaire involving a sample of 238 participants. The study utilized regression analysis to discern and assess the relationship between forensic accounting techniques and revenue leakages. The findings suggested that forensic data analysis techniques positively impact revenue leakages in Nigerian federal universities, implying that such techniques can effectively uncover revenue losses.

Akinadewo et al. (2023) explored how forensic accounting contributes to improving the quality of financial Statements within the public sector's Ministries, Departments, and Agencies (MDAs). The research collected primary data by distributing questionnaires to accountants working in MDAs across the Southwest region. The sample consisted of 237 respondents, selected purposively. Both descriptive and inferential statistical analyses were employed to analyze the data. The findings indicated that proficient knowledge and skills in disruptive technologies such as cloud computing, Big Data, and business analytics among forensic accountants can play a pivotal role in enhancing the quality of financial reporting within the public sector.

Okoroyibo and Omoregie (2022) investigated the impact of forensic accounting on the performance of the Nigerian banking sector. The data for the study were collected from the annual reports and accounts of First Bank and United Bank of Africa (UBA) Plc over a twelve-year period (2007-2018). Multiple regression analysis was used in the research, employing forensic audit (FAUD) as the proxy for forensic accounting, treated as the independent variable. Meanwhile, net profit margin (NPM), profit after tax (PAT), and dividend per share (DPS) were considered as dependent variables. Results revealed a significant effect of forensic audit on the net profit margin of the selected Nigerian banks. Additionally, it was observed that forensic audit influences the profit after tax of these banks. The study also demonstrated a significant impact of forensic audit on retained earnings and dividend per share in the Nigerian banking sector.

Kaoje et al. (2020) investigated the impact of forensic accounting practices on the performance of companies by analyzing return on assets, return on equity, and net profit margin. The study aimed to establish the correlation between forensic accounting practices and company performance. The research

utilized a survey-based approach with the target population being all administrative staff members of the Cement Company of Northern Nigeria. Respondents were selected through purposive sampling. The study collected primary data by administering structured questionnaires and obtaining quantitative responses. Multiple regression analysis was employed to ascertain the relationship between forensic accounting practices and company performance metrics (ROA, ROE and NPM). The outcomes demonstrated a notable positive association between forensic accounting practices and return on assets, return on equity, and net profit margin.

Dada and Jimoh (2020) investigated the correlation between forensic accounting and financial crimes within the Nigerian public sector, focusing on assessing strategies implemented to diminish financial crimes and evaluating the impact of litigation support services on reducing financial crime within this sector. The study utilized a survey research design, employing linear regression analysis to assess empirical data gathered from questionnaires and oral interviews, testing the formulated hypotheses. Findings from hypothesis testing, conducted at a 5% level of significance, showed that litigation support services had a noteworthy and negative impact (reduction) on financial crimes in the Nigerian public sector.

Nwaiwu and Aaron (2018) conducted research to investigate the relationship between forensic accounting relevance, fraud detection processes, and the performance of selected listed companies in Nigeria. They employed a cross-sectional quasi-experimental design for this inquiry. Primary data obtained from structured questionnaires underwent analysis using descriptive statistics and correlation. The study's findings indicated a significant relationship between the proxies of the two variables, displaying both positive and negative associations.

Ekechukwu et al. (2018) investigated how forensic accounting affects the Nigerian banking sector's performance. They collected data from the annual reports and accounts of Guarantee Trust Bank and Access Bank Plc. for twelve years (2006-2017). The research applied a multiple regression method using forensic audit (FAUD) as a proxy for forensic accounting. Variables like net profit margin (NPM), Profit after tax (PAT), and dividend per share (DPS) were treated as independent variables. The findings revealed that forensic audits significantly impacted the net profit margin of the selected Nigerian banks. Additionally, the study observed that forensic audits had an influence on the profit after tax of Nigerian banks. Moreover, the research indicated a significant effect of forensic audit on retained earnings and dividends per share of Nigerian banks.

Udeh and Ugwu (2018) examined fraud in the Nigerian banking sector. Ex-post facto research design was adopted for the study. Data for the period 2006-2015 were collected from Nigeria Deposit Insurance Corporation (NDIC) annual reports. Data relating to fraud, bank profit, bank assets and bank deposits were collected. Descriptive analysis and Ordinary Least Square (OLS) method of regression analysis were used for the data analysis. It was discovered that fraud has negative but insignificant relationship with bank profit amongst others. This implies that even though as bank fraud increases, bank profit increases, but the amount of fund involved in fraud does not significantly affect bank profit.

Abuh and Acho (2018) indicate that forensic accounting has been globally acclaimed to be a veritable tool in fighting economic and financial crime towards achieving economic stability. This paper titled: Forensic Accounting and Economic Stability in Nigerian Public Sector: The Role of Economic and Financial Crime Commission'' is written to examine whether the use of forensic accounting has helped in combating financial crimes in Nigeria public sector through the effort of EFCC. The study elicits data from primary and secondary sources while the sample size of 116 was obtained out of the total population of 164 using

Taro Yamane sample size statistical technique. The method of data analysis is the 5 points likert scale for descriptive statistics and analysis of variance (ANOVA) in testing the research hypotheses.

Nwaiwu and Aaron (2018) examines the relationship between forensic accounting and quality assurance on financial reporting of public sector in Nigeria. The speculations on whether the changes introduced in forensic accounting and quality assurance on financial reporting will bridge the gap as a major concern of the research. Time series data on information communication and relevance were collected from selected public sector organization of 18 states in Nigeria, Federal Inland Revenue service, State Board of Internal Revenue Service and Federal Bureau of statistics. Pearson product moment coefficient correlation was used in analyzing the data with the aid of social package for social sciences 20. The statistical results indicate that there is no significant relationship between the variables of forensic accounting and quality assurance on variable of financial reporting.

Ile and Odimmega (2018) investigated the extent of use of forensic accounting techniques in the detection of fraud in tertiary institutions in Anambra State, Nigeria. One research question guided the study and one null hypothesis was tested. Related literature pertinent to the study was reviewed which exposed the need for the study. Descriptive survey research design was adopted and a population of 280 accounting officers in universities, polytechnics and colleges of education in Anambra State were studied without sampling. Questionnaire developed by the researcher was used for data collection. Data were analyzed using mean, standard deviation and one way Analysis of Variance (ANOVA). Mean was used to answer the research question and standard deviation was used to explain how the responses of the accounting officers varied. ANOVA was used to test the hypothesis at 0.05 level of significance. Statistical Package for Social Sciences (SPSS) was used to analyze data collected. The results showed that accounting officers in tertiary institutions in Anambra State use forensic accounting techniques to a high extent in the detection of fraud. The results also showed that the accounting officers in universities, polytechnics and colleges of education differed significantly in their mean ratings on the use of forensic accounting techniques in the detection of management fraud in tertiary institutions in Anambra State. Scheffe post hoc test of multiple comparisons was conducted to determine the direction of the difference. Based on the findings, the researcher recommended, among others, that accounting officers should be aware of the benefits of forensic accounting techniques in detecting fraud in their establishments and the severity of financial fraud as well as susceptibility of their organizations to fraud.

Oyedokun et al (2018) indicates that financial statements reflect the financial effects of business transactions and events on the entity, internal control system if adequate will help in reducing the activities of fraudulent stakeholders. Forensic accounting focus is on both evidence of economic transactions and reporting which is as contained within an accounting system. Cases of financial statement misrepresentation have been reported, affected companies and their auditors have gone down while shareholders were greatly affected. This study examined the relevance of forensic accounting techniques in ensuring the integrity of the financial statements. Stakeholders who were members of recognised professional accountancy bodies in Nigeria were requested to answer research questions. This study adopts survey research method with the use of primary data and purposive random sampling techniques. 350 copies of questionnaires were administered, and 321 questionnaires were returned, representing 92 per cent of the entire questionnaire. Nominal scale method was used in the demographic section while Likert scale was used in other sections of the questionnaire. Hypotheses were formulated, tested, and analysed using multiple regression analysis. It was found that forensic accounting techniques "FAT" (FPDDS, FAIIS, LMAS, and CARDR) have positive influence on the integrity of financial statements (IFS) of business organizations, as evidenced from the individual level of significance of 0.006, 0.045, 0.000, and 0.047 which are less than the 5 per cent acceptable level of significance and the coefficient

of determination of the main model of 0.23 meaning that about 23% variation of the IFS is attributable to FAT while the remaining 77 per cent change in the IFS can be attributed to other factors not covered in the model. It was also found that the inclusion of forensic accounting techniques will strengthen the activities of internal control functions. This is also evidenced by the sign and size of the coefficients, that is β4 - 7 are +0.203, +0.256, +0.270, and +0.134 respectively.

Test of hypotheses

Ho_1: There is no significant effect of Benford's law on occupational fraud in Calabar muncipal council

Ho_2: There is no significant effect of data mining on occupational fraud in Calabar muncipal council

Ho_3: There is no significant effect of computer Assisted Audit techniques on occupational fraud in Calabar muncipal council

3. Methodology

The study adopted a survey research design. The population of the study was 108 respondents from Calabar municipal. Purposive sampling was used in the study. Taro Yamane was used to determine the sample size of 85 staff. Appropriate information for this study was gathered from two main sources: the primary and secondary sources. The study adopted structured questionnaire. Hypotheses were tested using multiple regression. For the purpose of this study, the empirical model for this study is specified thus;

$Y = f(X_1, X_2, X_3)$

The econometric model is stated thus:

$OF = b_0 + b_1BFL + b_2DMT + b_3CAT + Ut$

Where

OF = Occupational fraud
BFL = Benford's law
DMT = Data mining
CAT = Computer-Assisted Audit
bo = Regression constant
$b_1.b_3$ = Regression parameters or coefficients
Ut = Stochastic error term

4. Results and discussion

TABLE 1: Heteroscedasticity test

Model Summary[b]

					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.480[a]	.230	.219	1.27981	.230	19.916	4	80	.000	1.576

a. Predictors: (Constant), BFL, DMT, CAT

b. Dependent Variable: OF

Source: SPSS output (2026)

TABLE 2: ANOVA on forensic accounting techniques

Mode		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	130.482	4	32.621	19.916	.000[b]
	Residual	435.687	80	1.638		
	Total	566.170	84			

a. Dependent Variable: OF
b. Predictors: (Constant), BFL, DMT, CAT
Source: SPSS version output (2026)

TABLE 3: Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
Model	B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1 (Constant)	3.869	1.577		2.453	.015	.763	6.975		
BFL	.126	.053	.133	2.385	.018	.022	.230	.924	1.082
DMT	.088	.057	.085	1.543	.124	-.024	.201	.964	1.037
CAT	.233	.045	.283	5.169	.000	.144	.322	.963	1.039

a. Dependent Variable: OF
Source: SPSS version output (2026)

Hypothesis one

Ho_1: There is no significant effect of Benford's law on occupational fraud in Calabar muncipal council

H_{A1}: There is a significant effect of Benford's law on occupational fraud in Calabar muncipal council

Test statistic: Multiple regression analysis.

Decision criteria: Accept the alternative hypothesis if P < 0.05 and reject the null hypothesis. The results indicated that the correlation between Benford's law and occupational fraud in the Calabar municipal council is 0.480 percent, signifying a substantial degree of linkage. The coefficient of determination (R^2) of 0.230 signifies that 23 percent of the variability in the dependent variable is explained by the independent variable. This implies that a unit change in conduct of the Bedford's law will improve occupational fraud by up to 23 per cent when other factors are held constant. Also, considering that F-test = 19.916; P<0.00; and t=2.385; the results show that asset Bedford's law has a positive significant effect on occupational fraud in Calabar muncipal council. We therefore, reject the null hypothesis, accept the alternative hypothesis and concluded that Benford's law has a positive effect on occupational fraud in Calabar muncipal council

Hypothesis two

Ho_2: There is no significant effect of data mining on occupational fraud in Calabar muncipal council

H_{A2}: There is a significant effect of data mining on occupational fraud in Calabar muncipal council

Test statistic: Multiple regression analysis.

Decision criteria: Accept the alternative hypothesis if (P <.05) and reject the null hypothesis. The results revealed that the relationship between data mining on the occupational fraud in Calabar muncipal council is 0.480 per cent, which indicates strong degree of relationship. The coefficient of determination

(R^2) of 0.230 indicates that up to 23 per cent of the variability in the dependent variable is accounted for by the independent variable. This implies that a unit change in conduct of the data mining will improve occupational fraud by up to 23 per cent when other factors are held constant. Also, considering that F-test = 19.916; P<0.00; and t=1.543; the results show that data mining has a positive and non-significant effect on occupational fraud in Calabar muncipal council. We therefore, reject the null hypothesis, accept the alternative hypothesis and concluded that Data mining has a positive and non-significant effect on occupational fraud in Calabar muncipal council

Hypothesis three

Ho_3: There is no significant effect of computer Assisted Audit techniques on occupational fraud in Calabar muncipal council

H_{A3}: There is a significant effect of computer Assisted Audit techniques on occupational fraud in Calabar muncipal council

Test statistic: Multiple regression analysis.

Decision criteria: Accept the alternative hypothesis if (P <.05) and reject the null hypothesis. The results revealed that the relationship between Computer-assisted audit tool and occupational fraud in Calabar muncipal council is 0.480 per cent, which indicates strong degree of relationshıp. The coefficient of determination (R^2) of 0.230 indicates that up to 23 per cent of the variability in the dependent variable is accounted for by the independent variable. This implies that a unit change in conduct of the Computer-assisted audit tool will improve occupational fraud by up to 23 per cent when other factors are held constant. Also, considering that F-test = 19.916; P<0.00; and t=5.169; the results show that Computer-assisted audit tool has a positive significant effect on occupational fraud in Calabar muncipal council. We therefore, reject the null hypothesis, accept the alternative hypothesis and concluded that Computer-assisted audit tool has a positive significant effect on occupational fraud in Calabar muncipal council.

From the tested hypotheses, it was found that Benford's law has a positive effect on occupational fraud in Calabar muncipal council. The finding is in line with the works of Ajagun et al. (2025) who posited that forensic accounting techniques significantly reduce fraud incidence. Their findings indicated a strong positive relationship, particularly for fraud risk assessment and document examination. Nevertheless, the study was regionally limited, reducing its generalizability. According to Benford's law, the pattern of manufactured figures is different from that of random figures. Benford's law has numerous uses in underlying financial data that typically represent enormous data sets. Data mining has a positive and non-significant effect on occupational fraud in Calabar muncipal council. The finding is in line with the works of Ogbaini et al. (2024) who posited that forensic accounting enhances internal control systems and promotes transparency.

Data mining makes it easier to evaluate large amounts of data in the attest function, which is a necessary part of auditing. The auditing profession uses these neural networks for a variety of tasks, including risk assessment, fraud and error detection, establishing a company's viability, assessing financial distress, and predicting bankruptcy. Computer-assisted audit tool has a positive significant effect on occupational fraud in Calabar muncipal council. The finding is in line with the works of Okoye et al. (2019) who posited that the effectiveness of forensic accounting in preventing fraud and its role in recovering lost funds through forensic litigation. Computer-assisted auditing is the ability to use technology to help auditors complete audit activities and generate accurate and timely results. The outcome contributes to increased audit efficiency. CAATs are methods and tools that are used to both directly examine the

internal logic of an application and draw indirect conclusions about its logic by analysing the data it processes.

5. Conclusion

This study establishes that forensic accounting is a powerful tool for combating occupational fraud, but its effectiveness depends largely on institutional capacity, technological readiness, and regulatory enforcement. The persistence of fraud despite available techniques highlights the need for a shift from mere adoption to effective implementation and integration. Forensic accounting, a specialized branch of accounting, focuses on utilizing investigative techniques to uncover financial irregularities, detect fraudulent activities, and evaluate internal controls. By combining accounting expertise, investigative skills, and legal knowledge, forensic accountants play a pivotal role in uncovering financial misconduct, ensuring compliance with regulatory frameworks, and enhancing corporate governance practices.

The application of forensic accounting enhances performance by promoting transparency, safeguarding assets, and ensuring accountability. Techniques such as data mining and computer Assisted techniques are designed to uncover unethical practices and mitigate their impact on organizational performance. Based on the findings, the study recommended that organizations should integrate forensic accounting techniques into their internal control systems. Continuous training of forensic accountants should be prioritized Governments should mandate forensic audits in high-risk sectors. There should be adoption of advanced technologies such as AI and data analytics should be encouraged

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