

## **ACCOUNTING INFORMATION SYSTEM AND FRAUD MITIGATION IN PUBLIC SECTOR IN NIGERIA**

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### **ABSTRACT**

*The study investigated the relationship between accounting information system and fraud mitigation in public enterprises in Nigeria. determine the relationship between accounting system and prevention of frauds/errors in public enterprises Nigeria; ascertain the relationship between control activities/monitoring and prevention of frauds/errors in public enterprises Nigeria. Interpretative philosophy was adopted while descriptive research design was adopted for the study. The population of the study consisted of twenty six (26) public enterprises in Rivers State, Nigeria as at the end of 2020. The unit population was the staff of the public enterprises from departments of Finance and Accounts and internal audit for each of the selected public enterprises. Probability sampling technique of simple random sampling was used to determine the sample for the study. Using Taro Yamene method a sample of 24 public enterprises and 240 respondents were selected for the study. Copies of questionnaire were used for data gathering. Univariate, bivariate and multivariate techniques was used for data analysis. The result of the study shows that a positive insignificant relationship between accounting system and prevention of frauds/errors in public enterprises Nigeria. The study recommends among others that government should put in place a functioning of internal control system that needs the right control make-up, with control performance clarified in detail at each point of public governance. This should contain: top level reviews; appropriate activity controls for different sectors or segments; neutral controls; looking for conformity with disclosure restrictions and follow-up on noncompliance; a system of authorisations; confirmation and reconciliation. It also needs appropriate separation of jobs and that the workforce is not assigned contradictory schedules as a means of mitigating the high level of fraud in public enterprises in Nigeria.*

**Keywords: Accounting, Information System Fraud, Mitigation**

### **INTRODUCTION**

Fraud practices remain an international issue due to the effect on societies globally. Ogotu and Ngahu (2016) noted that fraud activities have continually been increasing at a geometric rate thus calling for the utilisation of internal control practices to mitigate the impact on global economies. Ogiriki and Appah ((2018) observed that it is important for public enterprises to put in place effective and efficient fraudulent prevention and detection mechanisms so as to reduce the level of fraud and abusive of public funds. Othman, et al (2015) stated that several techniques can be employed to minimize fraudulent activities such as executing transparent performance and remuneration schemes, culture of fraud awareness, managerial communications to fraud and abusive activities.

Fraud is a global concern due to the effects it has on individuals of any given society. Ukoma (2019) described fraud as the obtaining of financial gains due to deceit, through either a misrepresentation or concealment of material facts. Okoye, et al (2017) observed that fraud is an intentional deception made for personal gain for unauthorised benefits in terms of money and

property. The authors further noted that fraud entails the use of an individual's occupation for personal gains through deliberate misuse or application of employers' resources. The Association of Certified Fraud Examiners (ACFE, 2014), stated that fraud is an action by an employee to use his or her office to enrich himself or herself through the misuse or misappropriation of government resources or assets. However, the level of fraudulent activities can be prevented by using effective and efficient internal control systems. The level of fraudulent activities in the Nigerian public enterprises is a cause for concern to financial experts, accountants, captains of industries, economic policy makers at the higher level and members of the public. Inyada, et al (2019) stated that fraud is an international phenomenon that has been in existence for several years and it increases on a daily basis due to human activities of in the workplace. Udukeke and Ezenwafor (2019) noted that fraud has infested the fabrics of most public enterprises in Nigeria. The authors further noted that fraud has now become a way of life among employees in all levels of public sector entities. Similarly, Ogutu and Ngahu (2016) disclosed that fraud has been on the rise in the 21st century and it is now a global concern. This is why Yar (2013) observed that occupational fraud incidents can be noted on a daily basis in the print media and social media. Udukeke and Ezenwafor (2019) noted that the occurrence of fraud in Nigeria has become common and persistent in public sector entities as shown by numerous reported and non-reported cases of bribery, embezzlement, cash theft, inventory theft, cheque tempering, payroll scheme, swindle, forgery, collusion between management and external auditors, and kickbacks in recent times. Oyejide (2008) in Ogiriki and Appah (2018) noted that fraud is a subject that has received a lot of academic and international attention. This interest has been heightened by several high profile cases of fraud involving several public enterprises.

## **HYPOTHESES**

- Ho<sub>1</sub>:** There is no significant relationship between control environment and detection of fraud/errors in public enterprises in Nigeria.
- Ho<sub>2</sub>:** There is no significant relationship between accounting system and detection of fraud/errors in public enterprises in Nigeria.
- Ho<sub>3</sub>:** There is no significant relationship between control activities/monitoring and detection of fraud/errors in public enterprises in Nigeria.

## **Accounting Information System and Fraud Mitigation**

Accounting information is needed at all levels of an organisation to assist management in meeting the organisation's objectives. According to Ohaka and Somina (2020) an effective accounting system provides an audit trail that allows frauds to be discovered and makes concealment difficult. A well-designed accounting information system can be used to mitigate the level of fraud in the public sector. Fraud is defined as an intentional misrepresentation of financial information by an individual or group of individuals. It entails the utilisation of criminal deception to obtain an illegal advantage. Ohaka and Somina (2020) stated that fraud embraces all the multifarious means which human ingenuity can devise, which are resorted to by one individual, to get an advantage over another by false representations. The Economic and Financial Crime Commission (2004) defined fraud as the non-violent criminal and illicit activity committed with objective of earning funds illegally either individually or in a group or organized manner thereby violating existing laws governing the economic and financial activities of government. According to Okoye, et al (2017), fraud is an act of deceit or dishonest conduct involving acts of omission or making fraudulent statements with the aim of obtaining financial benefits.

## Theoretical Review

There are several theories that are used to explain the correlation between internal control practices and fraud prevention. According to Enofe et al (2016), these theories include fraud triangle theory, white collar crime theory, fraud scale theory, fraud diamond theory and new fraud diamond theory.

### Fraud Triangle Theory

This theory was developed by Cassey (1919 – 1987). The theory explains that individuals who are trusted could violate the trust once they believe that having a financial problem that is non-shareable can be solved by violation of a position of financial trust. Hence, these individuals can use their position to change their perception and those of others on their action. According to Eze (2015), this theory explains that every fraud has three things in common: (1) pressure (motivation or incentives); (2) knowledge or opportunity to commit crime and (3) rationalisation.

*Pressure (or incentive or motivation):* It is the financial force that pushes an individual towards committing fraud and abuse. According to Eze (2015), pressure is something that occurred in the personal life of the fraudster that establishes the need that motivates him to commit fraud. He further stated that pressure centres on financial strain, but it could be the symptoms. Adebisi and Gbegi (2015) stated the issues that may result to pressure to commit fraud to include the relationship between employer and employee, isolation physically, personal failure of the individual, business reversals, gaining of status. Okoye, et al (2015), pressure relates to perceived need for assets and it is as a result of greed. It is important to note that the pressure needs only to be perceived in the mind of the perpetrator to motivate the commission of fraud. This perceived needs not be visible to a third party observer. Pressures result from immediate needs not for cash or assets to support a lavish life style, pay debts, or purchase necessities.

*Opportunity (Knowledge):* This is the chance and ability of an individual to commit fraud. Adebisi and Gbegi (2015) opine that an opportunity gives the person the chance to violate a position of trust he holds in the organization. Individuals commit fraud where they find the chance to commit the fraud and get away with it. The opportunity could be in the form of weak internal control system and poor supervision in the entity. According to Eze (2015), opportunity not only means that chance exist, but either there is a lack of internal controls or the complexities related with the event are such that the fraudster examines the risk of being caught as very low. Okoye, et al (2015) noted that opportunity facilitates the ability to commit fraud. It is created by a weak internal control environment, poor management oversight, and/or the misuse of position. They further noted that failure to establish adequate procedures to detect fraudulent activity also increases the opportunity for fraud to occur.

*Rationalisation:* This component of the fraud triangle theory explains the fraudsters self-justification of his actions and silence his conscious (Adebisi & Gbegi, 2015). Eze (2015) stated that rationalization is reconciling unlawful or unethical behaviour with the commonly accepted notions of decency and trust in his conscious or the one acceptable by members of the society. Okoye, et al (2015) stated that rationalization is an important element in most fraud. It occurs when an employee justifies why he or she committed or should commit a fraud. They further stated that rationalization is the reconciliation of an individual fraudulent behaviour with the commonly accepted notions of decency and trust. The following some of the common rationalisations for committing fraud are:

1. The person believes that committing fraud is justifiable enough to saving a family member.
2. The person believes that they will lose everything, if they do not commit fraud.
3. They person believes that no reliable help is available.

4. The person labels the fraudster as borrowing and fully intends to pay the stolen money back to the entity later.
5. The person is unable to understand or does not care about the consequences of his or her actions.

This theory consists of advantages and disadvantages by researchers. Hogan, et al (2008) stated that this theory is an important theory that can be employed in detecting, controlling and preventing fraud. However, Wolfe and Hermanson (2004) reported that two of the three components of pressure, opportunity and rationalization are inadequate to detect and control fraud.

## METHODOLOGY

In line with the problem and objective of this study, the appropriate research design for this study is survey research design. The target population of the study is made up of all accountants and auditors in the selected public enterprises in Nigeria.

The Taro Yamen formula was used in the determination of the sample size of the study.

$$n = \frac{N}{1+N(e)^2}$$

Where:

n= sample size sought

e = level of significance

N = Population size

$$n = \frac{26}{\{1+26(0.05)^2\}}$$

$$n = \frac{26}{\{1+26(0.0025)\}}$$

$$n = \frac{26}{\{1+ 0.065\}}$$

$$n = \frac{26}{\{1.065\}}$$

$$n = \underline{24}$$

The instrument used for collecting data for this study was designed by the researcher taking into consideration the objectives of the study. The instrument was named **Internal Control Practices and Fraud Mitigation Questionnaire (ICPAFMQ)**.

## Method of Data Analysis

The methods of data analysis involve mathematical and statistical formula used in analyzing the outcome of the research hypothesis and questions. Hence, Consistent with the positivist research philosophy and quantitative design, the employed technique of inferential analysis in this study is parametric statistics. This technique is associated with the use of quantitative models that seek to establish correlational relationship between two variables by using sample-based parameters as measures to infer about the population of the study. The data analysis was executed in three distinct stages. Firstly, a univariate (or descriptive) analysis was executed, followed by bivariate analysis and lastly, multivariate analysis.

## Bivariate Analysis of Model II

**Table 4.5 Correlations Analysis of Model Two**

		DFE	COE	ACS	CAM
DFE	Pearson Correlation	1	.007	.275**	.131
	Sig. (2-tailed)		.924	.000	.082

	N	176	176	176	176
	Pearson Correlation	.007	1	.122	-.512**
COE	Sig. (2-tailed)	.924		.107	.000
	N	176	176	176	176
	Pearson Correlation	.275**	.122	1	-.162*
ACS	Sig. (2-tailed)	.000	.107		.032
	N	176	176	176	176
	Pearson Correlation	.131	-.512**	-.162*	1
CAM	Sig. (2-tailed)	.082	.000	.032	
	N	176	176	176	176

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS Output of Field survey (2021)

The correlation matrix from table 4.5 indicated the degree of relationship between the dependent variable Detection of fraud/Errors (DFE) and the independent variables (Control Environment (COE), Accounting System (ACS), Control Activities/Monitoring (CAM)). The correlation coefficient of R= 0.007, 0.275 and 0.131 shows a low positive correlation between Detection of fraud/Errors (DFE) and all the independent variables. This implies that there is a low positive relationship between Detection of fraud/Errors (DFE) and Control Environment (COE), there is a low relationship between Detection of fraud/Errors (DFE) and Accounting System (ACS). Finally, there is a low relationship between Detection of fraud/Errors (DFE) and Control Activities/Monitoring (ACS).

### Dynamic Error Correction Mechanism for Model Two

The Parsimonious ECM result for Detection of fraud and errors is presented in Table 4.9 below shows that the coefficient of one period lag of ECM is statistically significant and correctly signed. This validates the existence of long-run equilibrium relationship among the variables despite the presence of short-run inconsistencies due to non-stationary of one of the series.

### Model Two Summary

#### Dependent Variable: D(LOG(DFE))

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000705	0.002269	0.310569	0.7566
$\Delta$ LD FE(-1)	-0.163533	0.054484	-3.001465	0.0031
$\Delta$ LD FE(-4)	0.070490	0.054276	1.298734	0.1960
$\Delta$ LD FE(-5)	0.131519	0.048384	2.718259	0.0073
$\Delta$ (COE)	-0.188220	0.027255	-6.905953	0.0000
$\Delta$ LCOE(-2)	0.262945	0.027578	9.534659	0.0000
$\Delta$ LCOE(-3)	0.349998	0.031607	11.07338	0.0000
$\Delta$ (COE(-4)	0.227324	0.039463	5.760473	0.0000
$\Delta$ LCOE(-5)	0.217562	0.033129	6.567156	0.0000
$\Delta$ LACS)	0.620485	0.034823	17.81836	0.0000
$\Delta$ LACS(-1)	0.427535	0.038290	11.16564	0.0000
$\Delta$ LACS(-3)	-0.382079	0.031201	-12.24556	0.0000
$\Delta$ LACS(-4)	0.118370	0.030438	3.888942	0.0002

$\Delta$ LACS(-5)	-0.241284	0.037345	-6.460958	0.0000
$\Delta$ LCAM)	-0.205220	0.047166	-4.351043	0.0000
$\Delta$ LCAM(-4)	0.151509	0.040068	3.781255	0.0002
$\Delta$ LCAM(-5)))	-0.178158	0.035913	-4.960868	0.0000
ECM1(-1)	-0.660297	0.064263	-10.27491	0.0000
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R-squared	0.921651	Mean dependent var	0.000878	
Adjusted R-squared	0.912830	S.D. dependent var	0.099475	
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S.E. of regression	0.029370	Akaike info criterion	4.117310	-
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Sum squared resid	0.130249	Schwarz criterion	3.783948	-
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Log likelihood	365.9127	Hannan-Quinn criter.	3.982026	
F-statistic	104.4862	Durbin-Watson stat	1.986101	
Prob(F-statistic)	0.000000			

The above model summary table 4.9 shows that the coefficient of determination  $R^2$  is 92.1% indicating that the explanatory variables (i.e. control environment (COE), accounting system (ACS) and control activities/monitoring (CAM)) measures were able to account for 92.1 percent of variation in detection of fraud/errors (DFE). Therefore the model is a good fit. The overall model is significant even at 1 percent. The Durbin Watson statistic is 1.98 which is approximately 2 indicating no serial autocorrelation. The result shows that both control environment and control activities/monitoring as a measure showed a negative relationship with detection of fraud/errors. That is increase in control environment and control activities/ monitoring, will discourages detection of fraud/errors while increase in accounting system improves detection of fraud/errors.

### Internal Control Practices and Detection of Fraud/Errors

Table 4.9 shows again a very good fit on the relationship between internal control and detection of fraud/errors. Having a coefficient of determination of 92.1% indicates that less than 8% of variation in detection of fraud/errors was due to other factors. When compared with prevention of fraud, the result reveals that internal control measure is more effective in detection of fraud/error than in prevention. The result further showed that overall model is significant even at 1 percent. The result shows that only accounting system as an internal control measure encourages detection of fraud/errors while control environment and control activities & monitoring measures reduces the rate of detection of fraud/errors in public enterprises in Nigeria. This findings agree with Adelana and Toba (2018) investigated internal control system and fraud detection and prevention in Ondo State, Nigeria, and the result from the multiple regression disclosed a negative and in significant relationship between segregation of duties and fraud detection and prevention. Others include; Yakubu et al (2017); Akenbor and Ironkwe (2014) and Agyapong (2017). Their findings suggested that internal control practices measures had insignificant relationship with detection of fraud. The positive impact of accounting system on detection of fraud/errors is in line with Adelana and Toba (2018), they disclosed that accounting system automation suggested a positive and significant relation with fraud detection. Also, Andove et al (2019) they conducted a study of internal control practices and financial performance of faith based facilities in Kakamga County in Kenya and the result disclosed a statistically significant association between risk assessment control practices and financial performance of

faith based organisations in Kenya. Other includes; Singal et al (2019); Ogiriki and Appah (2018); Gibson (2018); Owusu-Boateng et al (2017) and Iyinomen and Nkechi (2016). Their result suggested a statistical significant relationship between detection of fraud and internal control practices measures. However, the findings of this study disagreed with Uniamikogbo, et al (2019) examined forensic audit on fraud detection and prevention of banks in Nigeria and the result the study showed that forensic auditing has insignificant effect on expected losses in the banking sector in Nigeria.

## CONCLUSIONS

The study examined the relationship between accounting information system and mitigation of fraud in public enterprises in Nigeria. The need for adequate internal control practices cannot be overemphasized due to the high level of financial irregularities in public enterprises in Nigeria. The results obtained indicates a a negative insignificant relationship between accounting system and prevention of frauds/errors in public enterprises Nigeria.

## RECOMMENDATIONS

Based on the findings made in the course of this study, the following recommendations are hereby suggested:

1. Government should ensure relevant agencies anti-corruption agencies such as Economic and Financial Crimes Commission (EFCC), Independent Corrupt Practices Commission (ICPC) carry out their duties with minimum interference so as to promote accountability and transparency of public financial management.
2. The macro-economic policies of government should be such that encourage the general welfare of the citizens - adequate employment, low rates of inflation, adequate wages and salaries such that would reduce or prevent undue pressure being exerted by dependents on public servants, as avoid the incidence of collusion with greedy staff to defraud government or engage in outright financial fraud
3. There should an establishment of work ethics unit in all public enterprises. The unit should observe the attitude of the staff towards work and their spending habit to check if the amount spent is in line with the income earned. The wanting staff should be counselled in first instance; and unrepentant staff should be punished according to the rules of appointment.

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