International Journal of Capacity Building in Education and Management (IJCBEM), Vol. 6, No. 5, 2024.
Available online at http://journals.rcmss.com/index.php/ijcbem. ISSN:2350-2312(E) ISSN: 2346-7231 (P)
Covered in Scopedatabase- https://sdbindex.com/Sourceid/00000432, google scholar, etc.
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Effect of Digital Forensic Accounting Technological Tools on Cyber Financial Fraud Detection Among Quoted Deposit Money Banks in Nigeria

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Abstract
Failure of statutory Auditors to meet the reasonable expectation of users of accounting information for decision-making in the banking industry despite the clean report issued; hence it has fueled the need for the use of digital forensic accounting technological tools to narrow down financial fraud cases in Nigeria's banking sector. The purpose of the study was to examine the effect of digital forensic accounting technological tools on fraud detection among quoted deposit money banks in Nigeria. The study population comprised 318 quality control officers of 8 quoted deposit money banks in Nigeria and a sample of 216 was used. Questionnaires were used to collect the data. The data were analyzed using SPSS 23. The reliability of the data gathered from the field was measured using Cronbach's Alpha to give an unbiased estimate of the data's generalizability. Descriptive statistics mainly percentages and frequency distribution were used for data presentation. Inferential statistics used were correlation and multiple regression analysis to test the relationship between the variables, and t-test and F-test for that purpose. The findings show that Advanced Analytics and AI has a significant effect on financial fraud detection among quoted deposit money banks in Nigeria, Communication Monitoring Software has a significant effect on financial fraud detection among quoted deposit money banks in Nigeria, Geospatial Analysis Tools have a significant effect on financial fraud detection among quoted deposit money banks in Nigeria and Encryption and Data Security Tools has a significant effect on financial fraud detection among quoted deposit money banks in Nigeria. Based on the findings the study recommends among others that Cybercrime is a really bad thing that bank need to stop or make it happen a lot less in Nigeria. Using Encryption and Data Security Tools measures can help stop the bad guys from stealing from people's bank accounts. The study showed that using Encryption and Data Security Tools can really help prevent financial fraud in Nigeria banks.
Keywords: *Digital, Forensic Accounting, Technological Tools, Cyber Financial Fraud Detection*

1. Introduction

The battle between banks and cybercriminals is ongoing, with both parties constantly evolving their techniques. Financial institutions adopt new technologies to prevent fraud, only for cybercriminals to exploit new vulnerabilities (ACI, 2020). Fraud in banking is now seen as a necessity due to advancements in e-banking (Kesharwani & Radhakrishna, 2019). Forensic accounting, rooted in early practices dating back to ancient times, has become an essential tool for detecting fraud. Today,

the challenge of combating fraud is exacerbated by workplace deception and the complexity of financial crimes (KPMG, 2016; Bhasin, 2021). Cybercriminals continue to refine their methods, targeting banks with high-tech crimes like account takeovers and data breaches (Bailard et al., 2022, Ibrahim, & Musa, 2022).

Digital forensic accounting tools have emerged as critical for fraud detection. These tools, such as advanced analytics, communication monitoring software, and geospatial analysis, help prevent fraud in deposit money banks (Musa, 2020; Omiya, 2019; Wisdom, 2019). However, Nigeria's banks remain vulnerable to fraud due to technological advancements, as seen in numerous fraud cases, with the Central Bank of Nigeria (CBN) intervening to safeguard depositor funds (Enofe et al., 2019; Zacharia, 2014). The failure to fully apply digital forensic tools is a significant factor in financial fraud, making forensic accounting crucial for fraud control and internal audit quality (Kennedy, 2019; Olukowade & Balogun, 2022). The rise in electronic fraud in Nigeria highlights the need for regulatory action to prevent further losses (Olaleye & Fashina, 2019, Ibrahim, & Musa, 2022).

Fraudulent activities in Nigeria's banking sector have surged, necessitating the use of digital forensic accounting tools for fraud detection (Owojori & Asaolu, 2019). Several studies, including those by Enofe et al. (2015), Modugu & Anyaduba (2020), and Zachariah et al. (2021), emphasize the importance of forensic accounting but highlight gaps in the application of digital tools in Nigerian deposit money banks (DMBs). Despite internal auditors and external audits, fraud persists, questioning their effectiveness (Omatta, 2016). This has pressured bank management to adopt forensic accounting services for better fraud control.

Forensic accounting is increasingly recognized for its role in detecting complex financial crimes. Previous research indicates forensic accounting tools improve fraud detection, yet their application in Nigeria remains limited (Gichira & Thambo, 2018). Additionally, forensic accounting's effectiveness is evident in curbing fraudulent schemes in DMBs, which continue to suffer due to a lack of comprehensive legal frameworks addressing card fraud (Gbegi, 2016). The study focuses on evaluating the impact of digital forensic accounting tools on fraud detection in Nigeria's DMBs. It aims to enhance the use of forensic accounting technological tools, which are essential for discovering fraud and strengthening control measures in the banking industry, *(*Ibrahim, & Musa, 2022).

This study specifically seeks answers to the following questions via findings.

i. to what extent does the use of Advanced Analytics and Artificial Intelligent affect financial fraud detection among quoted deposit money banks in Nigeria?
ii. to what extent does the use of Communication Monitoring Software affect financial fraud detection among quoted deposit money banks in Nigeria?
iii. to what extent does the use of Geospatial Analysis Tools affect financial fraud detection among quoted deposit money banks in Nigeria? and
iv. to what extent does the use of Encryption and Data Security Tools affect financial fraud detection among quoted deposit money banks in Nigeria?

2. LITERATURE REVIEW

Concept of Fraud Detection

Fraud detection involves using investigative skills to identify and expose deliberate actions by employees, third parties, or both to manipulate financial statements or leak sensitive customer information for fraudulent activities. It aims to uncover abnormal practices and deviations from standard processes, helping organizations recognize existing or potential crimes. Detecting fraud

focuses on identifying suspicious behavior or inconsistencies in financial operations within deposit money banks (Ibrahim, & Musa, 2022).

Fraud prevention, on the other hand, is a proactive approach to stopping fraud before it occurs. It involves closing off opportunities and mitigating factors that could lead to fraudulent activities. Preventive measures in deposit money banks may include restricting access to sensitive areas, requiring second-level authorization for certain transactions, maintaining thorough documentation and audit trails, and having a resident control officer to ensure adherence to internal and accounting controls. Such steps, as noted by Barra (2010) and Ozili (2018), are critical in preventing fraud and ensuring compliance with organizational protocols.

Concept of Digital Forensic Accounting

While technology has improved efficiency and convenience in financial transactions, the effectiveness of digital systems in mitigating risks remains a challenge. Digital forensic tools have become vital in swiftly acquiring and analyzing data, particularly in a landscape where information can quickly vanish. As digital crimes escalate, forensic accounting has emerged to address crimes involving computer systems, helping to detect fraud, financial mismanagement, and unauthorized access, (Ibrahim, *et. al,* 2022).

The rise of digital crime poses significant challenges, especially with the increasing complexity of online banking platforms. Digital forensic accounting, which involves collecting and analyzing data from electronic sources, is crucial for detecting crimes such as phishing and money laundering. However, evolving encryption techniques and incompatible data formats make digital crime harder to detect, highlighting the need for updated forensic tools, (Moses, *et. al,* 2022).

Fraud prevention in financial institutions involves a blend of cybersecurity, data analytics, and continuous monitoring. Organizations are increasingly employing advanced technologies to detect suspicious activities in real-time. Automated controls and sophisticated link analysis tools are essential for identifying potential fraudulent transactions early, reducing financial damage. Additionally, digital forensics and cybersecurity are not just technological issues but risks that need to be managed through a combination of defense strategies and proactive analysis. Ultimately, an integrated approach to fraud detection and prevention, including robust internal controls and advanced analytics, is key to safeguarding financial institutions, (Moses, *et. al,* 2018).

Digital Forensic Accounting Technological Tools and Financial Fraud Detection

Digital forensics, accounting, and fraud detection are closely integrated in Nigerian banks, particularly as the use of digital technologies in financial transactions increases. Digital forensics involves investigating and analyzing digital evidence, such as electronic transactions and email communications, to identify fraudulent activities (Omiya, 2020; Wisdom, 2019). In Nigerian banks, this often includes examining computer systems for signs of fraud.

Accounting plays a fundamental role in fraud detection by ensuring the accuracy of financial records. Accountants track financial transactions, detect discrepancies, and use financial analysis to uncover potential fraud (Ali, 2022). Fraud detection techniques in Nigerian banks combine digital forensics and accounting methodologies. This approach leverages advanced analytics and algorithms to detect suspicious patterns and thorough audits to identify irregularities in financial records (Ado, 2021).

Together, digital forensics and accounting form a robust fraud detection and prevention strategy. While digital forensics uncovers digital evidence, accounting ensures the integrity of financial

records. Fraud detection mechanisms then utilize insights from both fields to identify suspicious activities. This collaborative effort is essential in preventing and investigating fraud within Nigerian banking institutions, highlighting the importance of integrating both digital and accounting practices for effective fraud management, (Ejura, *et. al,* 2023)

Empirical Review

Ole, (2023) investigates digital analytical tools and technologies used in electronic fraud prevention and detection, used in the banking industry. The paper is based on a descriptive study which studied digital forensics and cyber fraud phenomenon using content analysis. To obtain the data questionnaires and interviews were administered to the selected informants from 22 banks. Convenience and judgemental sampling techniques were used. It was found that fraud detection and prevention tools and technologies would be the most effective way of combating e-fraud if they can be utilized. It is concluded that banking institutions should reshape their anti-fraud strategies to be effective by considering fraud detection efforts using advanced analytics and related tools, software, and applications to get more efficient oversight.

Similarly, Dada, *et al,* (2023) look at the relevance of forensic accounting in the effective reduction of fraudulent practices in Nigeria. They employed multiple regression techniques to analyze their empirical data through questionnaires and oral interviews. Findings revealed that fraud reduction is significantly and positively related to fraud investigation and detection through forensic accounting. The study recommends that a forensic accounting unit be established by the anticorruption commission and experts should be employed to ensure proper investigation of cases of fraud to assist the courts in effective prosecution of persons accused of fraudulent practices. The study was not carried out in quoted deposit money banks which creates a gap for further study in the banking sector. Modugu and Anyaduba, (2023) examined if there is significant agreement amongst stakeholders on the effectiveness of forensic accounting in financial fraud control, financial reporting and internal control quality. The study used a survey design in the study with a sample size of 143 consisting of accountants, management staff, practising auditors and shareholders. The simple random technique was utilized in selecting the sample size, while the binomial test was employed in the data analysis. The findings of the study indicate that there is significant agreement amongst stakeholders on the effectiveness of forensic accounting in fraud control, financial reporting and internal control quality. In line with the above findings, the study recommended that the Institute of Chartered Accountants of Nigeria, the Association of National Accountants of Nigeria and the National Universities Commission should encourage formalization and specialization in the field of forensic accounting. The study was not carried out in quoted deposit money banks which creates a gap for further study in the banking sector.

Abdullah *et al* (2023) determine the impact of using forensic accounting on financial corruption. The method adopted was a correlation research design. Data was collected by using interviews and questionnaires. Findings revealed that there is a significant relationship between forensic accounting methods and the effectiveness of the control and auditors (auditing bodies) to detect financial corruption cases; the majority of the audit and accounting personnel in Iraq are suffering from poor perception and information of the forensic accounting methods. They recommend that forensic accounting methods should add to the curricula of accounting departments in Iraqi universities at both levels of preliminary and higher studies through theoretical and practical classes. The study was not carried out in quoted deposit money banks which creates a gap for further study in the banking sector.

Cletus & Uwaoma (2022) examined the relationship between forensic auditing and fraudulent practices in Nigerian banking institutions. The study adopted the research survey design method in generating their necessary data through a structured questionnaire administered to the internal auditors and chief accountants of the selected banking institutions and the data generated were statistically tested with the Pearson Product-Moment Correlation Coefficient. The population of their study includes the general managers and accountants of 12 banking institutions in Nigeria. Their findings suggested that both the proactive and reactive forensic auditing techniques have a negative significant relationship with fraudulent practices in Nigerian banking institutions. The study recommends as follows: (i) The Economic and Financial Crime Commission (EFCC), the Independent Corrupt Practices Commission (ICPC), and other anti-corruption bodies in Nigeria should have, in their payroll, internal forensic auditors to supplement the duties of the internal auditors; (ii) Forensic auditors should regularly undergo training and development programs to acquaint them with relevant knowledge and skills for effective forensic auditing; and (iii) Forensic auditing should be made mandatory for banking institutions by regulatory authorities rather than being voluntary. The study was not carried out in quoted deposit money banks which creates a gap for further study in the banking sector.

Furthermore, Mukoro*, et al,* (2023) investigate how fraud can be managed and handled in business organizations. The research work was a survey research and the sampling technique employed to achieve their objective was purposive sampling with a sample of five companies selected using Statistical Packages for Social Sciences (SPSS). They use Regression Analysis to test all their hypotheses. However, findings show that internal control and its components play a significant role in controlling fraud in business organizations. The study recommends that internal control should be undertaken with effective continuous monitoring of the controls, and companies should be stricter with compliance with control procedures. The study was not carried out in quoted deposit money banks which creates a gap for further study in the banking sector.

Augustine & Uagbale-Ekatah (2023) examine the current views of Nigerian accounting practitioners and academics on the current development and relevance of forensic accounting in Nigeria. In their study, they adopted structured interviews to evaluate against known research findings on the practice of forensic accounting in Nigeria. Their findings from the study are as follows: Forensic accounting practice is largely considered to be at its infancy stage and lacking statutory support; (2) its relevance in unraveling complex official corruption is on the increase in Nigeria; and (3) it has no statutory backing and has no significant impact against corruption, fraud and financial crime in Nigeria. They recommend in their study that government and professional bodies in Nigeria need to accord forensic accounting a statutory role and distinct professional recognition. The study was not carried out in quoted deposit money banks which creates a gap for further study in the banking sector.

Theoretical Review

The study was built on Inspired Confidence. According to the theory, the demand for audit services is a direct response prompted by the participation of outside Stakeholders in a company. These stakeholders given their investment in and contribution to the company, unbiased accountability from the management who were employed by them. The Theory of Inspired Confidence, developed by Theodore Limperg in the 1920s, posits that the demand for audit services arises from external stakeholders seeking unbiased accountability from management. Given the potential conflict of interest between management and stakeholders, independent audits are essential to ensure trustworthy financial information. The theory emphasizes that auditors must perform their duties professionally to meet the expectations of rational users of financial data. This theory aligns with Bandura's concept of self-efficacy, where individuals believe in their ability to organize and execute

actions to achieve goals. Bandura's theory, rooted in social learning, suggests that self-efficacy is shaped by observing others, mastery experiences, and verbal persuasion. Critics of Bandura's theory argue that it overly focuses on cognitive aspects, particularly self-efficacy while overlooking emotional, social, and environmental influences on behavior. Cultural differences in self-efficacy beliefs are also not adequately addressed. Furthermore, the relationship between self-efficacy and behavior is complex, with other factors like past experiences and external incentives playing significant roles. Measuring self-efficacy is challenging due to its subjective nature, and self-report methods can be biased. Despite its limitations, the theory provides valuable insights into human motivation and behavior but should be integrated with other perspectives for a more comprehensive understanding.

3. METHODOLOGY

This study utilized a survey research design, targeting 318 quality control officers from 8 selected deposit money banks in Nigeria as of December 31, 2023. These banks, chosen for their international interactions and higher exposure to sophisticated digital fraud, were limited to their regional head offices in Abuja. Data were collected from quality control officers and compliance staff via a structured Likert-scale questionnaire (Oginni, *et.al,* 2014) a judgmental sampling technique was used to select banks with international authorization based on Central Bank of Nigeria (CBN) criteria. The simple random sampling technique was applied to select respondents, using a formula to proportionally allocate 120 questionnaires across the banks. The sample size for each bank was determined by dividing the population of each bank by the total population.

Data were sourced through primary methods (questionnaires) and secondary sources (literature, journals, and articles). Multiple regression analysis was employed to assess the linear relationship between digital forensic accounting tools and fraud detection in ensuring fraud-free operations within these banks, aligning with the study's objectives of empirically determining the effectiveness of these tools.

The statistical tool used in the analysis of the data collected were Descriptive Statistics and multiple regression analysis. The study variables of the study consist of Financial Fraud Detection (FFD) as the dependent variable, advanced analytics and AI (AAA), communication monitoring software (CMS), geospatial analysis tools (GAT), and encryption and data security tools (EDST) as the independent proxies. The data were processed both manually and electronically using Statistical Packages for Social Sciences (SPSS) 13.
The model for this study thus is stated in its functional form below:
FFD= f (AAA, CMS, GAT, EDST)
$FFD = \beta 0 + \beta 1\ AAA + \beta 2\ CMS + \beta 3\ GAT + \beta 4\ EDST + e$ ……. I
FFD= Financial Fraud Detection as the dependent variable,
AAA= Advanced Analytics and AI,
CMS= Communication Monitoring Software,
GAT= Geospatial Analysis Tools and
EDST= Encryption and Data Security Tools
$\beta 0$ = constant
$\beta 1, \beta 2, \beta 3, \beta 4$, are the coefficients
μ= error term

DATA PRESENTATION AND ANALYSIS

The main objective of this study is to effect of digital forensic accounting technological tools on fraud detection among quoted deposit money banks in Nigeria. This chapter covers data presentation, data analysis, tests of hypotheses and discussion of findings. The dependent variable of this study is financial fraud detection (FFD) while the independent variables are advanced analytics and AI, (AAA), communication monitoring software (CMS), and geospatial analysis tools (GAT), and encryption and data security software (EDST). One Hundred and twenty (120) questionnaires were administered to respondents but only one Hundred and sixteen (116) were filled and returned which represented about a 96.5% response rate.

Table 1 ***Descriptive Statistics***

Variables	Obs	Minimum	Maximum	Mean	Std Deviation
FFD	116	2.61	5.00	3.7440	.22542
AAA	116	2.90	5.00	3.8400	.31557
CMS	116	1.40	5.00	3.2201	.63052
GAT	116	2.30	4.80	4.4121	.36811
EDST	116	2.20	5.00	3.5122	.35128

Source: SPSS 23 Outputs

Table shows that financial fraud detection (FFD) in Nigeria's quoted deposit money banks has a mean value of 3.7440 with a standard deviation of 0.22542, and minimum and maximum values of 2.61 and 5.00 respectively. This suggests a wide dispersion of financial fraud detection and the implication of this is that there was no unanimous agreement as to the variables used as determinants of financial fraud detection amongst the respondents in Nigeria quoted deposit money banks. It also implies that the respondents in Nigeria's quoted deposit money banks do not have a uniform pattern of applying various methods in financial fraud detection among quoted deposit money banks in Nigeria.

Table 4.10 also indicates that the mean value of the advanced analytics and AI is 3.8400 with a standard deviation of 0.31557 and minimum and maximum values of 2.90 and 5.00 respectively. This suggests a wide dispersion of the mean of advanced analytics and AI from the standard deviation. This suggests a wide dispersion of the influence of advanced analytics and AI on Financial fraud detection and the implication of this is that there was no unanimous agreement as to the effect of advanced analytics and AI on financial fraud detection among quoted deposit money banks in Nigeria. It also implies that not all respondents agree that advanced analytics and AI enhance financial fraud detection among quoted deposit money banks in Nigeria.

In addition, Table presents a mean value communication monitoring software of 3.2201 with a standard deviation of 0.63052, the minimum and maximum are 1.40 and 5.00 respectively. The standard deviation value suggests a wide dispersion of the effect of communication monitoring software on financial fraud detection among quoted deposit money banks in Nigeria and the implication of this is that there was no unanimous agreement as to the communication monitoring software on financial fraud detection among quoted deposit money banks in Nigeria. It also implies that the respondents do not have a uniform pattern of applying monitoring software to enhance financial fraud detection among quoted deposits.

Furthermore, Table shows a mean value of geospatial analysis tools of 4.4121 with a standard deviation of 0. 36811, and minimum and a maximum of 2.30 and 4.80 respectively for geospatial analysis tools. This shows a wide dispersion of the effect of geospatial analysis tools on geospatial analysis tools and the implication of this is that there was no unanimous agreement as to the effect

of geospatial analysis tools on financial fraud detection among quoted deposits. It also implies that the respondents in Nigeria quoted deposit money banks do not have a uniform pattern in their geospatial analysis tools to enhance financial fraud detection among quoted deposits.

Similarly, the results in Table proved that encryption and data security tool have a mean value of 3.5122 with a standard deviation of 0. 35128 and minimum and maximum values of 2.20 and 5.00 respectively. The results show that there is a wide dispersion between the mean of encryption and data security tools and financial fraud detection among quoted deposits. The implication of this is that there was no unanimous agreement as to the effect of encryption and data security tools on financial fraud detection in Nigeria-quoted deposit money banks. It also implies that the respondents in Nigeria quoted deposit money banks do not have a uniform pattern of encryption and data security tools to enhance financial fraud detection in Nigeria quoted deposit money banks.

Spearman Correlation Analysis

This section presents the Spearman correlation coefficients of the dependent variable (financial fraud detection) and independent variables (advanced analytics and AI, communication monitoring software, geospatial, encryption, and data security tools) of the study as in Table 4.12 and the results show the degree of association and their levels of significance between the variables of the study. The correlation analysis of the study is indicated in Table 4.12 and was analyzed as follows:

Table 2. ***Correlation Matrix of variables***

Variables	Coefficients	FFD	AAA	CMS	GAT	EDST
FFD	Correlation Coefficient	1.000				
	Sig. (2-tailed)	.				
AAA	Correlation Coefficient	.622**	1.000			
	Sig. (2-tailed)	.000	.			
CMS	Correlation Coefficient	.453**	.272**	1.000		
	Sig. (2-tailed)	.000	.000	.		
GAT	Correlation Coefficient	.523**	.472**	.501**	1.000	
	Sig. (2-tailed)	.000	.000	.000	.	
EDST	Correlation Coefficient	.372**	.252**	.459**	.492**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.

Source: SPSS 23 Outputs

The Table shows that financial fraud detection had a positive and significant association with all the independent variables of advanced analytics &AI, communication monitoring software, geospatial analysis tools, and encryption and data security tools indicating that as these independent variables increase, financial fraud detection also increases. This can be confirmed with their coefficients of 0.622, 0.453 0.523, and 0.372 respectively while they had p-values of 0.000 each.

The Table shows that advanced analytics &AI (AAA) had a positive coefficient with all the other independent variables of communication monitoring software, geospatial analysis tools and encryption and data security tools indicating that as advanced analytics &AI increase, so also does communication monitoring software, geospatial analysis tools and encryption and data security tools increase at a significant level indicating that advanced analytics &AI greatly influence communication monitoring software, geospatial analysis tools and encryption and data security tools with coefficients of 0.272, 0.472 and 0.252 respectively while they had corresponding p-values 0.000, 0.000 and 0.000.

Communication monitoring software (CMS) had a positive and significant correlation coefficient of 0.501 and 0.459 respectively with geospatial analysis tools and encryption and data security tools. This means that as the communication monitoring software, these independent variables also increased significantly at a 1% level of significance.

Geospatial analysis tools (GAT) had a positive and significant correlation coefficient of 0.501 and 0.459 respectively with encryption and data security tools. This means that as the Geospatial analysis tools, the independent variables also increased significantly at a 1% level of significance. Finally, encryption and data security tools have positive and significant statistical correlation coefficients and P-values of 0.492 and 0.000 respectively with Geospatial analysis tools. These correlation coefficients imply that as encryption and data security tools increases Geospatial analysis tools also increase at a significant level.

Karimu, (2018) suggest that multicolinearity may be a problem when the correlation between independent variables is 0.9 and above where as Oshid (1992) considers more than 0.80 to be problematic. Therefore, it is evident from the above Table that the magnitude of the correlation amongst the explanatory and explained variables generally indicates no severe multicollinearity problems in the study because the highest correlation coefficient is 0.622.

Regression Analysis

This section presents the regression results of the dependent variables; financial fraud detection (FFD) and also presents the independent variables of the study namely; advanced analytics and AI, communication monitoring software, geospatial, encryption, and data security tools which are followed by an analysis of the independent variables on dependent variables individually and cumulatively.

Regression Results of the Study

Variables	Coefficients	T-Values	P-Values
Constants	1.79	6.138	.001
AAA	.441	8.635	.023
CMS	.304	5.363	.022
GAT	.144	2.243	.015
EDST	.066	1.136	.000
R^2	0.544		
Adj. R^2	0.612		
F-Stat.	50.543		
F- Sig			0.00

Source: SPSS 23 Outputs

Findings from the regression analysis results as shown in Table 4.13 reveal that under the model FFD (Financial fraud detection) the R-squared often referred to as the coefficient of determination of the variables was 0.544. The R-squared which is also a measure of the overall fitness of the model indicates that the model is capable of explaining about 54% of the variability of the financial fraud detection among quoted deposit money banks in Nigeria. This in other words also, indicates that the model explains about 54% of the systematic variations in the dependent variable. This result is equally complimented by the adjusted R-squared which reveals that 61% of the variation in the dependent variable of the model is explained by variations in the independent variables. This is also confirmed by Fisher's (F) statistics of 50.5 which is statistically significance at a 1% level of significance with a p-value of 0.000.

Test of Hypotheses

Regression results used for the test of hypotheses comprising hypotheses 1-4 of the study.
Table shows that the regression results of the model, advanced analytics and AI (AAA) have a positive and significant coefficient of 441and a p-value of 0.003 and this implies that advanced analytics and AI have a positive and significant effect on financial fraud detection among quoted deposit money banks in Nigeria.

Table shows that; the regression results of the model have a positive coefficient of 0.304 and a p-value of 0.013 for Communication Monitoring Software. This implies that there is a positive and significant effect of Communication Monitoring Software on financial fraud detection at a 1% level of significance. This finding implies that as Communication Monitoring Software increases the level of financial fraud detection among quoted deposit money banks increases at a significant level. Table shows that; the regression results of the model have a positive coefficient of 0.144 and a p-value of 0.015 for Geospatial Analysis Tools. This implies that Geospatial Analysis Tools have a positive and significant effect on financial fraud detection among quoted deposit money banks in Nigeria. This finding implies that as Geospatial Analysis Tools increase the level of financial fraud detection also increases at a 1% level of significance.

Table shows that; the regression result of the model has a positive coefficient of 0.066 and a p-value of 0.000 for top Encryption and Data Security Tools. This implies that there is a positive and insignificant effect of Encryption and Data Security Tools on financial fraud detection. This finding implies that as Encryption and Data Security Tools increase the level of financial fraud detection also increases at an insignificant level.

Discussion of Result

The first objective was to determine the effect of advanced analytics and AI (AAA) on financial fraud detection among quoted deposit money banks In Nigeria. Various methods were used to arrive at the findings. Table shows the R square of 0.544 which indicates that 54.4 % of the variation in the advanced analytics and AI (AAA) can be explained by a unit change in financial fraud detection and correlation coefficient Empirical studies carried out by Gollwitzer et al. (2020); and Singleton & Singleton (2017) confirmed that advanced analytics and AI is some of the major determinants that contribute to the financial fraud detection in the banking sector.

The second objective of the study was to examine whether Communication Monitoring Software (CMS) has no significant effect on financial fraud detection among quoted deposit money banks in Nigeria. Various methods were used to arrive at the findings. Table shows the R square of 0.554 which indicates that 54.4.0% of the variation in the Communication Monitoring Software (CMS) can be explained by a unit change in financial fraud detection and correlation coefficient R with 0.304, indicates a moderate relationship between Communication Monitoring Software (CMS) and financial fraud detection. The finding also consonance with the study of Barbadillo & Aguilar (2018) reveals an inverse relationship between a lack of Communication Monitoring Software and financial fraud detection.

The third objective to examine the effect of Geospatial Analysis Tools (GAT) on financial fraud detection among quoted deposit money banks in Nigeria. Table 4.13 shows the R square of 0.544 which indicates that 54/4 % of the variation in the Geospatial Analysis Tools (GAT) can be explained by a unit change in financial fraud detection and correlation coefficient R with 0. 144, indicating a strong relationship between Geospatial Analysis Tools (GAT) and financial fraud detection. This

study is further supported by Fazdly and Ahmed (2022) argue that since the primary purpose is to protect investors' investments by way of applying necessary measure to detect financial fraud will requires the service of Geospatial Analysis Tools.

The fourth objective of the study was to determine the effect of Encryption and Data Security Tools on financial fraud detection among quoted deposit money banks in Nigeria. Table shows the R square of 0.544 which indicates that 54.4 % of the variation in the Encryption and Data Security Tools can be explained by a unit change in financial fraud detection and correlation coefficient R with 0.066, indicates a moderate relationship Encryption and Data Security Tools and financial fraud detection. A study by (Gray, 2018), established that conventional view that Encryption and Data Security Tools can be used to combat this recent cybercrime stirring in the banking industry. Further, in another research found that that technological knowledge can perform fraud detection easily (Gray, 2018). They all agree that, there is significant relationship between Encryption and Data Security Tools and financial fraud detection among banking sector.

5. Conclusion and Recommendations

Conclusion

From the discussion, the study concludes that quoted deposit money banks in Nigeria have adopted various digital forensic accounting technological tools practices which include advanced analytics and AI, communication monitoring software, geospatial analysis tools, and encryption and data security tools. The study further concludes that there is a positive effect of digital forensic accounting technological tools services on fraud detection in the quoted deposit money banks in Nigeria.

A firm wishing to grow with reduced frauds must therefore put into place sufficient resources to be able to properly practice digital forensic accounting practice in its different departments. The study concludes that in order to sustain effective operations in the bank, fraudulent expense claims must be monitored since it was the most prevalent type of fraud which occurred in the banking sector. Theft of cash, physical assets, or confidential information was also affected to a greater extent. Payroll was affected the least. The study concludes that just as quoted deposit money banks use other means of reducing the occurrence of financial frauds, digital forensic accounting services provided confidence in financial fraud detection as it had a positive effect on financial fraud detection which could be committed by the employees in the bank and therefore should also be used in its efforts to reduce frauds.

5.1 Recommendations

The study makes the following recommendations which are consistent with the literature review.

i Bank management is advised to use more Advanced Analytics and AI in all financial-related transactions because Implementing Advanced Analytics and AI in the banking sector is not just beneficial but essential in the fight against fraud.

ii. Management should ensure 24-hour use of Communication monitoring software since is increasingly being integrated with financial fraud detection systems to enhance the ability of banks and financial institutions to prevent, detect, and mitigate fraudulent activities Communication monitoring software is a critical tool in the arsenal of financial institutions for detecting and preventing fraud.

iii. The study recommends that it is important to revise the banks' organizational structure for better alignment with the Geospatial Analysis Tools. This was to allow for clear functionality of different departments without conflicting with each other.

iv Cybercrime is a really bad thing that bank need to stop or make it happen a lot less in Nigeria. People have done research and found out different ways that cyber criminals try to trick people and steal their money. It's a big problem for banks in Nigeria, but there are things they can do to make it happen less.

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