

FORENSIC AUDIT AND FRAUD DETECTION IN NIGERIAN PUBLIC SECTOR

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Abstract

Fraud is devastating to organizations and economies of the world and had generated several studies by erudite scholars. The evolving concepts of forensic audit are an imperative creation in response to the inadequacies of prior studies on forensic audit and conventional investigations in fraud detection. In line with the above, this study is an empirical examination of the relationship between forensic audit and fraud detection in Nigeria public sector. The Donald Cressey fraud triangle theory is the cardinal theory of the study. Cross-sectional field survey of quasi-experimental design was adopted for this study. Twenty-three (23) federal ministries and parastatals in Rivers State constituted the accessible population of the study. Time series data, secondary nature were generated from archival records of Economic and Financial Crimes Commission (EFCC) among others. Descriptive Statistics, Augmented Dickey-Fuller stationarity unit root test, Pairwise Granger Causality test and Multiple Regression Analysis with the aid of econometrics view version 10 were used to analyze the data and tested the stated hypotheses. The findings from the results revealed that the explanatory variables, litigation support services (LSS) investigative accounting (IA) and forensic audit report (FAR) are positively and significantly related to the predictor variable, fraud detection (FD) with LSS $\beta=0.667882$, $p\text{-value}=0.0002 < \alpha = 0.05$, (IA) $\beta=0.401326$, $p\text{-value} =0.0011 < \alpha=0.05$ and FAR $\beta=0.061480$, $p\text{-value}=0.0079 < \alpha=0.05$, thus rejected the null hypotheses. Furthermore, the forensic audit proxies' granger cause fraud detection. Based on the evidence of this study, the researcher concludes that forensic audit is one of the most effective tools in fraud detection in Nigeria public sector. In line with the findings of this study, it was recommended that forensic auditors and accountants should adopt the application of litigation support services, investigative accounting and forensic audit report in the detection of fraud. The exposition of the measures of forensic audit and fraud detection should serve as guides to students and researchers.

Keywords: Forensic audit, fraud detection, forensic audit report, litigation support services, investigative accounting, public sector

Introduction

Fraud is fundamentally the causative factor for the failure of private and public organizations and global economic downtrodden in contemporary economies. The detection of fraudulent practices in public institutions poses a global challenge to stakeholders such as investors, managers, scholars and professional from all works of life. In the past, studies have been conducted on traditional auditing and investigation as means of detecting fraud in Nigeria and the rest of the world, such as Herbert *et al.* (2017); Ile and

Odimmega (2018); Abdullahi and Mansor (2018); Popoola (2014); Akomolafe *et al* (2017); Adebolu *et al* (2019); Abdulraham (2019); Joseph, Okike and Yoko (2016); Ocansey (2017) and among others.

Undoubtedly, prior studies and traditional auditing and investigation are ineffective in the detection of fraud in Nigerian public institutions. This is because the nomenclature of fraud is complex and complicated, characterized by exponential increase in occurrences in all economies of the world with particular reference to Nigerian public sector.

It is on record that between (2010-2019) Economic and Financial Crimes Commission (EFCC) secured an unprecedented number of two thousand, five hundred and eighteen (2,518) convictions through courts of competent jurisdiction on fraud cases. Disgustingly, out of this number, 2019 alone recorded about fifty percentages (50%) of the convictions. Sad enough, the fraud cases are perpetrated by Nigerians and their collaborators. The money involved 'rolled' into staggering amounts of trillions in naira and this is primarily, responsible for the failure of public institutions and adversely affects the economic growth of our country.

There are three complimentary theories, Donald Cressey's theory of fraud triangle, Wolfe and Hermansons' theory of fraud diamond and Burrhust Frederic Skinner's Operant conditioning model that offer explanations to the complex and complicated nature of fraud and control possibilities applicable to Nigerian public sector. They postulated that fraud is the product of human nature and behaviour and can be predicted and controlled all things being equal, Feldman and Feldman, (1993); Blackman (1995), Hollin, (1996); Ehioghiren and Atu (2016). The assumptions in these theories are integral part of the scenario of fraud occurrences in Nigeria public institutions that culminated into the introduction of forensic audit. The deductions from these theories corroborate the popular opinion of aggressive and expeditious application of appropriate forensic audit techniques in the detection of fraudulent practices in Nigerian public institutions.

Therefore, forensic audit evolved as an imperative creation in response to the inadequacies of prior studies and traditional audit and investigation in Nigeria public institutions and the rest of the world. In recent times, several studies underpin forensic audit and fraud detection possibilities such as Imam, Kumshe and Jajare (2015); Anichebe and Juliana (2016); Paul and Yunusa (2013); Olaoyaa (2020); Eze and Okoye (2019); Olaniyan (2012); and Okoye and Gbegi (2003) among others.

Generally, all the studies in the past such as Fasua and Osagie (2016); Ofor and Okoye (2016); Othman *et al.* (2015); Saifullah and Abbas (2020); Edheku and Akpoveta (2020); Ahmed (2017) and others did not pay attention to the combination of very essential forensic audit techniques in a single study namely; litigation support services, investigative accounting and forensic audit report in fraud detection in Nigerian public sector. In addition, Okoye, Emmanuel and Ndah (2019), Ogiriki and Appah (2018) and Ozuomba (2016) ignored the use of secondary data with its attendant advantages. Finally, Akani and Ogbeida (2017), Joseph and Yoko (2016) and Osisioma (2014) and others confirmed in their works the absence of unified methodologies and outcome of findings in prior studies. In our informed opinion, the concept of forensic audit in fraud detection in Nigeria is in-exhaustively applied. The imprecision in methodology and "proxies-mix" of forensic audit in fraud detection have created the platform for further studies. Therefore, this study is posed to empirically examine the relationship between forensic audit and fraud prevention in Nigerian public sector.

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Based on the evidence above, this study is being subjected to empirical examination with the aim of filling the missing gaps in previous studies. The study is targeted to achieving the following objectives:

1. To determine how litigation support services relate to fraud detection.
2. To ascertain how investigative accounting relates to fraud detection.
3. To evaluate how forensic audit report relates to fraud detection.

The inherent answers to the questions therein and filling the missing gaps constitute the research burden of this study.

Hypotheses

In line with the aim, objectives and the leading research questions of this study, the following hypotheses were formulated and tested accordingly;

Ho₁; There is no significant relationship between litigation support services and fraud detection.

Ho₂; Investigative accounting does not significantly relate to fraud detection.

Ho₃; Forensic audit report does not significantly relate to fraud detection.

Theories

The Theory of the Fraud Triangle

The foundation of this study is based on Donald Cressey theory of fraud triangle. It is one of the several fraud theories that offer deep explanation to fraud and its causative factors and control predictions through forensic audit variables.

Donald Cressey developed the theory of fraud triangle. One leg of the triangle represents a perceived non-shareable financial need which can be a source of pressure. The second leg is for the perceived opportunity, and the final is for rationalization Cressey (1973). He concluded that individuals commit fraud when three factors are present: (1) a financial need that cannot be shared, (2) a perceived opportunity for illicit gains, and (3) a personal rationalization of the act.

Over the years, Cressey's hypothesis has become well known as "the fraud triangle" as shown in Figure 1 below. The first side of the fraud triangle represents a pressure or motive to commit the fraudulent act, the second side represents a perceived opportunity, and the third side stands for rationalization Wells (2011).

This theory proceeds on the assumption that perceived pressure relates to the motivation that leads to unethical behaviors. Albrecht, Howe and Romney (2006) pointed out that the word perceived is important due to the fact that pressure does not have to be real; if the perpetrators believe they are being pressured, this belief can lead to fraud. Perceived pressure can result from various circumstances, but it often involves a non-sharable financial need. Financial pressure has a major impact on an employee's motivation and is considered the most common type of pressure. Specifically, about 95% of all cases of fraud have been influenced by financial pressure (Albrecht et al., (2006). Motivations are so natural to human beings that no special forces are necessary to explain law-breaking (Jensen, 2003).

Opportunity is created by weaknesses in the systems that allow an individual to commit fraud in the accounting field and is called weak internal control. The concept of perceived opportunity suggests that people will take advantage of circumstances available to them (Kelly and Hartley, (2010). Perceived opportunity is similar to perceived pressure in that the opportunity does not have to be real; the perpetrator must simply believe or

perceive that the opportunity exists. In most cases, the lower the risk of getting caught, the more likely it is that fraud will take place.

Other factors related to perceived opportunity can also contribute to fraud, such as the assumption that the employer is unaware, the assumption that employees are not checked regularly for violating company policies, the belief that no one will care, and the belief that no one will consider the behavior to be a serious offence (Sausser, 2007).

Rationalization refers to the justification that the unethical behavior is something other than criminal activity. If an individual cannot justify unethical actions, it is unlikely that he or she will engage in fraud. Some examples of rationalization of fraudulent behavior include "I am only borrowing," "the organization can afford it," and "it is not really a serious matter."

It is important to note that rationalization is difficult to observe, as it is impossible to read the perpetrator's mind. Bank employees have knowledge of the systems, as well as classified and confidential information, which together with technological advancement can give them the opportunity to commit frauds. All they need is some pressure and the rationalization, and that way they become part of fraud cartels that are fleecing millions of shillings from the banks (Jensen, 2003).

The fraud triangle is a model employed by Donald Cressey to explain the factors that cause someone to commit occupational fraud. It consists of three components leading to fraudulent behavior. They are pressure, opportunity and rationalization.

Pressure

This is the first motive in the Cressey fraud-triangle hypotheses. It describes the strong financial needs that is usually too personal and for which an individual is ashamed to make public. The perpetrator is unwilling to share his need with others, therefore may not receive help from friends and relatives (Enofe, Okpako and Atube, 2013). Equation 1 showed the model for a perceived pressure.

$$F_{t1} = \sum (p + s + u) \dots \dots \dots [1].$$

Where:

F_{t1} = fraud, P = pressure, S =shamed, U = unwilling to share.

Opportunity

This usually occurs when there is lack of internal controls within an organization (Ohaka and Edori, 2017). Cressey noted that the fraud committer may take advantage of the situation with the knowledge that he may not be caught. Opportunity within a job function is tied to poor internal control system (Ozili, 2015). The model for perceived opportunity to commit fraud is shown in equation 2

$$F_{t2} = \sum (o + w) \dots \dots \dots [2].$$

Where:

F_{t2} = fraud, O = opportunity to commit fraud, W = weak / absence of internal controls.

Rationalization

The third motive in fraud-triangle hypotheses is the perpetrator's mindset. Cressey explained that the culprit had conditioned his mind that what he has done was not wrong and the criminal sees his action as smartness instead of illicit activity. The justification of such action was to avoid the true explanation and fraud grows through such logics (Smith and Mackie, 2007; Ozkul and Pamukcu, 2012). The model for rationalization is stated in equation 3

$$F_{t3} = f(R) \dots \dots \dots [3].$$

Where:

F_{t3} = fraud, R = rationalization of fraud.

The combined model for the Donald Cressey fraud-triangle is

$$FT = \sum (p + s + u) + \sum (o + w) + R \dots\dots [4].$$

Where:

FT = fraud triangle covering F_{t1}, F_{t2}, F_{t3}.

The theory assumed inherent actions against fraud perpetrators through various measures as deterrent to potential fraudsters. The model draws its relevance from this perspective to the application of forensic audit in fraud control justifying this study.

The fraud triangle theory and other complimentary theories in this study such as Fraud diamond model, Operant conditioning theory and the theory of reasoned actions among others would have continual increase propensity promulgating punishment as deterrent to potential and existing fraudsters. This is the bases upon which the fraud triangle theory is relevant to the role of forensic accounting in fraud control in Nigeria public sector.

The models postulated that fraud is a product of human nature and behavior and can be predicted and controlled all things been equal (Feldman and Feldman, 1993; Blackman, 1995, Hollin, 1996; Ehioghiren and Atu, 2016).The deductions from the postulations of this theories corroborate the popular opinion of aggressive and expeditious application of appropriate forensic audit techniques in the detection and prevention of fraudulent practices in Nigerian public institutions

Fraud Diamond Model

Fraud diamond was propounded by Wolfe and Hermanson in 2004 who attempted to expand fraud triangle by adding a fourth dimension known as capability. They stated that a fraud perpetrator must have the technical or positional capability to commit the act (Wolfe & Hermanson, 2004). In 2004, Wolfe and Hermanson introduced the 'Fraud Diamond Model' as shown in figure 2 below, where they presented another side that extends the fraud triangle which is 'the fraudster's capabilities'.

Wolfe and Hermanson believed many frauds would not have occurred without the right person with the right capabilities implementing the details of the fraud. They also suggested four observable traits for committing fraud; (1) Authoritative position or function within the organization, (2) capacity to understand and exploit accounting systems and internal control weaknesses, (3) confidence that she/he will not be detected or if caught she/he will get out of it easily, and (4) capability to deal with the stress created within an otherwise good person when she commits bad acts.

The fraud-triangle plus capability is known as the fraud diamond and is mathematically expressed as:

$$FD = \sum (p + s + u) + \sum (o + w) + R + C \dots\dots [5].$$

Where:

FD = fraud diamond, the summation of equations 1- 4 above representing (FT plus (+) C)

FT = fraud triangle and,

C = capability

$$F_{t1} = \sum (p + s + u) \dots\dots\dots [1].$$

$$F_{t2} = \sum (o + w) \dots\dots\dots [2].$$

$F_{t3} = f(R)$ [3].

$FT = \sum (p + s + u) + \sum (o + w) + R$ [4].

Where:

FD = FT+C and C= capability

The fraud-triangle plus capability is known as the 'fraud diamond' as mathematically presented above.

The Operant Conditioning Theory

The Operant conditioning theory was first hypothesized in 1938 by *Burrhus Frederic Skinner*, an Edgar Pierce Professor of psychology at Harvard University. *Skinner* subsequently, in his book titled 'science and human behavior' redefined negative reinforcement in 1953 (Cleod, 2018). Skinner is regarded as the father of operant conditioning theory, although his work was based on Thorndike's Law of Effect in 1898. Skinner affirmed that behaviour is determined by the environmental consequences it produces for the individual through the principle of stimulus. Behaviour therefore operates on the premise of reinforcement and punishment as results. Reinforcement increases undesired behaviour while punishment decreases such behaviour.

This theory has been adopted by various researchers to explain human nature and how behaviour can be predicted and controlled (Feldman and Feldman, 1993; Blackburn, 1995; Hollin, 1996; Ehioghiren and Atu, 2016). Feldman and Feldman (1993) stated that if fraudulent activities were rewarded or not punished, it would have continual increase propensity but punishment serves as a deterrent. This is the basis upon which operant conditioning theory is relevant to the role of forensic accounting in fraud control in Nigerian public sector. Forensic accountants need to work with relevant agencies to produce evidence for litigations to aid punishment of convicted criminals. This would serve as a deterrent to decrease financial fraud in society.

The theory is a learning process through which the strength of a behaviour is modified by reinforcement or punishment. It is also a procedure that is used to bring about such learning. Although operant and classical conditioning both involve behaviours controlled by environmental stimuli, they differ in nature. In operant conditioning, stimuli are present when behaviour is rewarded or punished to control that behaviour. For example, a child may learn to open a box to get the sweets inside, or learn to avoid touching a hot stove; in operant terms, the box and the stove are "discriminative stimuli". Operant behaviour is said to be "voluntary".

The operant conditioning provides insight as to how employees can through the application of stimuli (reinforcement or punishment) have their behaviour modified to avoid getting involved in fraudulent activities. This may include making a public show of punishing those caught committing fraud and reward those who uncovered fraudulent activities instantaneously or committed in past circumstances. Stimulus control of operant behaviour is very important in achieving the desired result (Bleda and Nieto, 2012). Consequently, the organization has to keep a close eye on how employees respond to the stimuli implemented and where necessary modify the stimuli to become more effective in curbing malfeasance in all organizations.

The Concept of Forensic Audit

Forensic audit can be said to be a new field in accounting in Nigeria and borne out of the need of ensuring quality assurance of financial statements. Joshi (2003) ascribed the origination of forensic accounting to Kutilya, the first economist to openly recognize the

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need for accountants to tender evidence in the court. Pouloubet (1946) as cited by Kasum (2009) coined the word "Forensic Accounting" but Crumbley and Apostolou (2007) stated that forensic accounting can be traced to 1817 court decision where a young Scottish accountant issued a circular advertising his expertise in arbitration support in 1824" while Pouloubet was probably the first to publish the phrase "forensic accounting".

Ironically, illegal business and perpetrators of financial crimes also need to keep track of their cash flow and manage their operational performance to generate profits, fund activities and avoid detection and seizure of their assets. Joshi (2003) said Kutilya, one of the foremost economists, mentioned 40 ways of embezzlement centuries ago. He defined forensic accounting is the application of accounting knowledge and investigative skills to identify and resolve legal issues. It is the science of using accounting as a tool to identify and develop proof of money flow. These tools and/or techniques, skills and knowledge can be invaluable for fraud and forensic accounting investigators."

Crumbley, (2001) wrote on same when he stated that a form of forensic accounting can be traced back to an 1817 court decision. He stated also that a "young Scottish accounting student issued a circular advertising his expertise in arbitration support in 1924" but that Peloubet was probably the first to publish the phrase forensic accounting. Investigation of fraud and corruption is confirmed thus, not to be new, in Nigeria. It is only gaining prominence because of growing wave of the crime under the seemingly new nomenclature in the last five years (Coenen, (2005). Forensic accounting also called investigative accounting or fraud audit is a merger of forensic science and accounting. Forensic science according to Crumbley (2003). "May be defined as application of the laws of nature to the laws of man".

He refers to forensic scientists as examiners and interpreters of evidence and facts in legal cases that also require expert opinions regarding their findings in court of law. The science in question here is accounting science, meaning that the examination and interpretation will be of economic information.

Joshi, (2003) further sees forensic accounting as the application of specialized knowledge and specified skill to stumble up on the evidence of economic translations. Zysman (2001) put forensic accounting as the integration of accounting, auditing, and investigative skills. Simply put forensic accounting is accounting that is suitable for legal review offering the highest level of assurance and including the new generally accepted connotation of having been arrived at a scientific fashion, Crumbley (2006). Coenen (2005) stated that forensic accounting involved the application of accounting concepts and techniques to solving legal problems. It demands reporting, where the accountability of the fraud is established and the report is considered as evidence in the court of law or in the administrative proceedings Joshi, (2003). It provides an accounting analysis that is suitable to the court, which will form the basis of discussion, debate and ultimately dispute resolution Zysman, (2001). This means that forensic accounting is a field of specialization that has to do with provision of information that is meant to be used as evidence especially for legal purposes.

The persons practicing in this field (i.e. forensic accountants/auditors) investigate the documents in financial fraud and white-collar crimes such as embezzlement and investigate allegations of fraud, estimate losses, damages, assets and analyses complex financial transactions. They provide those services for corporation, attorney, criminal investigators and the government Coenen, (2005).

According to Zysman, (2001), the forensic accountant's engagements are usually geared towards finding where money went, how it got there, and who was responsible. They are trained to look beyond the numbers and deal with business reality of the situation.

Proxies of Forensic Audit

The putrefaction of forensic audit, the explanatory, variables and fraud control, the criterion variables are, litigation support services, investigative accounting, forensic audit report, fraud detection and fraud prevention. These set of variables represent the explanatory variables and the criterion variables.

Litigation Support Services

Litigation support services are the legal framework of forensic audit that distinguishes it from traditional auditing and investigation. It is the legal aspect of forensic audit that provides evidence for the prosecution of fraud cases in court proceedings. Forensic accounting and auditing are performed to achieve an objective that involves a judicial determination (Chariri, 2009). It involves the use of accounting, auditing and investigative skills to assist in legal matters. Forensic accounting comprises of two major components of litigation support services that recognize the role of the forensic accountant as an expert witness/consultant's skill and may require possible court room testimony (Coulbert, 2004).

According to the definition developed by the American Institute of Certified Public Accountants (AICPA's) forensic and litigation service committee, forensic auditing involves the application of special skills in accounting, auditing, finance, qualitative methods, the law and research (Houck, 2006). Forensic auditing requires investigative skills to collect, analyze, and evaluate financial evidence, as well as the ability to interpret and communicate findings (Chariri 2009) Forensic auditing encompasses litigation support, investigative accounting, and dispute resolution and, therefore is the intersection between accounting, investigation, and the law (Coulbert 2004), Crumbley and Appostolou 2005; Rezea 2002). Forensic accounting/auditing is mainly intended to prevent and detect the existence of fraudulent financial reporting through examination and investigative processes (Chariri, 2009; 4).

Investigative Accounting

Investigative accounting also, referred to as investigative audit has been defined by various scholars. Ronald (2011) defined investigative accounting as the utilization of specialized investigative skills in carrying out an inquiry conducted in such a manner that the outcome will have application to a court of law. A forensic Investigator may be grounded in accounting, medicine, engineering or some other discipline.

Ezeilo (2010) also defines investigative accounting as "audit that are performed to investigate incident of possible fraud or misappropriation of institution funds." It is usually seen as an audit that takes place as a result of report of unusual or suspicious activity on the part of an individual or a department. It usually focuses on specific aspects of the work of a department or individual in relation to fraud and corruption, so as to examine how the systems can be reinforced for fraud prevention and detection.

Ezeilo (2010) further explains that investigative audit is a valuable part of audit toolkit because it focuses on the risks that threaten achievement such as risk of fraudulent claims for expenditure, fraudulent provision of services to an organization or fraud and evasion of revenue payments. It also concentrates on the standards of financial management, implementation of internal control regimes and electronic services. It is also

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worth noting that this audit differs from other audits because they are normally conducted without first notifying the personnel who may be affected by the findings.

Albrecht and Albrecht (2001) describe forensic investigation as the utilization of specialized investigative skills in carrying out an enquiry conducted in such a manner that the outcome will have application to the court of law.

Onodi *et al* (2015) are of the opinion that forensic investigative skills are required to uncover and establish the occurrence of financial crimes. In the work of Grippo and Ibex (2003), forensic audits are more intensive than regular audits and are usually conducted in a series of steps to determine if allegations can be substantiated and to identify the nature of any further work needed. Important first steps are to ensure that the allegation or complaint has merit, adequate evidence is available and that a department has the authority to investigate or audit. This is particularly important when a recipient of a grant, contribution, or other transfer payment receives resources from sources other than the department. In this regard, it is also important that the records of the recipient allow for the investigation or audit to trace how a department's funds were used.

Thornhill (1995) states that forensic audit requires a clear and detailed audit plan that is designed to obtain information on how, when, and where a wrongdoing occurred and who committed such a wrongdoing. Normally, a preliminary examination would be conducted to allow for the assessment of the allegations or complaints in terms of specified criteria such as materiality and impact. An audit plan should have clear objectives and timeliness; identify the skills needed, the estimated costs, and any limitations on the scope of the examinations.

Contractors should have statement of work (engagement letter) detailing their roles and responsibilities.

In carrying out this investigation, the forensic auditors who are usually referred to as investigative auditors have certain principal tools used in investigating, and they include;

- i. Information (informants)
- ii. Interviews (witnesses)
- iii. Interrogation (suspects)
- iv. Instrumentation (crime laboratory, comparison microscopes, polygraph etc.).

Out of all these tools, information contribute to the solution of crime more than the other tools, although there are some evidence that instrumentation could be used more frequently and more effectively to solve a greater number of crimes.

Forensic Audit Report

Forensic audit reports are usually lengthy and extensively substantiated and contain a clearly documented chronology of events, Ghali (2001). There are different types of forensic audit report for different purposes. Forensic audit report in the context of this study is operationally referred to the report on fraud and related cases in the public sector.

According to Ironkweu (2014) forensic audit report is a document tendered in court of law as exhibit by forensic auditors as witnesses. The content consists of the following information.

The findings of the audit assessment recorded, result of the audit conducted (fraud), explanation on why and how the result (fraud) was given or carried out, gathering of essential evidences, the methods used, other related activities that were done in the course of the investigation, summary and conclusion, recommendations to strengthen internal control system to prevent future occurrences among others.

The forensic audit report is presented to the client for filing a legal case in any court of competent jurisdiction for prosecution of fraud suspects.

Fraud Detection

Fraud detection, is characterized by actions and activities intended to identify and locate fraud prior to, during, and subsequent to the completion of the fraudulent activity. While “prior to” may sound like deterrence, it refers to the detection of testing or probing activity used by criminals to facilitate a fraudulent act. To detect fraud is to uncover or reveal, to discover the existence or presence of the fact of something hidden or obscure (Webster, 1997, 1976 and 1941). Fraud detection encompasses three closely related activities in the fraud arena: fraud testing, fraud attempts, and fraud successes. The separation is derived from the facts that not all fraud attempts are successful and that not all perceived fraud attempts are intended to be successful.

These “tests” are attempts to engineer the current fraud policies and detection activities in order to locate vulnerability. Thus, detection in the fraud arena must include revealing the existence of fraud testing and fraud attempts, as well as successful frauds. The identification of testing, attempts, and successes are typically clustered in the detection, prevention, and mitigation. Fraud detection includes identification of a testing component, an attempt component, and a success component. Only detection in all three of these areas provides the required support for the rest of the stages in the lifecycle.

To miss any of these is to run the risk of creating vulnerability that the fraudster will turn it to his advantage.

Wesley Kenneth Wilhelm (2004). After fraud is detected, the next stage is focused upon prosecutorial and judicial authorities as well as with law enforcement. Prosecution is defined as, “the act or process of prosecuting; to conduct legal action against, to pursue by legal proceedings for redress or punishment, especially because of some crime or breach of law” (Webster, 1997, 1976, and 1941). There are three aims of prosecution in the fraud arena. The first is to punish the fraudster in an attempt to prevent further theft. Secondly, prosecution seeks to establish, maintain, and enhance the organization’s reputation of deterring fraud, so that the fraud community becomes aware of it. This is accomplished by the aggressive and successful arrest and punishment of fraudsters who target the organization.

The third goal is to obtain recovery or restitution wherever possible. Some would argue that there is a fourth aim, that of satisfaction for punishing the fraudster. The emotional feelings of satisfaction, though positive, are fleeting and tend to obscure the realistic evaluation of prosecution activities. The importance of prosecution should be limited to deterrence, recovery, and restitution. (Wesley Kenneth Wilhelm 2004).

Procedures/Steps for a Forensic Audit Investigation

A forensic auditor is an expert with expertise in forensic auditing techniques and procedures as discussed below:-

- 1. Accepting the Investigation:** The forensic accountant must initially consider whether their firm has the necessary skills and experience to accept the work. Forensic investigations are specialist in nature, and the work requires detailed knowledge of fraud investigation techniques and the legal framework. Investigators must also have received training in the interview and interrogation techniques, and in how to maintain the safe custody of evidence gathered. Additional considerations include whether or not the investigation is being requested by an audit client. If it is, this poses extra ethical questions, as the investigating firm would be potentially exposed

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to self-review, advocacy and management threats to objectivity. Unless robust safeguards are put in place, the firm should not provide audit and forensic investigation services to the same client. Commercial considerations are also important, and a high fee level should be negotiated to compensate for the specialist nature of the work, and the likely involvement of senior and experienced members of the firm in the investigation.

2. **Plan the Investigation:** The auditor is required to understand what the focus of the audit is in planning the investigation entails. The investigating team must carefully consider what they have been asked to achieve and plan their work accordingly. The objectives of the investigation will include: identifying the type of fraud that has been operating, how long it has been operating for, and how the fraud has been concealed, identifying the fraudster(s) involved, quantifying the financial loss suffered by the client gathering evidence to be used in court proceedings providing advice to prevent the reoccurrence of the fraud. The investigators should also consider the best way to gather evidence-the use of computer assisted audit techniques, for example, is very common in fraud investigations.

Investigation plan details:

- a. Identify what fraud, if any, is being carried out.
 - b. Determine the time period during which the fraud has occurred.
 - c. Discourse how the fraud was concealed.
 - d. Identify the perpetration of the fraud.
 - e. Quantify the loss suffered due to the fraud.
 - f. Gather relevant evidence that is admissible in the court.
 - g. Suggest measures that can prevent such fraud in the organization or institution in future.
3. **Collecting/Gathering Evidence:** In order to gather detailed evidence, the investigator must understand the specific type of fraud that has been carried out, and how the fraud has been committed. The evidence should be sufficient to ultimately prove the identity of the fraudster(s), the technicalities of the fraud scheme, important that the investigating team is skilled in collecting evidence that can be used in a court case, and in keeping a clear chain of custody until the evidence is presented in court. If any evidence is inconclusive or there are gaps in the chain of custody, then the evidence may be challenged in court, or even become inadmissible. Investigators must be alert to documents being falsified, damaged or destroyed by the suspect(s). Evidence can be gathered using various techniques, such as: testing controls to gather evidence which identifies the weaknesses, which allowed the fraud to be perpetrated using analytical procedures to compare trends over time or to provide comparatives between different segments of the business applying computer assisted audit techniques, for example to identify the timing and location of relevant details being altered in the computer system discussions and interviews with employees substantive techniques such as reconciliations, cash counts and reviews of documentation. The ultimate goal of the forensic investigation team is to obtain a confession by the fraudster, if a fraud did actually occur. For this reason, the investigators are likely to avoid deliberately confronting the alleged fraudster(s) until they have gathered sufficient evidence to extract a confession. The interview with the suspect is a crucial part of evidence gathered

during the investigation. The evidence collected should be adequate enough to prove the identity of the fraudster(s) in court, reveal the details of the fraud scheme, and document the amount of financial loss suffered and the parties affected by the fraud. A logical flow of evidence will help the court in understanding the fraud and the evidence presented. The auditor is to ensure that evidence and document collected are not damaged or destroyed by any one.

Common technique used for collecting evidence in a forensic audit includes the following:

- a. **Substantive techniques:** This involves doing reconciliation, review of document, etcetera.
 - b. **Analytical procedures:** Comparing data from different segments.
 - c. **Computer assisted audit techniques:** Computer software programs that can be used to identify fraud.
 - d. Understanding internal controls and testing them so as to understand the loopholes which allowed the fraud to be perpetrated.
4. **Reporting:** A report is required so that it can be presented to the court about the fraud: The report should include the findings of the investigation, a summary of the evidence, an explanation of how the fraud was perpetrated, and suggestion on how internal control can be improved to prevent such frauds in future. The report is to be presented to the client for purpose of filing a legal case.
 5. **Court proceedings:** The forensic auditor needs to be present during court proceedings to explain the evidence collected and how the suspect was identified. As a result of these fraudulent activities perpetrated in our economy, auditors coming together decided to have a special people to do an in-depth study of what is happening, and the need to incorporate expertise that will be charged with responsibility of carrying out judicial functions together with accounting skills to investigate forensic auditing. Gbalam P.E (2010:8) states that "forensic evidence is usually for investigation and prosecution of criminal acts such as embezzlement or fraud". Forensic auditing has been seen as a specialization within the field of accounting, whereby forensic auditors provide experts testimony during trials proceedings, Nigrini (2011). In relation to this, Scoth (2008) defined forensic auditing "as especial practice of accounting that involves using auditing techniques to specifically look for financial conduct".

Definition of Fraud

According to the Black's law Dictionary, (1979) fraud (sometimes referred to as fraudulent act) includes all the multifarious means human ingenuity can devise that are resorted to by one individual to get an advantage over another by false suggestions or suppression of the truth. Adeleke (1996), also stated that fraud means an act or cause of deception deliberately practiced to gain unlawful or unfair advantage; such deception desired to the detriment of another. Benjamin (2001), defined fraud as simply conscience and premeditated action taken by a person or group of people to the truth or fact with a view to deriving selfish personal monetary gain. It involved the use of deceit and trick to forge or falsify document and signature in order to steal. He contrived by highlighting incidences of where fraud will manifest which among others over unauthorized overdraft presentation of forged cheques, posting of fictitious credit, suppressions of cheques and a host of others. He further remarked that experience has shown that name of the above type of fraud can succeed without insider connivance and or collaboration. Insider collaboration may be intentional or unintentional. This is why sometimes; innocent staffs

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when fraud occurs collaborate deliberately or not ranging from lack of adherence to laid down to deliberate defection, interception, misappropriation and diversion of assets. He gave few instances of fraudulent practices to enable his audience differentiate between collaboration that is intentional and one that is unintentional.

The nomenclature of fraud is complex and digital in the twenty first century. It encompasses different activities perpetrated by different persons at different places with the intent of defrauding the affected person or people for selfish monetary gain.

Adeleke (1996), observed that fraud has eaten deep into every aspect of the society to the extent that a three year old child talks about 419 or advance fee fraud. He further described that it is deceit or trickling deliberately practiced in order to gain some advantage dishonestly; He stated that, there must be dishonest intention and the action must be intended to another person.

Redzinowicz and Wolgan (1989) classify fraud together with white collar crime and defined them as illegal acts characterized by theft, deceit and concealment and are not dependent upon the application of physical force or violence threats.

Adewunmi and Ojibede (1987) in their definition, they agree that fraud is an action which involves the use of deceit and trick to alter the truth so as to deprive a person of something which is or something to which he might be entitled. Fraud is an intentional deceitful act for gain with the concept of concealment. As such, it is more than theft or defalcation. Fraud may be perpetrated by one person and working differently and in different positions between a manager and someone reporting or between an insider and outsider.

Adewunmi (1987) in his explanation of fraud identified socio-economic lapses in the society. such as; misplacement of social values in the source of wealth and the use of society expectation from bank staff and the subsequent desire of the staff to live up to such expectation as contributory factor to fraud.

Another theory of fraud states that banks have become persistent targets of men of underworld mainly because banks are seen as the richest organization in any country.

Ojigbode (1986) said the main cause of fraud in organizations in Nigeria is traceable to the general dishonesty in the society. Since there is corruption in all sectors of Nigerian economic life, banks cannot be an exception. He also mentioned other factors such as lack of regular and non-notified relation, clerks doing more than job which are incompatible and many more. In spite of the difficulty of arriving at a precise definition of fraud in view of the multiplicity or diversity of opinions and so on certain features or elements common to the definitions that will give clear meaning to the nature of fraud.

The common elements of fraud are:

- (a) **Criminal acts:** An act with the intention to act and actually carrying out such acts are injurious to the society and forbidden by law.
- (b) **Illegal acts:** These are acts that are not authorized both by law or owners of the property fraudulently obtained.
- (c) **Tortious acts:** Wrongful acts either by commission or omission which affects the rights of another individual and therefore affects the society.
- (d) **Deceptive acts:** an act that are engaged in to deceive another with the intention to enjoy some benefits at the expense of the person being deceived
- (e) **Concealed act:** these are criminal deceptive acts such that their perpetrators are hidden from the knowledge of others.

Categories of Fraud

The forensic accountant could be asked to investigate different types of fraud. Fraud is categorized into three categories, namely: corruption fraud, asset misappropriation and financial statement fraud. It is useful to categorize these types of fraud into three groups to provide an overview of the wide range of investigations that could be carried out. The three categories of fraud are corruption, asset misappropriation and financial statement fraud.

Corruption Fraud

There are three types of corruption fraud: conflicts of interest, bribery, and extortion. Research shows that corruption is involved in one third of all frauds. In a conflict of interest fraud, the fraudster exerts their influence to achieve a personal gain which detrimentally affects the company. The fraudster may not benefit financially, but rather receive an undisclosed personal benefit as a result of the situation. For example, a manager may approve the expenses of an employee who is also a personal friend in order to maintain that friendship even if the expenses are inaccurate.

Bribery is when money (or something else of value) is offered in order to influence a situation. Extortion is the opposite of bribery and happens when money is demanded (rather than offered) in order to secure a particular outcome.

Asset Misappropriation

By far, the most common fraud are those involving asset misappropriations, and there are many different types of fraud which fall into this category. The most common feature is the theft of cash or other assets from the company. For example, Cash theft-the stealing of physical cash e.g. petty cash from the premises of the company.

Fraudulent disbursements-company funds being used to make fraudulent payments. Common examples include billing schemes, where payments are made to fictitious suppliers, and payroll scam, where payment are made to fictitious employees (often known as ghost employees). Inventory fraud-the theft of inventory from the company. Misuse of assets-employees using company assets for their own personal interest.

Financial Statement Fraud

This is also known as fraudulent financial reporting and it is a type of fraud that causes a material misstatement in the financial statements. It can include deliberate falsification of accounting records, omission of transactions, balances or disclosures from the financial statement: or the misapplication of the financial reporting standards. This is often carried out with the intention of presenting the financial statements with a particular bias, for example, concealing liabilities in order to improve any analysis of liquidity and gearing.

Causes of Fraud in the Public Sector

The absence of a well- designed system of internal control

These circumstances are created by the inability of the public sector to design and established procedures.

The absence of internal audit

Every organization needs an internal audit and when there is none, fraud is most likely to be perpetuated.

Undue reliance placed by management upon the integrity of staff

These results to a situation where management depends on the truth they will get from staff. It is this undue dependency on staff that leads to fraud, since the staff knows that the figures they will present are the true state of records. Furthermore, Anyanwu (2009) discussed the causes of fraud, which include:

- a. **Poverty:** Majority of public sector staff and Nigerians public servants in general are among the poorest people and some of them are being pushed to commit fraud in order to survive and feed their family who are leaving in abject poverty
- b. **Poor salary:** Salaries of the public servants are being delayed and insufficient to cover their minimal standards of living so they utilized any available opportunity to commit fraud in order to gain extra income.
- c. **Inflation:** The salary of the public sector staff cannot cater for them with the current inflationary trend in the country, which erodes purchasing power and general price level of goods and services purchased by public servants.
- d. **Social value system:** Nigeria is obviously related to wealth accumulation and this leads to wide spread of moral decadence, cheating, abuse of office and inflation cost of contracts to accommodate kickbacks.

Proactive Methods of Fraud Detection

These proactive methods are integral part of the accountants' role in fraud detection and reporting. The methods are:

- (a) **Perform employee background check:** Performing employees' checks in organizations can help to minimize the threat of theft and other wrong doings.
- (b) **Increase the use of analytical review:** Conducting financial analysis, internal auditors revealed unexpected or absence of relationship that should be present. Auditors should analysis several years of financial statement data by using various analysis, ratio (vertical) analysis or common size statement, budgetary comparison and review general ledger and journal entries.
- (c) **Perform contact review:** According to Carl and Richard (2006), review of organization contracts can help identify possible contract fraud such as conflicts of interests and kick back among employees. A review of public records may reveal whether an employee has converted ownership interest of a contractor.
- (d) **Conduct an economic espionage threat analysis:** To protect sensitive information, organization internal auditors should perform analysis that gauges threat to intellectual assets. The analysis to be made include the assessment of what assets are owned and how it is been misappropriated.
- (e) **Increase internal control evaluation and testing:** Internal control is an integral part to effective and corporate governance and presents an area in which the audit department can add value and help the organization accomplishes its goal and objectives. The process shall be successful, if internal auditors should work with external auditors to ensure that controls are being tested and all regulatory requirements are met. Fraud detection process is made up of eight components. They are fraud deterrence, fraud detection, fraud prevention, fraud mitigation, fraud analysis, fraud policy, fraud prospection. Out of these fraud detection processes, none appears to have attracted increased scholarly attention lately as the twin component

of fraud detection and fraud prevention. We therefore deem it necessary to concentrate our discussion on the fraud control measures using the fraud detection in organization.

Empirical Studies

The empirical studies review below among others constitutes the related literature on forensic audit ad fraud detection in Nigerian public sector.

Akani and Ogbeida (2017) perform investigation on forensic accounting and fraudulent practices in the Nigerian public sector. The study employed the survey descriptive research design with a population of study consisting of all public institutions in Edo State, Nigeria. The study further selected at random ten (10) government establishments, both federal and state owned. The data were analyzed using frequency counts and simple percentages method. Findings show that forensic accounting reduces fraudulent practices in the Nigerian public sector.

Ogiriki and Appah (2018) analyze the effect of forensic accounting and auditing techniques on public sector fraud detection, investigation and prevention in Nigeria. The authors specifically sought to establish the effect of the various techniques of forensic accounting on public sector fraud. Secondly, the study determines the effect of forensic auditing on fraud detection, investigation and prevention. The research design employed was ex post factor design approach to analyze restructured questionnaire for data collection and regression analysis for hypothesis testing. The result shows that the relationship between forensic accounting and auditing techniques and public sector fraud detection, investigation and prevention in Nigeria is quite significant.

Anichebe and Juliana (2016) examined the relevance of forensic auditing as an investigative tool in curbing financial crimes in public sector organizations. Both primary and secondary sources of data were appropriately used. 120 questionnaires were administered to professional staff of the federal ministry of Finance Abuja Nigeria, along with interviews conducted with those ministries out of which 88 were filled and returned. Tables and simple percentages were used to analyze the data. The statistical tool employed to test hypotheses was Analysis of Variance (ANOVA). Among the findings was that there is significant relationship between forensic auditing and investigative skill in curbing financial crime.

Paul and Yunusa (2018) research 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 collates 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. Finally, the study concludes that application of forensic accounting skills and techniques contribute immensely in the investigation of complex financial crimes there by enhancing economic stability.

Recently, Olaoye (2020) employs survey research design to study impact of forensic accounting technique for combating financial crimes in Nigerian public sector. Using purposive sampling to select a total of 86 auditors and accountants in three sampled ministries in Osun State, the author adopted a mix of descriptive and inferential statistic tools to analyze primary and secondary data. Finding shows that fighting financial crimes in the public sector by applying forensic accounting is possible. The study concludes that forensic accounting can play a significant role in combating financial crimes.

Methodology

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This study adopted the cross-sectional field survey of quasi-experimental research design. The accessible population comprises of the twenty-three (23) federal ministries and commissions located in Rivers State, Nigeria. Time series data, secondary in nature were generated for this study and presented in tables, charts and graphs.

The data were analyzed and stated hypotheses tested with descriptive statistics, Augmented Dickey-Fuller stationary unit root test. Pairwise grander causality test and the statistical tool, Multiple regression analysis with the aid of econometric software, E-view version 10.

Model

The viable models developed for this study are as follows:

The general time series specification of Multiple Regression Analysis is as follows:

$$Y = \beta_0 + \beta_1 x + \dots + \beta_n x + \dots + \epsilon \tag{1}$$

The functional relationship of the variables is stated below

$$FD = f(LSS, IA, FAR) \dots \tag{2}$$

Where:

- FD = Fraud detection
- LSS = Litigation support services
- IA = Investigative accounting
- FAR = Forensic audit report

Using equations (2) above, the mathematical form of the model is specified below:

$$FD = \beta_0 + \beta_1 LSS + \beta_2 IA + \beta_3 FAR \dots \tag{3}$$

The econometric model using the mathematical relationship is specified thus:

$$FD = \beta_0 + \beta_1 LSS + \beta_2 IA + \beta_3 FAR + \epsilon \dots \tag{4}$$

Where:

FD, LSS, IA, FAR are as earlier defined and the constants; $\beta_1, \beta_2, \beta_3$ are parameter estimates; ϵ = Stochastic term with the assumption that the constants and variables are normally distributed.

In line with Donald Cressey theory of fraud triangle and from equation (3) we expect that:

$$\beta_1, \beta_2 \ \& \ \beta_3 > 0$$

That is we expect an increase in:

LSS to increase in FD

IA to increase in FD

FAR to increase in FD

Apriori expectation $\beta_1, \beta_2 \ \& \ \beta_3 > 0$

Dependent Variable: FD
 Method: Least Squares
 Date: 05/16/21 Time: 19:06
 Sample: 2010 2019
 Included observations: 10

Variable	Coefficient(β)	Std. Error	t-Statistic	Prob.
LSS	0.667882	0.083354	8.012585	0.0002

IA	0.401326	0.068330	5.873337	0.0011
FAR	0.061480	0.043573	1.410971	0.0079
R-squared	0.976054	Mean dependent var		0.221340
Adjusted R-squared	0.964082	S.D. dependent var		0.093634
S.E. of regression	0.017746	Akaike info criterion		-4.936182
Sum squared resid	0.001889	Schwarz criterion		-4.815148
Log likelihood	28.68091	Hannan-Quinn criter.		-5.068956
F-statistic	81.52246	Durbin-Watson stat		2.507002
Prob(F-statistic)	0.000030			

Test Hypotheses

The stated hypotheses are subjected to test using the statistical tool, Multiple Regression Analysis.

Decision rule: If the probability (sign-value) is less than or equal to $(\leq) \alpha = 0.05$, reject the null hypotheses.

H₀₁: There is no significant relationship between litigation support services and fraud detection

Table 1 below presents the result of hypothesis (1) test using the generated data.

$$FD = \beta_0 + \beta_1 LSS + \beta_2 IA + \beta_3 FAR + \mu$$

Dependent Variable: FD

Method: Least Squares

Date: 05/16/21 Time: 19:06

Sample: 2010 2019

Included observations: 10

Variable	Coefficient(β)	t-Statistic	Prob.
LSS	0.667882	8.012585	0.0002

Source: Extracts from E-views Version 10 print out and Author's compilation

Decision: Reject the null hypothesis since p-value = 0.0002 is less than ($<$) 0.05. This implies that litigation support services effectively facilitate fraud detection in Nigerian public sector.

H₀₂: Investigative accounting does not significantly relate to fraud detection

Table 2 below presents the test result on hypothesis II using the generated data

$$FD = \beta_0 + \beta_1 LSS + \beta_2 IA + \beta_3 FAR + \mu$$

Dependent Variable: FD

Method: Least Squares

Date: 05/16/21 Time: 19:06

Sample: 2010 2019

Included observations: 10

Variable	Coefficient(β)	t-Statistic	Prob.
IA	0.401326	5.873337	0.0011

Source: Extracts from E-views Version 10 print out and Author's compilation

Decision: P-value = 0.0011 is less than ($<$) 0.05, thus reject the null hypothesis. This implies that investigative accounting greatly enhances fraud detection in Nigerian public sector

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Ho₃: Forensic audit report does not significantly relate to fraud detection

Table 3 below presents the test result on hypothesis III using the generated data.

$$FD = \beta_0 + \beta_1LSS + \beta_2IA + \beta_3FAR + \mu$$

Dependent Variable: FD

Method: Least Squares

Date: 05/16/21 Time: 19:06

Sample: 2010 2019

Included observations: 10

Variable	Coefficient(β)	t-Statistic	Prob.
FAR	0.061480	1.410971	0.0079

Source: Extracts from E-views Version 10 print out and Author's compilation

Decision: Since the p-value = 0.0079 is less than (<) 0.05, reject the null hypothesis. This implies that forensic audit report plays a major role in fraud detection in Nigeria public sector.

Conclusion and Recommendations

The empirical findings of this study revealed that litigation support services effectively facilitate fraud detection in Nigerian public sector. The results of our analysis on this specific objective indicate positive coefficient = 0.0667882 and p-value = 0.0002 less than (<) 0.05. This analysis is in agreement with Olaoye (2020), who concluded that litigation support services plays very important role in detecting financial crimes in Nigeria.

The analysis of our results further revealed that investigative accounting greatly enhances fraud detection in Nigerian public sector. The analysis on this matter shows a positive coefficient of $\beta = 0.401326$ and a p-value = 0.0011 less than (<) 0.05. Akani and Ogbeide (2017) supports our findings that investigative accounting is a panacea to fraud detection in Nigeria. The analysis also showed that forensic audit report is an inevitable tool for fraud detection in Nigeria public sector.

The work of Nazinu, Magaji and Lawan (2018), is not in disparity with our finding on this matter. He affirmed that forensic audit is a major instrument in fraud detection in Nigeria.

Therefore, it is concluded that forensic audit is one of the most effective tools in fraud detection in Nigerian public sector with inherent influence on the overall growth of the economy. The conclusion is not in disparity with the works of Edheku, Ochuke and Akpoveta (2020); Sule, Ibrahim and Sani (2019). In line with the findings of this study, the followings were recommended:

1. Forensic auditors should adopt the application of litigation support services, investigation accounting and forensic audit report in fraud detection in all economies of the world.
2. The exposition on litigation support services, investigative accounting, forensic audit and fraud detection should be used as policy formulation guides to government at all levels.

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