

Forensic Investigation and Forensic Audit Methodology: Remedy to Fraudulent Practices in a Computerized Work Environment

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Abstract

The study focused on forensic investigation and forensic audit methodology as a remedy to fraudulent practices in a computerized work environment. Two research questions and two hypotheses were formulated in line with the objectives of the study. A descriptive survey research design was adopted. The population of the study consisted 334 accountants and auditors in 3 federal ministries in Anambra State, Nigeria. No sample was taken as the sample size was manageable. A 10-items structured questionnaire using a 5-point likert scale to measure the influence of forensic audit on a fraudulent computerized work environment validated by three experts was used for the study. The reliability of the instrument was ascertained using Pearson Product Moment Correlation Co-efficient to determine its degree of reliability which obtained overall reliability coefficient values of 0.95. The statistical tool used to answer research questions were mean and standard derivations while Analysis of variance, (ANOVA) was used to test the null hypotheses at 0.05 level of significance. From the findings of the study, it was revealed that forensic auditors are used for detecting and preventing fraudulent practices in selected federal ministries in Anambra State. Therefore, it was recommended that all forensic investigators should be well equipped with forensic auditing techniques in obtaining admissible evidence suitable for litigation purposes as forensic auditors are currently in great demand, with the public needs for honesty, fairness and transparency in reporting increasing rapidly.

Keywords: forensic auditing, forensic investigation, fraudulent practices, litigation.

Introduction

The incidence of Enron and WorldCom cases which rocked the corporate world has brought the field of forensic investigation and forensic audit into the limelight. Forensic auditing and forensic investigation is seen as encapsulating all other investigation related areas in unearthing fraudulent practices. Accordingly, Karwai (2004) opined that, “increase wave of fraud is causing a lot of havoc in the Nigeria federal ministries” (as cited in Amake & Ikhatua, 2015). This is because fraud has penetrated into every aspect of Nigeria Federal Ministries. Okunbor and Obaretin (2010) reported, “that the spates of corporate failure have placed greater responsibilities and functions on accountant to equip themselves with skills to identify and act upon indicators of poor corporate governance, mismanagement, frauds, money laundering and wrong doing”.

Forensics refers to the scientific methods used to solve a crime. Forensic investigation is the gathering and analysis of all crime-related physical evidence in order to come to a conclusion about a suspect. The incident of fraudulent practices involves complicated activities and forensic steps as the complexity of infraction demands the involvement of highly experienced forensic auditors (Oyedokun, 2015). Forensic Investigation and Forensic Audit are better forensic strategies in resolving the allegations of fraudulent activities as signs of fraudulent practices can be initially detected in a variety of ways; by accident, by whistle-blowing, by auditors, by data mining, by controls and testing, or by the organization's top

management requesting an inspection on the basis of mere suspicion. Centre for Forensic Studies (2010) report in Nigeria states that if well applied, forensic accounting/auditing could be used to avert the loopholes that cause corporate failures. Subsequently, the incorporation of modern forensic auditing techniques in audit and in Nigeria is seen as timely in order to prepare the accounting profession to deal effectively with the incidences of uncovering ingenious fraudulent practices arising from audit failure to detect frauds in the Nigeria economy. This paper discussed the role of forensic investigations and forensic audit methodology as a remedy to fraudulent practices in a computerized work environment in selected federal ministries in Anambra State.

Statement of the Problem

There is an alarming increase in the number of fraud and fraudulent activities in Nigeria emphasizing the visibility of forensic accounting services (Ojaide 2000). Okoye, Nwoye and Obialor (2019), Owojori and Asaolu (2009), Izedomin and Mgbame (2011) have all acknowledged in their separate works, the rapid increase of fraud and fraudulent activities in Nigeria and these studies have argued that in Nigeria, fraudulent practices is gradually becoming a normal way of life. The perpetuation of financial irregularities are becoming the specialty of both private and public sector in Nigeria as individual perpetrates fraudulent practice according to the capacity of their office". However, there has not been adequate emphasis, especially survey evidence on forensic investigation and forensic auditing methodology in curbing fraudulent practices in a computerized work environment in Anambra State.

The paper objectives are:

1. To ascertain the influence of forensic investigation and forensic auditing methodology as a remedy to fraudulent practices in a computerized work environment in selected federal ministries in Anambra State.
2. To determine the influence of forensic investigation and forensic auditing methodology in controlling fraudulent practices in a computerized work environment in selected federal ministries in Anambra State.

Research Questions

The following research questions were raised in order to achieve the objectives stated:

1. What is the influence of forensic investigation and auditing methodologies as a remedy to fraudulent practices in a computerized work environment in selected federal ministries in Anambra State?
2. What is the influence of forensic investigation and forensic auditing methodology in controlling fraudulent practices in a computerized work environment in selected federal ministries in Anambra State?

Null Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant difference in the mean responses of accountants and auditors on the influence of forensic investigation and forensic auditing methodology as a remedy to

fraudulent practices in a computerized work environment in selected federal ministries in Anambra State based on years of experience (0- 5yrs, 6- 10yrs, and above 10yrs).

2. There is no significant difference in the mean responses of accountants and auditors on the influence of forensic investigation and forensic auditing methodology in controlling fraudulent practices in a computerized work environment in selected federal ministries in Anambra State based on years of experience (0- 5yrs, 6- 10yrs, and above 10yrs).

Null Hypotheses

The following hypotheses stated below were formulated and tested for the study:

1. **H₀₁**: Forensic investigation and forensic auditing methodology do not (significantly) provide a remedy to fraudulent practices in a computerized work environment in selected federal ministries in Anambra State?
2. **H₀₂**: Forensic investigation and forensic auditing methodology do not significantly control fraudulent practices in a computerized work environment in selected federal ministries in Anambra State.

Literature

White Collar Crime Theory

The theory of white-collar crime was as dated back to 1939. Sutherland (1949) (cited in Adebisi & Gbegi, 2012). Sutherland was the first to coin the term, and hypothesis white-collar criminals, attributed different characteristics and motives than typical street criminals. Sutherland originally presented his theory in an address to the American Sociological Society in attempt to study two field, crime and high society which had no previous empirical correlation. Sutherland in Adebisi and Gbegi defined crime committed by a person respectability and high social status in the course of his occupation. Adebisi and Gbegi noted that in time, less than two (2) percent of the persons committed to prison in a year belong to the upper class. Adebisi and Gbegi goal was to prove a relation between money, social status, and likelihood of going to jail for a white-collar crime, compared to more visible, typical crimes, although, the percentage is a bit higher today. Much of Sutherlands work was, “to separate and define the difference in blue collar street crimes, such as arson, burglary, theft, assault, rape and vandalism which are often blamed on psychological, associational and structural factors” (Adebisi & Gbegi, 2012). Instead, white-collar criminals are opportunists, who over time learn they can take advantage of their circumstances to accumulate financial gain. They are educated, intelligent, affluent, individuals who are qualified enough to get a job which allows them the unmonitored access to often large sum of money. But the Federal Bureau of Investigation (FBI) has adopted a narrow approach defining white-collar crime as those illegal acts which are characterized by deceit, concealment, or violation of trust and which are not dependent upon the application or threat of physical force or violence. The blue collar crime will more often use physical force, whereas, in the corporate world, the identification of a victim is less obvious and the issuer of reporting is complicated by a culture of commercial confidentiality. Fredrichs (2007) stated that the only way one crime differs from another is in the backgrounds and characteristics of its perpetrators. Most, if not all white-collar offenders are distinguished by lives of privilege, much of it with origins in class

inequality. It is estimated that a great deal of white-collar crimes is undetected or if detected, it is not reported. Because of the high status of the perpetrators of these crimes, a highly trained and experienced examiner or investigator like the Forensic Auditor is needed to forestall the occurrence of such high profile fraud. This study is anchored on white collar crime theory because it expound forensic investigation and forensic auditing methodology in selected federal ministries in Anambra State.

Forensic in Computerized Work Environment

Oyedokun (2015) refers to computer forensics as the practice of collecting, analysing and reporting on digital data in a way that is legally admissible. It can be used in the detection and prevention of fraudulent practices and in any dispute where evidence is stored digitally. Computers may constitute a 'scene of a crime', for example with hacking or denial of service attacks or they may hold evidence in the form of emails, internet history, documents or other files relevant to crimes such as murder, kidnap, fraud and drug trafficking. Oyedokun went further to say that it is not just the content of emails, documents and other files which may be of interest to investigators but also the 'metadata' associated with those files. A computer forensic examination may reveal when a document first appeared on a computer, when it was last edited, when it was last saved or printed and which user carried out these actions.

Stages of Computer Forensic Examination

Computer forensic examination process could be divided into six stages; readiness, evaluation, collection, analysis, presentation and review;

Stage one: Readiness

For the forensic examiner themselves, readiness will include appropriate training, regular testing and verification of their software and equipment, familiarity with legislation, dealing with unexpected issues (e.g., what to do if indecent images of children are found present during a commercial job) and ensuring that the on-site acquisition (data extraction) kit is complete and in working order.

Stage two: Evaluation

The evaluation stage includes the receiving of instructions, the clarification of those instructions if unclear or ambiguous, risk analysis and the allocation of roles and resources. Risk analysis for law enforcement may include an assessment on the likelihood of physical threat on entering a suspect's property and how best to counter it.

Stage three: Collection

The collection stage also involves the labelling and bagging of evidential items from the site, to be sealed in numbered tamper-evident bags. Consideration should be given to securely and safely transporting the material to the examiner's laboratory.

Stage four: Analysis

Analysis depends on the specifics of each job. The examiner usually provides feedback to the client during analysis and from this dialogue the analysis may take a different path or be narrowed to specific areas. Analysis must be accurate, thorough, impartial, recorded, repeatable and completed within the time-scales available and resources allocated.

Stage five: Presentation

This stage usually involves the examiner producing a structured report on their findings, addressing the points in the initial instructions along with any subsequent instructions. It would also cover any other information which the examiner deems relevant to the investigation.

Stage Six: Review

A review of an examination can be simple, quick and can begin during any of the above stages. It may include a basic analysis of what went wrong, what went well, and how the learning from this can be incorporated into future examinations'. Feedback from the instructing party should also be sought. Any lessons learnt from this stage should be applied to the next examination and fed into the readiness stage.

Issues Facing Computer Forensics

The issues facing computer forensics examiners can be broken down into three broad categories: technical, legal and administrative.

Technical Issues include; Encryption, Increasing storage space, New technologies and Anti-forensics.

Legal issues include; Administrative issues, accepted standards and Fit to practice.

Methodology

The descriptive survey design was adopted for this study. The study was carried out in 3 federal ministries at Anambra State of Nigeria. Ministry of Finance, Ministry of Commerce and Industry, and Ministry of Budget and Planning in ascertaining the influence of forensic investigation and forensic auditing methodology as a remedy to fraudulent practices through interview process in selected federal ministries at Anambra State. The population comprised of 2102 accountants and auditors(accountants 1368 and auditors 734) in 3 ministries at Anambra State of Nigeria to include (Ministry of Commerce and Industry = 520, Ministry of Budget and Planning, = 600 and Ministry of Finance = 982).The use of purposive sampling was based on the fact that, Anambra State has a total of 22 ministries which the population were selected, also that the nature of fraud committed in all the ministries appears to be the same and therefore may serve a good representative of the whole ministries. Hence, the researchers used proportionate sampling technique whereby a percentage of the sample to be drawn from each stratum was calculated and the proportion of 16 percentages was calculated from the sample size. The use of arithmetical formular was adopted to arrive at the sample size 'n' with 5% level of significance which was 334. The statistical technique employed in analyzing the data was mean and standard derivation for research questions and Analysis of Variance (ANOVA) for hypotheses. Decision was that items with mean ratings of 3.50-4.00 were regarded as "strongly agreed". Mean ratings from 2.50-3.49 were regarded as "agreed". Mean ratings between 1.50-2.49 were regarded as "disagreed". Mean ratings between 0.50-1.49 were regarded as "strongly disagreed".

A null hypothesis was rejected where the calculated p-value was less than the 0.05 level of significance, it meant that there was significant relationship. Conversely, where the calculated p-value was greater than or equal to the level of significance (0.05), it meant that there was no significant relationship and the hypothesis was accepted

Data Presentation and Analysis

Research Question 1: What is the influence of forensic investigation and auditing methodology to remedy fraudulent practices in a computerized work environment in selected federal ministries in Anambra State?

Table 1: Means and standard deviation of forensic investigation and auditing methodology to remedy fraudulent practices. (n=334)

S/N	Forensic Investigation and auditing methodology	\bar{X}	SD	Remarks
1.	The application of forensic investigation and auditing in federal ministries is effective in curbing fraudulent Practices	3.10	0.62	Agree
2.	Forensic investigation and forensic auditing guarantee the well-being of federal ministries against fraudulent practices	3.54	0.45	Strongly Agree
3.	Forensic investigation and auditing help federal ministries in the State in presenting credible and transparent financial reports	2.62	0.74	Agree
4.	The application of forensic auditing methodology enhances quality of financial reporting in federal ministries in Anambra State	3.39	0.51	Agree
5.	The application of forensic auditing methodology is effective to unearth fraudulent practices.	2.75	0.70	Agree
Cluster Mean		3.08	0.60	Agree

Data in Table 1 show that out of the five items listed on forensic investigation and auditing methodology to remedy fraudulent practices in a computerized work environment in selected federal ministries in Anambra State, one item was rated strongly agree with the mean score of 3.54 and the remaining four items were rated agree with the mean scores ranging from 2.62 to 3.39. The cluster means score of 3.08 shows that forensic investigation and auditing methodology are used in curbing fraudulent practices in selected federal ministries in Anambra State. The standard deviations for all the items fall within the same range of 0.45 to 0.74, with an overall range of 0.60. This shows that the respondents were not wide apart in their mean ratings.

Research Question 2: What is the influence of forensic investigation and forensic auditing methodology in controlling fraudulent practices in a computerized work environment in selected federal ministries in Anambra State?

Table 2: Means and standard deviation of forensic investigation and forensic auditing methodology in controlling fraudulent practices, (n=334)

S/N	Controlling Fraudulent Practices	\bar{X}	SD	Remarks
1.	Forensic auditing methodology is effective in controlling corporate scandals in federal ministries in Anambra State	3.10	0.74	Agree
2.	Fraudulent practices can be controlled in federal ministries in Anambra State by the application of forensic investigation	3.44	0.67	Agree
3.	Application of forensic investigation prevent and minimize fraudulent practices	3.52	0.54	Strongly Agree
4.	Forensic auditing is effective as a fraud prevention tool	3.39	0.61	Agree
Cluster Mean		3.36	0.64	Agree

Data in Table 2 show that out of the four items listed of forensic investigation and forensic auditing methodology effective in controlling fraudulent practices in a computerized work environment in selected federal ministries in Anambra State, one item was rated strongly agree with the mean score of 3.52 and the remaining three items were rated agree with the mean scores ranging from 3.10 to 3.44. The cluster means score of 3.36 shows that forensic investigation and forensic auditing methodology are used in controlling fraudulent practices in selected federal ministries in Anambra State. The standard deviations for all the items fall within the same range of 0.54 to 0.74, with an overall range of 0.64. This shows that the respondents were not wide apart in their mean ratings.

Testing the Hypotheses

Null Hypothesis 1: There is no significant difference in the mean responses of accountants and auditors on the influence of forensic investigation and forensic auditing methodology as a remedy to fraudulent practices in a computerized work environment in selected federal ministries in Anambra State based on years of experience (0- 5yrs, 6- 10yrs, and above 10yrs). This null hypothesis was tested using One-way ANOVA at 0.05 level of significance and the results are presented in Table 3.

Table 3: One Way Analysis of Variance (ANOVA) of accountants and auditors on the influence of forensic investigation and forensic auditing methodology as a remedy to fraudulent practices in a computerized work environment in Federal Ministries in Anambra State.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.081	2	.040	.026	.974
Within Groups	476.629	307	1.553		
Total	476.710	309			

Descriptive	n	Mean	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
<5yrs	113	3.95	1.240	.122	3.71	4.19	1	5
6-10 yrs	113	3.94	1.235	.122	3.70	4.18	1	5
10 yrs and above	108	3.91	1.263	.124	3.67	4.16	1	5
Total	334	3.94	1.242	.071	3.80	4.07	1	5

Table 3 showed a p-value of 0.974, and 309 degree of freedom. Since p-value of 0.947 is greater than 0.05, the implication was that the null hypothesis was not rejected which means that the respondents (accountants and auditors with less than 5years, 6-10years and above 10years experience) respectively did not differ in their mean responses on the influence of forensic investigation and forensic auditing methodology to provide remedy to fraudulent practices in selected federal ministries in Anambra State.

Null Hypothesis 2: There is no significant difference in the mean responses of accountants and auditors on Forensic investigation and forensic auditing methodology in controlling fraudulent practices in a computerized work environment in selected federal ministries in Anambra State based on years of experience (0- 5yrs, 6- 10yrs, and above 10yrs).

This null hypothesis was tested using One-way ANOVA at 0.05 level of significance and the results are presented in Table 4.

Table 4: One Way Analysis of Variance (ANOVA) of accountants and auditors on Forensic investigation and forensic auditing methodology in controlling fraudulent practices in a computerized work environment in selected federal ministries in Anambra State.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.080	2	.039	.025	.973
Within Groups	476.628	307	1.552		
Total	476.708	309			

Descriptives	n	Mean	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
<5yrs	113	3.94	1.235	.122	3.70	4.18	1	5
6-10 yrs	113	3.95	1.240	.122	3.71	4.19	1	5
10 yrs and above	108	3.91	1.263	.124	3.67	4.16	1	5
Total	334	3.94	1.242	.071	3.80	4.07	1	5

Table 3 showed a p-value of 0.973, and 309 degree of freedom. Since p-value of 0.973 is greater than 0.05, the implication was that the null hypothesis was not rejected which means that the respondents (accountants and auditors with less than 5years, 6-10years and above 10years experience) respectively did not differ in their mean responses on Forensic investigation and forensic auditing methodology in controlling fraudulent practices in a computerized work environment in selected federal ministries in Anambra State based on years of experience (0-5yrs, 6- 10yrs, and above 10yrs).

Summary of Findings

Based on the analysis it was discovered that:

1. The finding shows that forensic investigation and forensic auditing methodology serves as a remedy to fraudulent practices in selected federal ministries in Anambra State.
2. The finding shows that forensic investigation and forensic auditing methodology are used in controlling fraudulent practices in selected federal ministries in Anambra State.

Discussion of Findings

Findings of the study revealed that forensic investigation and forensic auditing methodology serves as a remedy to fraudulent practices in selected federal ministries in Anambra State. The results in Table 3 revealed that the respondents did not differ significantly in their mean ratings that forensic investigation and forensic auditing methodology provide remedy to fraudulent practices in selected federal ministries in Anambra State. This is in agreement with Amake and Ikhatua (2015) which examined the significant difference between forensic Accounting and fraud detection in the Nigerian public sector. Anuolam, Onyema and Ussim (2016) noted that forensic accounting is significant in the face of the increasing fraudulent practices in Nigeria.

Findings of the study regarding the second research question indicated that forensic investigation and forensic auditing methodology are used in controlling fraudulent practices in selected federal ministries in Anambra State. However, in Table 4 it also shown that the respondents did not differ significantly in their mean ratings. This means that the application of forensic investigation and forensic auditing methodology are effective in controlling fraudulent practices in selected federal ministries in Anambra State. This finding was in disagreement with Okolie (2014) which conducted a research to examine forensic accounting in curbing financial crimes and corruption in developing countries such as Nigeria. The study revealed that the application of forensic auditing is still at a very low level due to high cost of forensic accounting equipment and the time and resources required in training the forensic auditor.

Conclusion

Based on the findings of the study, it was concluded that there is need to employ the services of forensic investigators and forensic auditors in order to reduce fraudulent practices so as to enhance economic growth and development in developing economies. It was recommended among others, Detection and prevention of fraudulent practices through the application of forensic investigation and forensic auditing methodology will improve the image of the selected federal ministries in Anambra State of Nigeria.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. That all would be forensic investigators and fraud/forensic auditors should be well equipped with forensic auditing techniques in obtaining admissible evidence suitable for litigation purposes.

2. Forensic auditors are currently in great demand, with the public need for honesty, fairness and transparency in reporting increasing exponentially. These forensic auditors should be trained in accounting, finance, law, investigative and research skills to identify, interpret, communicate, control and prevent fraud.

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