



## Forensic Accounting Services as a tool for Fraud Mitigation in Selected Kwara State owned Tertiary Institutions in Nigeria

ADENIYI EMMANUEL OGUNWOLE, SHOLA ABDULLAHI JIMOH  
Federal Polytechnic, Offa, Kwara State, Nigeria

**Abstract.** This study examined the impact of forensic accounting services on fraud mitigation in selected tertiary institutions in Kwara State. Specific objectives examined the impact of investigation service and digital forensic service on fraud. The study adopted survey research design. The population for the study comprised of principal officers, bursary, account/audit staff of the six selected tertiary institutions in Kwara State. Stratified Random Sampling was used comprising of 157 staff of the selected institutions. Data were collected using a structured questionnaire. Data collected were analyzed using Partial Least Square and Structural Equation Model (PLS-SEM). With a path coefficient of 0.592 and 0.747 respectively, findings revealed that investigation service and digital forensic service of forensic accountants have a statistically significant negative impact on fraud. It was concluded that forensic accounting services have a significant impact on fraud in tertiary institutions in Kwara State. The study recommended amongst others that tertiary institutions should adopt a comprehensive anti-fraud strategy that combines fraud prevention, detection and prompt response measures. It was also recommended that tertiary institutions should engage the services of forensic accountants at the early stage of a suspected fraud case.

**Keywords:** Forensic Accounting, Fraud, Fraud Mitigation, Investigation Services, Digital Forensic Services, Kwara State, Tertiary Institutions, Corruption.

### 1. Introduction

Corruption and criminal activities pose significant challenges to the social, economic, and political well-being of nations worldwide. In Nigeria, these

issues are pervasive and almost an acceptable way of life. According to Dada and Jimoh (2020), financial crimes and fraudulent activities are identified as one of the most serious challenges faced by economies worldwide. These practices negatively impact the economy of any nation and society. Academics and stakeholders recognize these threats as fundamental problems in the Nigerian economy, negatively affecting its growth and development. The prevalence of such practices is most rampant among operators in public institutions, hindering the overall development of the Nigerian economy. The menace of unethical practices in various economic and government institutions, including financial, health, education, and public service, may be linked to employees' greed and lackadaisical attitudes within the regulatory environment. Despite laws and regulations aimed at discouraging such practices, they have not effectively reduced employee involvement, as evidenced by a progressive increase in such tendencies (Beggs & Harvison, 2023).

Control mechanisms have been put in place to discourage employees from engaging in fraud in Nigerian educational institutions. These mechanisms include internal audit departments and corporate governance codes. However, continuous fraud reports have not been resolved. To combat this, organizations have adopted forensic accounting practices (Harwood, 2016). Forensic accounting involves using auditing and investigative skills to examine financial statements for court use. This process differs from regular financial auditing, searching only for suspicious transactions and using a strict digital forensic process (Yang & Lee, 2020). This approach is crucial in Nigerian institutions to prevent such

fraudulent activities and maintain a strong corporate governance.

Institutions of learning require huge resources to fund research activities, physical infrastructure, and easy movement. These resources include government grants, budgetary provisions, internal revenues i.e. tuition fees and other charges, grants from donor agencies, individuals, and foreign institutions, and special interventions grants by government agencies e.g. Tertiary Education TrustFund (Tetfund), Sustainable Development Goals (SDGs) office of the federal government, NEEDS Assessment and so on (Ogunode, 2023). However, the availability and accessibility of these funds can lead to growing tendencies to commit fraud (Okoye & Mbanugo, 2020). To prevent required progress, it is crucial to capture these institutions for this study. In Kwara State, selected tertiary institutions fall into the categories of fully funded, partly funded, or receiving interventions from government agencies. This study aims to capture the importance of these resources in ensuring the optimal functioning of these institutions.

Nigerian educational institutions have consistently performed poorly globally due to a high level of fraudulent activities by employees (Eze & Okoye, 2019). This mismanagement of funds and fraud has negatively impacted the overall performance of these institutions, reducing the quality of education and knowledge acquired by students. The negative effects are felt by all, highlighting the need for improved funding and governance in educational institutions (Odudu & Okpe, 2021). According to Occupational Fraud (2022), published by the Association of Certified Fraud Examiners (ACFE), organizations lose about 5% of their total annual revenue to fraud. The US Chamber of Commerce estimates that 75% of employees steal from the workplace, with most doing so repeatedly. According to Kaoje et al. (2020), fraud negatively impacts economies and moral integrity, and is often perpetuated by employees who are expected to uphold professional responsibilities.

Awodiran et al. (2023), Okoye and Mbanugo (2020), Ombu (2023), Ugwu (2021), Nikkel (2020), Haruna et al. (2020), and Ombu (2023) have all mentioned the benefits of forensic accounting services (investigation and digital forensic services) in preventing and detecting fraud. Their research showed how important it has been to use forensic accounting in fraud instances. Despite this, there are still a number of fraud incidents at Nigerian tertiary institutions. The

general expectation in Kwara State is that forensic accounting can help curb financial crimes in tertiary institutions, but there is a lack of emphasis on its impact on fraud prevention.

## 1.1 Research Objectives

The main objective of the study is to investigate the impact of forensic accounting services on fraud mitigation in selected Kwara State owned tertiary institutions. The specific objectives are to:

- examine the impact of investigation services of forensic accountant on fraud in tertiary institutions in Kwara State.
- determine the impact of digital forensic services of forensic accountant on fraud in tertiary institutions in Kwara State.

## 2. Literature Review

### 2.1 Conceptual Review

#### 2.1.1 Fraud

Ribaux and Souvignet (2020) defined fraud as a non-violent crime and illicit activity aimed at obtaining illegal wealth, either individually, in a group, or in an organized manner. This act violates existing legislation governing the economic activities of the government and its administration. Common motivations for fraud include meeting personal, social, and economic needs, as well as the need to meet compensation-based targets (Li, Chang, Wang, & Zhu, 2023). Fraud in financial reporting is a deliberate attempt by corporations to deceive or mislead users of published financial statements, especially investors and creditors (Whitty, 2019).

In law, fraud is intentional deception to secure unfair or unlawful gain, or to deprive a victim of a legal right. Fraud can violate civil law (a victim may sue the fraud perpetrator to avoid the fraud or recover monetary compensation) or criminal law (a fraud perpetrator may be prosecuted and imprisoned by governmental authorities). The purpose of fraud may be monetary gain or other benefits, such as obtaining a passport, travel document, driver's license, or mortgage fraud (Narsa & Afifa, 2023).

From another perspective, fraud refers to human behavior involving deceit, strong desire, and trust violation. It can be committed by individuals, former employees, and outright outsiders, and involves the intentional alteration or manipulation

of material financial records and supporting documents (Ozili, 2020; Zhang, Wang & Kong, 2020). Fraud schemes vary in scope and context, and some types of fraud are industry-specific which include financial misappropriation, budget padding, vendor fraud, payroll fraud among others.

### **2.1.2. Forensic Accounting**

Forensic accounting involves the application of financial skills and investigative mentality to resolve unresolved issues within the context of evidence rules (Casey & Nikkel, 2020). This involves accounting and auditing, financial and investigative skills, to address unsettled issues. Ozili (2020) opined that forensic accounting helps in introducing internal control and fraud prevention by combining auditing and investigation skills. It is also used by competent courts to handle matters in contention in criminal and civil litigation, ensuring the competence of the accounting and analytical skills.

Tombs & Whyte (2019) posited that forensic accountants play a crucial role in detecting and preventing fraud in various sectors, including the public sector. They are trained to look beyond mere numbers and deal with business realities, extracting and analyzing financial evidence, developing computerized applications to assist in the analysis and presentation of financial evidence, communicating their findings in the form of reports, exhibits, and collect documents, and assisting in legal proceedings.

According to Beggs and Harvison (2023), forensic accountants are experts in analyzing business reality, focusing on the origins of money and the responsibility of those involved. They have proven effective in detecting and preventing fraud in the public sector, particularly in Nigeria. According to Kaur et al., (2022), their expertise in forensic accounting allows them to detect manipulated evidence, analyze financial documents, assess damages caused by auditor negligence, and use fact-finding as evidence against defaulters. Their role extends to various sectors, including the public sector, where they provide valuable insights and support in legal proceedings, ensuring the protection of financial evidence and transaction integrity.

#### **2.1.2.1. Investigation Services of Forensic Accountants**

AICPA (2008), forensic accountants are essential professionals in the field of accounting, specializing in the investigation of financial fraud, misconduct, and irregularities. They use specialized techniques and forensic analysis to identify suspicious transactions, trace financial irregularities, and gather evidence to support fraud allegations (Haruna et al. 2021). Forensic accounting proactively integrates accounting, criminology, computer forensics, litigation services, and auditing investigative services into the investigation of future-oriented business problems, meeting legal standards (Oyeleye & Obi, 2018). They conduct thorough reviews, examining and analyzing financial and non-financial information to assess the integrity, risks, and compliance of a business or individual. Their services are crucial in uncovering evidence, analyzing financial data, and providing expert opinions in legal proceedings.

#### **2.1.2.2. Digital Forensic Service**

The continuous increase in electronic accounting has led to a significant rise in the use of computer and network technologies in business accounting functions. This has led to the development of techniques to identify, preserve, analyze, and present digital evidence in investigations and legal proceedings. Forensic accountants have developed techniques to identify, preserve, analyze, and present digital evidence in investigations and legal proceedings (Yakubu & Oyedokun, 2021).

According to Haruna et al. (2021), digital forensic involves using scientifically derived and proven methods to present, collate, validate, identify, analyze, interpret, document, and present digital evidence derived from digital sources. This process aims to facilitate or further the reconstruction of events found to be criminal or help anticipate unauthorized actions that disrupt planned operations.

With the increased reliance on digital systems, forensic accountants specialize in e-discovery and computer forensics. The four aims of the digital forensic process are to identify the evidence, preserve the evidence, recover the evidence, and present the evidence. Digital evidences should be organized, presented in a clear overview of the investigation, explained effectively, and presented in a transparent manner (Collie & Overill, 2020).

#### **2.1.2.3. Penalty**

The Advanced English Dictionary defines penalties as punishments imposed for breaking laws, rules, or contracts within an organization. These punishments serve as a deterrent and maintain order, justice, and adherence to established norms. In the context of fraud, an employee's violation of these rules and laws is susceptible to punishment. Treadwell (2022) argues that imposing penalties on fraud perpetrators deters other employees from considering fraud as a solution to personal financial problems. Basuki and Ferdinandus (2021) also agree, concluding that sanctions have a negative effect on employee fraud. Nwanyanwu (2018) suggests organizations can impose various punishments, such as suspension from work, dismissal, and refund of stolen amounts, to discourage fraudulent practices. Meerts (2018) identifies warnings, demotion, suspension, and termination as settlements outside the purview of the justice system, based on internal regulations. It is expected that the punishment should match the offence committed, in line with the organization's fraud policy.

## 2.2 Theoretical Review

### 2.2.1 Policeman Theory

Policeman theory suggests that the audit process was responsible for searching, discovering and preventing fraud. The theory was popular and largely accepted until the 1940s. This theory claims that the auditor is responsible for searching, discovering and preventing fraud. In the early 20th century this was certainly the case. However, more recently the main focus of auditors has been to provide reasonable assurance and verify the truth and fairness of the financial statements. The detection of fraud is, however, still a strong topic in the debate on the auditors' responsibilities, and typically after events where financial statement frauds have been revealed, the pressure increases on increasing the responsibilities of auditors in detecting fraud. Policeman theory asserts that the auditor acts like a policeman who focuses on mathematical accuracy and prevents potential misstatements and also detects fraud (Brunelli, 2018).

The theory explains that auditing rests on the principle of arithmetic accuracy where the auditor is responsible for prevention and detection of fraud (Dauda & Olawale, 2019). Overtime, however, the focus of auditing has shifted from verifying the truth and fairness of financial statements to

providing reasonable assurance. In its development, policeman theory was unable to explain the role and purpose of auditing. The policeman theory narrows the auditor's responsibility to prevention and detection of fraud. It describes the expectations the stakeholders have of the auditors including protection against fraud, warning of future insolvency and the general reassurance of financial well-being (Olaoye et al., 2019). The weakness of policeman theory was later refined in Credibility theory. The Credibility theory explains that the main essence underlying an audit is the ability to strengthen the reliability of financial statement. The ability of financial information to influence the decision of users will depend on how credible the information is which comes from the technical abilities of the compilers of such information (Tjeng&Nopianti, 2021).

### 2.2.2 Fraud Diamond Theory

The Fraud Diamond Theory is a conceptual framework used to explain the factors that contribute to the occurrence of fraud within an organization. It is an extension of the fraud triangle theory, which was initially developed by Donald Cressey in the 1950s. The fraud diamond theory was proposed by Wolfe and Hermanson in 2004 and expands upon the original theory by introducing an additional dimension. The theory suggests that four elements interact to create an environment conducive to fraudulent behavior. These elements are: pressure, opportunity, rationalization and capability. This theory suggests that the four elements need to be present for fraud to occur. According to Wolfe and Hermanson (2004), capability refers to an individual's knowledge, skills and abilities to carry out fraudulent acts. It includes factors such as circumventing controls, technical proficiency, or knowledge of vulnerabilities within an organization's systems. Individuals with the necessary capabilities are more likely to exploit the opportunity and commit fraud.

By understanding these factors and their interactions, organizations can implement effective fraud prevention measures and strengthen their internal controls to reduce the likelihood of fraudulent behavior. It is important to note that the Fraud Diamond Theory is a conceptual model and does not provide a definitive explanation for every instance of fraud. Nevertheless, it offers a useful framework for understanding the underlying dynamics that contribute to fraudulent activities within an organization.

The study hinged on both policeman theory and fraud diamond theory. The fraud diamond theory focuses on how pressure, rationalization, opportunity, and capability influence staff's behavior towards fraud. The policeman theory, on the other hand, emphasizes the role of forensic accountants in collating fraud-related evidence to guide judges in convicting fraudulent employees.

### 2.3 Empirical Review

Claveria and Carrasco (2023) carried out a study on forensic accounting tools for fraud deterrence. The purpose was to understand how forensic accounting tools contribute to the deterrence of fraud in the financial statements, considering the expertise of forensic accountants on ex-post activities and that the traditional mechanisms to prevent this type of fraud have not been sufficient to stop the impact on stakeholders. The study employed qualitative exploratory design with a phenomenological approach conducted through in-depth interviews with professional experts in the field of forensic accounting. Findings revealed that the use of forensic accounting technique and tools could contribute to the prevention of fraud in financial reporting not only when the risk of fraud has been materialized. The study revealed a paradigm shift from the traditional ex-post forensic auditing activity towards an ex-ante activity to improve management control systems within organizations anywhere in the world.

Heese, Krishnan and Ramasubramanian (2021) examined drivers and consequences of U.S. Department of Justice (DOJ) oversight of whistleblower cases of corporate fraud against the government. Panel design was employed for the study while data collected were analyzed using descriptive statistics, correlation and regression analysis. The study found that the DOJ is more likely to intervene in and conduct longer investigations of cases that have a higher chance of victory and yield greater monetary proceeds, indicating that DOJ enforcement is influenced by its performance measures. DOJ intervention also affects the firm- and aggregate-level fraud environment. Firms subject to DOJ interventions improve their employee relations, internal controls, and board independence, and experience lower future whistle blowing risk. Whistleblowers avoid courts and agencies with low DOJ intervention rates. In contrast, the study did not find that cases pursued by whistleblowers alone affect firms' or whistleblowers' behavior, suggesting that public enforcement through DOJ

intervention has a greater deterrent effect on fraud than private enforcement by whistleblowers acting alone.

Kaur, Sood & Grima (2023) conducted a systematic review on forensic accounting and its contribution towards fraud prevention and detection in India. The study investigated the significant challenges that hinder the application of forensic accounting in fraud prevention and detection as well as the standard techniques for fraud prevention and detection. The study employed preferred reporting items for systematic reviews and meta-analysis (PRISMA) method to carry out a systematic literature review to identify and assess the existing literature in forensic accounting. The findings revealed a positive correlation between forensic accounting and fraud detection and prevention. The study noted fraud as being complex and in carrying out fraud investigation, there is need to be aware of its complexity.

Olaniyan and Awe (2021) examined the influence of forensic accounting as a tool for fraud prevention and detection in the public sector. It specifically examined the influence of forensic accounting on fraud prevention and fraud detection in ministries, departments and agencies (MDAs) in Nigeria. The study was predicated on the policeman theory, white collar theory and fraud diamond theory. The study employed primary source of data questionnaire which covered the period of 10 years spanning from 2010-2020. A cross sectional Survey design was adopted.

Questionnaire was used in data collection from staff of Integrated Personnel Payroll Information System and Office of the Account General of Federation. Seventy-five questionnaires were used as sample size. The study adopted descriptive statistics which involves the use of mean and standard deviation while regression analysis was adopted to test the stated hypotheses. Findings revealed that forensic accounting have significant influence on fraud detection and prevention. It was also revealed that forensic litigation has no significant positive effect on recovery of funds lost to fraud.

Ugwu (2021) also carried out a study on forensic accounting and fraud control in Nigeria. The study critically reviewed the application of forensic accounting in fraud detection, investigation and litigation support services. The study adopted descriptive research design with extensive and intensive literature review. It was concluded that although the emergence/ introduction of forensic accounting contributes significantly in fraud

control, it however seems not to be a complete panacea for fraud issues in Nigeria.

**3. Methodology**

The study utilized a descriptive survey research design to gather data from 259 principal, bursary, and account/audit staff from selected tertiary institutions, including Kwara State University, Malete, Kwara State Polytechnic, Kwara College of Education, College of Education (Technical), College of Education, Ilorin, and School of Arabic, Islamic, and legal studies. The sample size was selected randomly based on the proportion of the

population for each institution in relation to the entire population, using Taro Yamane, a formula for determining sample size. This approach ensured the collection of relevant data for dependable findings.

Using Taro Yamane,  $n = \frac{N}{1+N(e)^2}$

Where N is total population

e= margin of error (5%)

n= sample size

Therefore,  $n = \frac{259}{1+259(.05)^2}$

Sample size = 157

**Table 1: Population and Sample Size**

Category	Kwara State University	Kwara State Polytechnic	College of Education Oro	College of Education Ilorin	College of Arabic and Islamic Legal Studies	College of Education Technical Lafiagi	Total
Principal Officers/Bursary/Accounts staff	34	81	23	70	28	26	259
Sample Size	20	49	14	42	17	15	157

The study conducted in Kwara State utilized primary data to provide relevant answers to research questions. A structured questionnaire was administered to staff of bursary and audit departments, as well as principal officers of selected tertiary institutions. 151 responses were collected for data analysis. The Partial Least Square and Structural equation model (PLS-SEM) was used for data analysis, which involved assessing the Measurement Model (Outer model) through convergent validity tests, discriminant validity, and collinearity statistics (VIF), and the Structural Model (inner model) through path assessment, predictive relevance, and explanation power. The decision rule of this study indicated that the null hypothesis should be rejected if the calculated p-value of f-ratio is lower than 0.05 significance level, otherwise, it will be accepted.

**3.1 Model Specification**

This study adapted the model of Ogundana et al. (2018). The study was carried out on forensic accounting and fraud prevention and detection in Nigerian banking industry. The dependent variable of the study was fraud while the independent variables were fraud investigation (I), litigation support(S) and expert consultancy (C). The model specified was as below:

$F = \beta_0 + \beta_1 I + \beta_2 C + \beta_3 S + \varepsilon$

The model was modified to suit the specific objective of this study. The study investigated forensic accounting and fraud in selected tertiary institutions in Kwara State. Two variables were identified in this study (independent and dependent). The dependent variable used in this study is fraud while the independent variable is forensic accounting.

$Y = f(X)$  ----- eq 1

Where Y = Dependent variable and X = Independent variable

Y = Fraud (FR), and X = Forensic Accounting (FA)

**Functional Relationship**

$FR = f(FA)$  ..... eq 2

**The Models**

$FR = \alpha + \beta FA + \varepsilon$  ..... eq 3

Hence, the model is re-written as:

$FR = \alpha_0 + \beta_1 IS + \beta_2 DS + \beta_3 PE + \varepsilon$  .....eq 4

Where: FR = Fraud (dependent variable), IS = Investigation Service; and DS = Digital Forensic Service (independent variables), PE = Penalty (control variable)

It is expected that there would be a negative relationship between the dependent variable (Fraud) and independent variable (Forensic Accounting).

**4.1 Discussion of Results**

**4.1.1 Descriptive Statistics of Indicators and Constructs**

**Table 2:** Result of Outer Weight (Loading Factor) from Bootstrapping

Indicators of constructs	Loading Factors (LF)	Sample Mean (M)	Standard Dev(STDEV)	T statistics ( O/STDEV )	P values
DS1<- DS	0.878	0.821	0.175	5.029	0.000
DS2<- DS	0.652	0.605	0.207	3.149	0.002
DS3<- DS	0.592	0.527	0.242	2.448	0.014
FR1<- FR	0.957	0.957	0.007	134.411	0.000
FR2<- FR	0.910	0.909	0.012	72.999	0.000
FR3<- FR	0.906	0.905	0.021	42.620	0.000
FR4<- FR	0.957	0.957	0.007	134.411	0.000
FR5<- FR	0.910	0.909	0.012	72.999	0.000
FR6<- FR	0.906	0.905	0.021	42.620	0.000
FR7<- FR	0.957	0.957	0.007	134.411	0.000
FR8<- FR	0.910	0.909	0.012	72.999	0.000
FR9<- FR	0.906	0.905	0.021	42.620	0.000
IS1<- IS	0.738	0.669	0.234	3.150	0.002
IS2<- IS	0.757	0.687	0.203	3.735	0.000
IS3<- IS	0.774	0.707	0.224	3.455	0.001
PE1<- PE	0.983	0.983	0.003	334.797	0.000
PE2<- PE	0.938	0.938	0.010	94.038	0.000
PE3<- PE	0.983	0.983	0.003	334.797	0.000

Source: Smart PLS 4 Results

Table 2 present the descriptive statistic of the indicators used in the model of this study. Investigation Services and Digital Forensic Services are two construct variables that are assessed using indicators. The outer weight of these indicators must be greater than the 0.708 threshold, as any value below this indicates they are not contributing much to the construct. Further tests will determine if these items should be removed. The construct validity and reliability test for internal consistency reliability is used to determine this. The outer weight indicators of every construct are significant with a p-value less than 0.05. The confirmatory factor test results reveal that each indicator has a loading factor greater than 0.5, indicating that all indicators are considered valid as indicators of their respective construct variables. The results can be seen in Figure 1.

**Table 3:** Discriminant Validity Test (Fornell-Larcker Criterion (FLC))

Latent Constructs	Digital Services	Fraud	Investigation Services	Penalty
Digital Services	0.697			
Fraud	0.188	0.936		
Investigation Services	0.647	0.161	0.716	
Penalty	0.187	0.997	0.158	0.933

Source: Field Survey, 2023

The discriminant validity test evaluates the distinctness of different latent constructs in a model using the Fornell-Larcker Criterion (FLC). The square root of the Average Variance Extracted (AVE) for each construct is compared with its correlations with other constructs. If the square root of AVE is greater than its correlations, it indicates good discriminant validity. The FLC test results indicate good discriminant validity for the constructs in the study, except for the control variable, indicating the absence of multicollinearity, which will be tested in the subsequent table.

**Table 4:** Collinearity Statistics – Variance Inflation Factor (VIF)

Inner model – List	VIF
Digital Services -> Fraud	1.981
Investigation Services -> Fraud	1.743
Penalty -> Fraud	1.039

*Source: Field Survey, 2023*

In PLS-SEM, the VIF is calculated for each endogenous latent variable. It measures the extent to which the variance of an endogenous variable is inflated due to multicollinearity. Lower VIF values as shown in table 4 suggest no multicollinearity because the VIF value of each latent construct is less than 3, which indicates no multicollinearity issue at all.

**Table 5:** Quality Criteria

R-square		
	R-square	R-square adjusted
FR (Fraud)	0.653	0.653

*Source: Field Survey 2023*

The table 5 measures how well the model explains the variation in the endogenous latent variables. The R<sup>2</sup> of this model is 0.653, which indicates that independent variables (Investigation services, Digital Services, and Penalty) in this model explain (causing) 65.3% of variation (changes) in the dependent variable (Fraud).

**4.3 Hypotheses Testing**

**Table 6:** Results of Path Coefficient

Variables	Path Coefficient (O)	Mean (M)	Stand (STDEV)	Dev	T statistics ((O/STDEV))	P values
DS ->FR	-0.592	0.527	0.242		2.448	0.014
IS ->FR	-0.747	0.624	0.293		2.552	0.011
PE ->FR	-0.691	0.360	0.007		98.714	0.001

*Source: Field Survey, 2023*

**H<sub>01</sub>:** Investigation services of investigate accountants have no significant impact on fraud in tertiary institutions. The path coefficient for Investigation Services of Forensic Accountants (IS) on Fraud (FR) shows a negative relationship, with a unit increase in IS causing a 0.747 (74.7%) decrease in fraud. This indicates that investigation services have a negative impact on fraud in tertiary institutions. The p-value of this coefficient (0.011) is less than the 0.05 level of significance, rejecting the null hypothesis that investigation services of forensic accountants have no significant impact on fraud.

**H<sub>02</sub>:** Digital forensic services of forensic accountants have no significant impact on fraud in tertiary institutions. The path coefficient for Digital Forensic Services (DS) on Fraud (FR) shows a negative relationship, with a unit increase in DS causing a 59.2% decrease in fraud. This indicates that forensic accountants' digital forensic services have a negative impact on fraud in tertiary institutions. The p-value of this coefficient (0.014) is less than the 0.05 level of significance, rejecting the null hypothesis that forensic accountants have no impact on fraud.

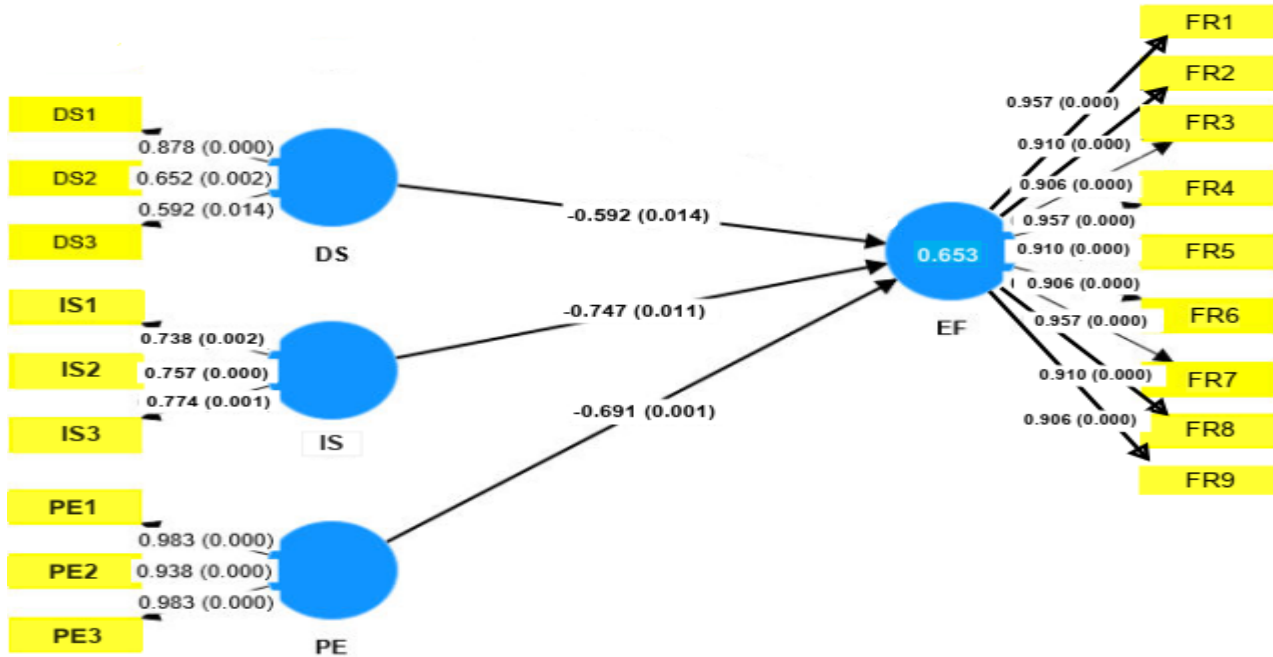


Figure 1: Results of PLS-SEM

Figure 1 present the results of Partial Least Square and the Structural Equation Model built for the variables of this study. The results were elaborated in the sections relevant to various respective parts of the diagram.

#### 4. Discussion of Findings

This study investigated the impact of various services (investigation service and digital forensic service) provided by forensic accountants on fraud within tertiary institutions. The findings revealed interesting insights into the effectiveness of different forensic accounting services in mitigating fraud risks. Therefore, the results of the two hypotheses tested in the study are discussed as follows:

The first finding revealed that investigation services of forensic accountants have a statistically significant negative impact on fraud in tertiary institutions. This aligns with the findings of Haruna et al. (2021), Eneisik (2021) and Park and Kim (2020). The studies argued that timely and thorough investigations can act as a strong deterrent. This implies that there exists a potentially deterrent effect of investigation services which could consistently lead to a substantial reduction in fraud cases.

The second hypothesis pertains to the impact of digital forensic services provided by forensic

accountants on fraud. The finding revealed that digital forensic service has a negative impact on fraud. This finding aligns with that of Ordu and Abowei-Afagha (2021), Yang and Liu (2019) and Haruna et al. (2021) whose studies indicated that digital forensic services had a significant negative impact on fraud. The researchers argued that the use of advanced digital forensic techniques could serve as a robust deterrent. This finding however contradicts the work of Ismaila et al., (2023) whose study revealed an insignificant positive relationship between digital forensic service and fraud.

The result of this hypothesis suggests that the utilization of digital forensic tools and techniques have a potential deterrent effect on fraudsters and could be used as part of solution for preventing fraud within tertiary institutions. This finding aligns with the deterrence theory which posits that the perception or belief that there is high risk of getting caught and facing severe consequences for fraudulent activities can deter individuals from engaging in such behavior.

In summary, the findings of this study suggested that forensic accounting services, including investigation and digital forensic services may have some impact on reducing fraud in tertiary institutions and the observed effects were statistically significant. This implies that tertiary

institutions should engage the services of forensic accountants in preventing and detecting fraud.

### 5. Conclusion and Recommendations

The study concludes that forensic accounting services play a crucial role in mitigating fraud in tertiary institutions in Kwara State. Based on the conclusion drawn, the following recommendations were made:

- Kwara state-owned tertiary institutions should collaborate with forensic accountants to enhance internal controls and conduct regular audits. These audits should focus on reviewing financial records, processes, and controls to identify potential fraud vulnerabilities and strengthen internal controls.
- Kwara state-owned tertiary institutions should leverage on technology for fraud detection and prevention. Highlighting the significant impact of digital forensic services, strengthening internal controls related to financial processes, procurements, access to information, and data security is crucial for effective fraud detection in Kwara.

### References

ACFE, (2022). Occupational fraud 2022. A report to the nations, Association of Certified Fraud Examiners. Retrieved from [www.acfe.com](http://www.acfe.com)

AICPA (2017). FVS eye on Fraud. The AICPA forensic and Valuation Services Quarterly Report on Fraud Trends and Topics,

Basuki, F. H. & Ferdinandus, C. E. (2021). The influence of reward and sanctions, job rotation on fraud with religiosity as moderating variable. *JurnalcitaEkonomika*. 15(1), 1-19.

Barzinji, Z. A, Yusoff, W. S, Rosbi M S, Salleh M. F & Abdullah, A. H., (2022). The effect of forensic accounting on fraud prevention, the moderating role of internal control effectiveness. *International Journal of Economics, Commerce and Management*. 10(1), 213-230.

Beggs, W. & Harvison, T. (2023). Fraud and Abuse in the paycheck protection program? Evidence from investment advisory firms. *Journal of Banking and Finance*, 147. <https://doi.org/10.1016/j.jbankfin.2022.106444>.

Casey, E., Nikkel, B. (2020). Forensic Analysis as Iterative Learning. In: Keupp, M. (eds) *The Security of Critical Infrastructures*.

*International Series in Operations Research & Management Science*, vol 288. Springer, Cham [https://doi.org/10.1007/978-3-030-41826-7\\_11](https://doi.org/10.1007/978-3-030-41826-7_11)

Collie, J. & Overill, R.E. (2020). DEEP: Extending the Digital Forensics Process model for Criminal Investigations. *Athens Journal of Sciences*. 7(4), 225-240.

Cressey, D. R., (1953). *Other people money. A Study on the Social Psychology of Embezzlement*. Patterson Smith.

Dada, S.O& Jimoh, F.B. (2020). Forensic accounting and financial crimes in Nigerian public sector. *Journal of Accounting and Taxation*, 12(4), 118-125

Eze E & Okoye E. I. (2019). Forensic Accounting and Fraud detection and Prevention in Imo State Public Sector. *Accounting and Taxation Review*, 3(1): 12-26

Haruna, R. A., Suleiman, A. S., Fowokan, E. T. & Karimu, M. (2021). Forensic accounting techniques and fraudulent practices in Nigeria public sector. *Journal of Forensic Accounting and Fraud Investigation*, 6(1), 1-22.

Harwood A (2016). An examination of the impact of obedience pressure on perceptions of fraudulent acts and the likelihood of committing occupational fraud. *Journal of Forensic Studies. Accounting Business*, Winter 1(1).

Heese, J., Krishnan, R., & Ramasubramanian, H. (2021). The Department of Justice as a gatekeeper in whistleblower-initiated corporate fraud enforcement: Drivers and consequences. *Journal of Accounting and Economics*, 71(1), 101357.

Ismaila, L., Bankole, O., Igbekoyi, O. (2023). Forensic accounting and fraud detection: The accountant's perspective. *International Journal of Advanced Multidisciplinary Research Studies*, 3(3), 265-273.

Kaoje, A. N., Yabo, A. S., Modibbo, A., Abdulhadi, N. (2020). Forensic accounting and firms' performance of cement companies in Nigeria: A study of Cement Companies of Northern Nigeria. *International Journal of Research and Innovation in Social Science*, 4(1), 6-11.

Kaur, B., Sood, K., Grima, S. (2022). A systematic review of forensic accounting and its contribution towards fraud detection and prevention. *Journal of Financial Regulation and Compliance*, 31(1), 60-95.

Meerts, C. A., (2018). The organization as the cure for its own ailments: corporate investigators

- in The Netherlands. *Administrative Sciences*. 8(3), 1-15.
- Ogundana, O., Okeke, W., Ogunleye, O., & Oladapo, I. (2018). Forensic accounting and fraud prevention and detection in Nigerian banking industry. *COJ Reviews and Research*, 1(1), 1-8.
- Ogunode N. J., (2023). Impact of Tertiary Education Trust Fund (TETFUND) on tertiary education development in Nigeria. *American Journal of Public Diplomacy and International Studies*. 1(5), 78-92.
- Ordu, P. A., & Abowei-Afagha, U. N (2021). Forensic accounting, electronic accounting and fraud checkmating by financial professionals: A critical review. *Journal of Forensic Accounting and Fraud Investigation (JFAFI)*, 6(1), 104-120.
- Ozili, P. K. (2020). Advances and issues in fraud research: A commentary. *Journal of Financial Crime*, 27(1), 93-103.
- Park, S., & Kim, D. (2020). Investigative Services and Employee Fraud in Tertiary Institutions: A Longitudinal Study. *International Journal of Accounting and Information Management*, 8(1), 45-58.
- Tombs, S. & Whyte, D. (2019). The shifting imaginaries of corporate crime. *Journal of White Collar and Corporate Crime*, 1(1), 16-23.
- Treadwell, G. W. (2022). Internal Auditors: helping businesses prevent new and deter ongoing employee frauds. *Journal of Business and Accounting*. 15(1), 20-31.
- Ugwu, J.I. (2021). Forensic accounting and fraud control in Nigeria: A critical review. *Research Journal of Accounting and Finance*, 12(10), 112-120.