Application of Forensic Accounting as a Tool for Fraud Prevention in the Nigerian Deposit Money Banks

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Abstract: **This study examined the application of forensic accounting as a tool for fraud prevention in Nigerian deposit money banks. Ex-post facto research design was used as data was sourced from published annual report of Nigerian Deposit Insurance Corporation (NDIC) for the period covering 1994 to 2019. The population of this study is made up of all the twenty (20) listed deposit money banks in Nigerian Stock exchange. The entire population was used as sample size for the study. The study made use of Automated Teller Machine Related Fraud (ATMF), Web Based Fraud (WBF) and Foreign Currency Fraud (FCF) as independent variables, while dependent variable for the study was Forensic Accounting (FA). Time series analysis was conducted using Autoregressive Fractionally Integrated Moving Average (AFRIMA) Model, and analysis was conducted with the aid of STATA 14.2. The results revealed that forensic accounting have significant effect on all the variables used in the study, in the short run, however, on future prediction, the study predicts that forensic accounting will have no significant effect on fraud prevention based on evidence of increased fraud cases in the data collected from one period to the other. The study recommends amongst others that appropriate sanctions should be applied when fraud is detected. Where prosecution is considered to be the appropriate sanction, proper Forensic procedures need to be followed during investigation and trained experts like the Professional Forensic accounting.**

Key words**: Forensic Accounting, Fraud and Deposit Money Bank.**

I. INTRODUCTION

Fraud is a universal financial word. Its occurrence or perpetration is not limited to Nigeria. The incidence of fraud in the Nigerian banking industry has assumed an alarming proportion of late (Uzoka, 2001). With the deregulation of the banking system in the early 1980s, the pace at which banks were established increased in an unprecedented manner. This development brought in its wake physical expansion and growth, both in structure and manpower. The Banking consolidation exercise which commenced in 2005 further accentuates rapid development and expansion of Nigerian Banks within and outside the country. Poaching of experienced and seasoned workers across all cadres to fill the ever increasing job openings in the banking sector became the order of the day (Nwaze, 2006). With this development, all manner of staff with questionable characters were employed.

General poverty amongst the citizenry coupled with high degree of unemployment in the larger society made survival a herculean task. Corruption and other forms of vices became easily identifiable with Nigerians, irrespective of their gender, social status and professional callings. Under this dispensation, frauds have grown in scope, nature, methodology and dimensions as the banking industry advances. The rate, frequency and volume of financial losses have been a major source of concern to the regulatory agencies. Government and public statements have been issued because of this cankerworm, which has eaten the fabrics of the society. Unfortunately, the bane of society is greed and the philosophy to get rich quick is now the order of the day. According to Nwaze (2006), it would almost amount to an understatement to say that fraud has come to stay. It has been around since the beginning of time and would certainly continue to be an issue until the end of time.

Frauds occur in almost all facets of human endeavor. Employee dishonesty is as old as the work place itself. Frauds have assumed different dimensions, albeit with increased sophistication. Hence forgeries, deceit and other unwholesome practices have continued to be a way of life and the practitioners have flourished overtime at the expense of the larger society. Incidentally, banks are their major targets in recent times notwithstanding the increased use of technology in banking operations. No bank appears safe from the menacing epidemic.

World economy have been on the rise in the near past of which countries are fast developing economically and those that were already developed being more industrialized. These

increasing economic activities and industrialization has on the negative side led to increase in the issue of fraud, money laundering and other corrupt practices in business and government organizations. This has necessitated the application and practice of forensic or investigative accounting by both the public and private institutions. The harsh global environment has also made it necessary for the forensic auditors and accountants to establish controls and procedures to aid the detection, prevention and prompt response to such crimes with fraud as crime being at the forefront (Opiyo, 2017). In the modern era of trade globalization, characterize with the high level acquisition and adoption of technology as a business enabler, increase in fraud and corrupt practices, and new and complicated legislation which offers new opportunities for both perpetrators of fraud and forensic accountants (Muse Johnson, AyoibChe-Ahmad and Rose Shamsiah, 2014).

The prevalence of forensic accounting fraud and audit failures has caused an erosion of public trust in the auditing profession (Nicolaisen, D.T.,2005; Silverstone and Davia,2005; Hogan et al, 2008). In addition, it has also caused a higher expectation from the public for auditors to detect fraud thus calling for the need of use of forensic accounting techniques to fulfill this high expectation. As per the global economic crime survey of PWC (2014), fifty four percent of respondents reported that, their companies experienced frauds in excess of $100,000 with eight percent reporting fraud in excess of five percent. Sixty six percent of respondent indicated that the financial impact of economic crime on their organization remained the same or increased in the last 2 years. This indicates that fraud can impact organization`s revenue just like any other market forces and businesses. The ability to prevent, detect and swiftly respond to fraud can be a crucial cost saving tool. Use of investigative and more improvised techniques will help organizations detect and prevent frauds from occurring.

Nowadays modern frauds such as white collar crimes which includes; embezzlement, bankruptcies, contract disputes and possibly criminal financial transaction; It is however the responsibility for a forensic accountant who have the necessary ability to investigate and provide litigation support.

1.2 Objective of the Study

The general objective of this study is todetermine whether the use of Forensic Accounting will help to reduce fraud cases. Specifically, the objective of the study is to:

i. Determinethe effect of forensic accounting on automated teller machine/card related fraud in the Nigerian Deposit Money Banks.
ii. Examine the effect of forensic accounting on web base/internet related fraud in the Nigerian Deposit Money Banks
iii. Assess the effect to which forensic accounting has on foreign currencies theft in the Nigerian Deposit Money Banks.

II. REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter introduces the review on the conceptual framework of this study, that is, fraud and forensic accounting. The rest of the chapter outlines the theoretical framework, empirical review and points out the gap in knowledge.

2.2 Conceptual Framework

The concepts to be discussed are the forensic accounting, fraud, and fraud prevention.

2.2.1 Forensic Accounting

Forensic accounting also called investigative accounting or fraud audit is a merger of forensic science and accounting (Kasum, 2009). Forensic science, as Crumbley (2003) put it may be defined as the application of laws of nature to the laws of man. A forensic scientist is one who examines and interprets evidence and facts in legal cases and also offers experts opinions regarding their findings in the court of law. In the present context, the science is accounting, hence the examination and interpretation will be of economic information.

According to Bologna and Lindquist (1987), forensic and investigative accounting is the use of financial skills and investigative mentality to unresolved issues, applied within the context of the rules of evidence. Zysman (2004) defined forensic accounting as integration of accounting, auditing and investigative skills. Other definitions have been given by Joshi (2003), Mehta and Mathur (2007) and Crumbley (2001). Coenen (2005) avers that forensic accounting uses accounting concepts and techniques in solving legal problems. Evazzadeh and Ramazani (2012) considers it as a specialized field in accounting frequently concern with legal problems and complaints.

2.2.2 Fraud

Literature is replete with various definitions of fraud. It varies between organizations and jurisdictions (Adewale, 2008). Although it is not the intention of this research to enter into the debate on definition of fraud as several studies (Robertson, 1976; Stanley, 1994; Özkul&Pamukçu, 2012) have done that, a proper understanding of fraud is necessary to situate the present study. For instance, Oxford (2006) defines fraud as a false representation by means of a statement or conduct, in order to gain a material advantage.

The Association of Certified Fraud Examiners (2008) defined fraud as the use of one's occupation for personal enrichment through deliberate misuse or misapplication of the employing organization's resources or assets. It is therefore any act of misappropriation, theft or embezzlement of corporate assets in a particular economic environment. It has been considered as any act of deception performed by somebody to cheat or deceive another person to his detriment or the detriment of any other, or to cause injury or loss to another person while

the perpetrator has a clear knowledge of his intent to deceive, falsify or take advantage over the unsuspecting and innocent victim (Robinson, 1976) resulting to suffering loss or damage (Stanley, 1994).

2.2.3 Automated Teller Machine

Meaning and Nature of ATM Automated teller machine (ATM) is an electronic communication device that enables customer of financial institutions to perform financial transactions such as cash withdrawals, deposits, funds transfer and account information inquiries at anytime and without the need for direct interaction with the bank staff.

It is a cash dispenser which is designed to enable customers enjoy banking services without coming into contact with cashiers. ATM combines a computer terminal, record keeping system and cash vault into one unit permitting customers to enter into the bank book keeping system with a plastic card containing a personal identification number (PIN). Once access is gained, it offers several retail banking services to customers. An ATM has also been described as an electronic outlet that allows customers to complete basic transaction without the aid of a branch representative. ATMs are known by a variety of names Many ATMs have a sign above them indicating the names of the bank or organization that owns the ATM, and possibly including the networks to which it can connect. ATMs that are not operated by a financial institution are known as a white label ATMs

2.2.4 Web Fraud/Cybercrime

Cybercrimes in the Banking Sector The life wire of the banking sector is the internet. Currently, banks all over the world are taking advantage and incorpo- rating opportunities brought about by e-banking which is believed to have started in the early 1980's (Shandilya, 2011). As the security level in this sector becomes stronger, the strength and tactics of these fraudsters increases also. Vari- ous lucrative attacks have been launched and unfortunately, many have succeeded. In general, cybercriminals execute fraudulent activities with the ultimate goal of accessing a user's bank account to either steal or/and transfer funds to another bank account without rightful authorisation. How- ever, in some rare cases in Nigeria, the intention of cyber- criminals is to cause damage to the reputation of the bank by denying service to users (Parthiban, 2014) and sabotaging data in computer networks of organizations.

Bank Verification Number (BVN) Scams: The BVN is a biometric identification system which consists of an 11-digit number that acts as a universal ID across all the banks in Nigeria. BVN was implemented in 2015 by the Central Bank of Nigeria. It was introduced to link various accounts to the owner thereby ensuring that fraudulent activities are mini- mised. For fraudsters, opportunities to extort money and to carry out other fraudulent activities arose from the imple- mentation of the BVN. It was detected that fake and unau- thorised text messages and phone calls were sent to various users demanding for personal information such as their ac- count details. In addition, phishing sites were created to ac- quire such information for insalubrious activities on the bank account.

2.2.5 Foreign Currencies Fraud

Investments in the foreign currency exchange market (FOREX) is a relatively new fraudulent promotion being developed and sold across the country. You are led to believe that you are investing in a currency futures market which is highly regulated, and a market traded in by large banks and financial institutions whose commissions for trades are no more than two or three points.

The foreign currency "spot market" is commonly referred to as the "Forex".

Foreign currency contracts may be legitimately traded either on a recognized futures exchange or in the "interbank market," which generally involves trading between large institutions such as banks and corporations, rather than individual or retail customers.

Fraudulent currency trading firms often tell customers that their trading is done in the "interbank market" on your behalf.

"With a $10,000 deposit, the maximum you can lose is $200 to $250 per day."

Many currency traders ask customers to give them money known as "margin," often sums in the range of $1,000 to $5,000.

These amounts, which are relatively small in the currency markets, actually control far larger dollar amounts of trading.

Margin trading can make you responsible for dollar losses that greatly exceed the margin amount you deposited.

2.3 Fraud Prevention

Prior to 2006, most research on fraud prevention and detection methods has addressed 'red flags' (Bierstaker, Brody &Pacini 2006). The "red flags" (or anomalies) are set of circumstances, which are unusual by nature, or varies from the normal activity. It is a signal that something is out of ordinary and to be looked into (Drew & Drew 2010 Albrecht and Romney (1986) discovered 31 red flags related to internal control out of the list of 87 of such as better predictors of fraud. In another study, Loebbecke, Eining and Willingham (1989) using the red flags approach developed a conceptual model to evaluate fraud probability and concluded that auditor's assessment of internal controls is critical in evaluating the possibility of fraud. In an experimental setting however, it was discovered that auditors who did not use red flags outperformed those who did (Pincus, 1989). Different views concerning the effectiveness of various red flags have been expressed in literature. For example, Hackenbrack (1993) observed that auditors with divers client experience have different views of the importance of a given red flag indicator.

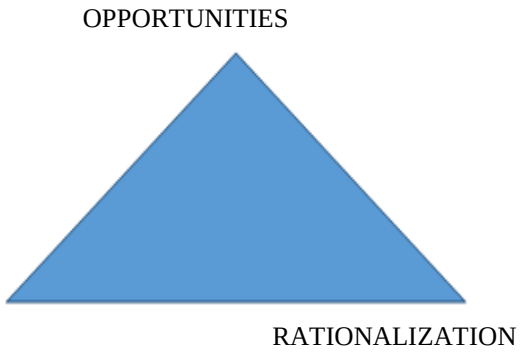
2.4 Theoretical Framework

A theoretical definition gives the meaning of a word in terms of the theories of a specific discipline. This type of definition assumes both knowledge and acceptance of the theories that it depends on. To theoretically define is to create a hypothetical construct (Wikipedia Encyclopaedia, 2013).

2.4.1 Theory of Fraud Triangle

Cressey (1971) postulated the theory of fraud triangle. He observed that fraud is likely to occur given a combination of three factors; namely- Pressure (Motivation), Opportunity and Rationalization. Pressure here refers to needs or desires that have to be satisfied. It could be divided into financial pressure, vices, work-related pressure and other pressures (Adeniji, 2012). Opportunity to commit fraud, conceal the fraud or avoid being punished forms the second element of the fraud triangle. The third element is rationalization which entails giving unnecessary explanation(s) to justify one's involvement in fraud. There exists pressure, motivation or compulsion on the fraudster who identifies opportunity which he utilizes and tries to justify his actions by unnecessary rationalization.

Fig.1: Classical Fraud Motivation Model



Sources: Wells, Joseph T. (1997). Occupational Fraud Abuse. In Albrecht, W. Steve (Ed.). Fraud Examination. Thomson: South-Western Publishing, 2003.

Every fraud executor is confronted with some kind of pressure or "need". Pressures that motivate individuals to commit fraud are financial pressures (high medical bills or debts), vices (drugs, gambling, alcohol), work-related pressures (high pressure for good results at work or a need to cover up someone‟s poor performance, or to report results that are better than actual performance compared to those of competitors) and other pressures (frustration with the nature of work, or even a challenge to beat the system). This „need" or greed usually has a combination of other factors such as the opportunity and the attitude to commit the fraud.

The executor of fraud must believe that he or she can commit the fraud without being caught (or if caught, nothing grave will happen). The opportunity to commit fraud is possible when employees have access to assets and information that allow them to both commit and conceal fraud. Opportunities are provided by a weak internal control environment, lack of internal control procedures, failure to enforce internal controls and various other factors such as apathy, ignorance, lack of punishment and inadequate infrastructure. Access must, therefore, be limited to only those systems, information, and assets that are truly necessary for an employee to complete his or her job.

The third driver of fraud is ability of the perpetrators to find a way to rationalize their actions as acceptable. Rationalization/Absence of guardians refers to the manner in which people think about their work, performance and contribution within the workplace. They, therefore, attach a value that they should derive from the company for being productive or delivering something of value. Absence of guardians, on the other hand, refers to the situation where there are limited or no processes in the organization to test the integrity of the financial information or processes. The absence of the integrity process includes an absence or ineffective role of internal auditors, external auditors, Board of Directors and reporting requirements – banks, regulators and appropriate management review. The study adopted the Fraud Triangle Theory as its framework because it explains the factors that cause individuals to commit fraud and best describes fraud in the context of the banking industry.

2.4.2 White Collar Crime Theory of Fraud

Edwin Sutherland in 1939 was the first to coin the term White collar crime. It means, a crime committed by a person of respectability and high social status in the course of his occupation (Sutherland, 1949). Crimes committed by corporations were also included. Sutherland originally presented his theory in an address to the American Sociological Society in an attempt to study two field, crime and high society which had no previous empirical correlation. White collar criminals attributed different characteristics and motives than typical street criminals. He used the concept to challenge conventional stereotypes and theories.

Assumptions of this theory is that prosecutors and judges are more lenient on white-collar as opposed to street criminals. The legal case which advanced this was; He noted that in his time, less than two per cent of the persons committed to prison in a year belong to the upper class. His 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.

Criticisms of White collar crime theory

Sutherland's definition of white collar Crime has evoked criticism from certain quarters. Coleman and Moynihan pointed out that the lack of definite criteria for determining who are 'persons of respectability and status' has made Sutherland's definition of white collar crime most controversial.

It seems likely that what Sutherland meant by this is absence from convictions for crimes other than white collar crimes. The element of 'high social status' as used in the

definition also leads to confusion: Clearly it has far narrower meaning than is given to that term in everyday usage.

Sutherland himself did not stick to this meaning and included thefts and frauds committed by middle or even lower middle-class workers in the course of their employment or work. Some critics have suggested that such crimes should have been called as 'occupational crimes' instead of being termed as 'white collar crime'.

It is further argued that in fact the important element in the definition of white collar crime is not the socio-economic status of the individual, but rather the type of crime and the circumstances of its commission. These usually include pilfering, false accounting, bribery, embezzlement among others.

Tax-evasion is not an authentic white collar crime, at least in terms of Sutherland's definition because although associated with work, it is not committed in the course of an occupation. Some critics further allege that such violations come within the purview of the Special Commissions, Tribunals and Boards instead of normal criminal justice administrators.

2.5 Empirical Studies

There are several empirical studies on forensic accounting and fraud detection and prevention. Many of these studies draw evidence from developed economies like the United States of America, the United Kingdom and Canada. Empirical evidence also exists on the relationship between forensic accounting and fraud detection. The following studies show the methodology, sample and main findings of these studies.

Bassey, (2018), This research focused on forensic accounting as it affects the management of fraud in microfinance institutions in Cross River State. Study adopted a survey research design. Data were collected from both primary and secondary sources and analysed using the ordinary least square technique. It is concluded that forensic accounting plays a significant role in the prevention of crimes and corruption in the selected micro finance banks in Calabar, Cross River State. Managements of micro finance banks in Calabar should develop more interest in forensic accounting for monitoring and investigating suspected culprits in fraud cases. Managers appointed to manage and run microfinance banks should be tested and the integrity ad trustworthiness should be proven before they are appointed to manage and oversee the affairs and the activities of the banks.

Okafor and Agbiogwu (2016) conducted a study on the effect of forensic accounting skills on the management of Bank fraud in Nigeria. In their research work, they adopted non-probability sampling technique to select the five (5) commercial Banks used as population for the study. Based on the analysis of variance (ANOVA) the findings of their study reveals that possession of basic forensic skills significantly reduces the occurrence of fraud cases in the banking sector and that there is a significant difference between services of forensic accountants and External auditors, and that the presence of forensic accountants in Banks can aid in reducing fraud cases.

Adeniy, (2016),examined the effect of forensic auditing on financial fraud in Nigerian (DMBs). The study adopted cross sectional survey design. The population of the study comprised the staff of banks and audit firms in Abeokuta, Ogun State. The study used purposive sampling technique for questionnaire administration while logistic regression analysis was used for data analysis. The study concluded that the application of forensic audit to tackle financial fraud in Nigerian (DMBs) is still at the infant stage.

Onodi, Okafor, and Onyali (2015), examined the effect of forensic investigation methods in corporate fraud deterrence in Nigerian Banks. This study adopted a survey research design and data from primary source were collected through interviews and administration of questionnaires, while secondary source consists of reports on fraud and forgery in the banking sector. Statistical tools used to analyze the data include percentages, mean score, frequency tables, regression analysis and Z-test. The result revealed that there is a significant relationship between the forensic investigative methods and corporate fraud deterrence. The finding revealed that expert services of forensic investigators are normally required in the prosecution of fraud, but majority of the audit and accounting personnel in Nigeria are suffering from poor perception and knowledge of forensic investigative methods.

Akenbor and Ironkwe (2014) examined the relationship between forensic auditing and fraudulent practices in Nigerian public institutions. The survey method of research design was adopted in generating the necessary data. Population of the study consisted of 12 public institutions in Rivers State, Nigeria. In order to gather the data for the study, a structured questionnaire was administered on the internal auditors and chief accountants of the selected public institutions. The data generated for the study were analyzed with frequencies and percentages, while the stated hypotheses were statistically tested with the Pearson Product Moment Correlation Coefficient, which was computed with the aid of the Statistical Packages for Social Sciences (SPSS) Version 17. The findings suggested that both the proactive and reactive forensic auditing techniques have a negative significant relationship with fraudulent practices in Nigerian public institutions.

Zachariah, Masoyi, Ernest, and Gabriel (2014), work on the topic titled "application of forensic auditing in reducing fraud cases in Nigeria money deposit Banks". The study analyzed the trend in fraud cases from 2001-2012, included are the amounts involved in fraud, the most frequent types of fraud, and the losses sustained by Banks. The descriptive analysis revealed that there are up and down movements in fraud cases. Since Banks continually lose huge sums of money as a result of the inability of the auditors and the supervisory regulators to curtail the trend, there is therefore the need to devise different means of tackling frauds in the Banks. The study therefore suggested employment of forensic auditing in

Nigerian Banks by amending the existing status, in such a way that forensic auditors are included in the audit team.

Okoye and Gbengi (2013), conducted a research titled "forensic accounting: a tool for fraud detection and prevention in the public sector of Kogi State". The population consists of 5 ministries with a total of 5,015 respondents of which 370 formed the sample size. The use of ANOVA was used in testing the hypotheses. It was discovered that forensic accounting significantly reduces occurrence of fraud in the public sector.

III. RESERCH METHODOLOGY

3.1 Introduction

This chapter addresses the research design, target population, sample of the study, sources of data, sampling technique and sample size, data collection techniques, data collection instruments, validity and reliability, and data analysis involved in the whole process of this research.

3.2 Research Design

This work adopted an ex-post facto research design which is undertaken after the events have taken place and the data are already in existence. It is used in a systematic empirical study in which the situation necessitating the study already exists or has taken place. It is also used because of the availability of audited financial statements of the sampled companies.

3.2.1 Population of the Study

The population to be used in any study is the number of units or elements under investigation and the population to choose also depends on the nature of the problem to be investigated. Kothari (2003) defines population as the total enumeration of the subjects under investigation.

The population of this study is made up of all the twenty (20) listed listed deposit money banks in Nigerian Stock exchange. The entire population was used as sample size for the study.

3.3 Source of Data Collection

The study made use of secondary source of data. The data for this study was collected from the Nigerian Deposit Insurance Corporation (NDIC), especially the comprehensive income statements and statements of financial position of the sampled companies submitted to the NDIC between 1994 – 2019 to arrive at the result and findings of this study.

3.4 Techniques of Data Analysis

The data obtained from these firms were tabulated and analysed by first of all calculating the various ratios which are used in carrying out the analysis of this study. Time series data was considered in this study because of the smallness of the sample size. The tools used for analyses of this study and their relevance are considered in this section. Autoregressive Fractionally Integrated Moving Average (AFRIMA) Modelwas the tools used in analysing the collected data.

Descriptive analysis will be first applied to describe relevant aspect of forensic accounting and provide detailed information about each relevant variable. Correlation models, specifically Pearson correlation will be applied to measure the degree of association between different variables under consideration while regression analysis will be applied to examine the relationship of the independent variables with the dependent variable to know the effect of the selected independent variable on fraud. By using this method, the researcher will be able to identify the significance of each explanatory variable to the model and also the significance of the overall model.

3.5 Model Specification

An empirical model is formulated which is based on the use of panel data methodology.

The model in its econometric form is shown below;

Y = X

Where;

Y = Dependent variable

X = Independent variable

The general form of the Autoregressive Fractionally Integrated Moving Average (AFRIMA) Model data analysis model is specified as:

$$Yt! = \alpha 0 + \beta\, Ft! + \mu \ldots (1)$$

Where:

Yt! = Dependent variable

$\alpha 0$ = Constant

β = is the coefficient of the explanatory variable

Ft! = explanatory variable in the estimation model

μ = error term.

Functional Form

FA = *f*(ATMF, WBF, FCF) -(i)

Testable Form

The regression models are as stated below:

$$FA_{it} = \beta_0 + \beta_1 ATMF_{it} + \beta_2 WBF_{it} + \beta_3 FCF_{it} + \mu_{it}$$

Where:

a. Dependent Variables

FA = Forensic Accounting

b. Independent Variables

ATMF = Automated Teller Mechine Fraud

WBF = Web Based Fraud

FCF = Foreign Currency Fraud

β = Co-efficient of Regressors σ = Error Term

IV. DATA PRESENTATION, ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents and discusses the data collected in the course of the study. It consists of the presentation and analysis of the panel data extracted from the financial statements of the listed deposit money banks in Nigeria. Multiple regression analysis has been used to estimate the relation between the independent variables (ATMF, WBF, and FCF) and dependent variable Forensic Accounting (FA). The chapter starts with descriptive statistics, followed by diagnostic tests and regression analysis. It concludes with discussion of major findings.

4.2 Data Presentation and Analysis:

4.2.1 Descriptive Statistics

This section presents the descriptive statistics of the data for the study. It shows the Mean, Standard deviation (SD), Minimum (MIN), Maximum (MAX), and Variance (VAR) of data variables. The result of descriptive statistics is presented on Table 4.1.

Table 4.1: Descriptive Statistics

Variables	N	Mean	S.D	Min	Max
FA	26	20907.5	39364.76	782.23	199188
ATMF	26	311	552.50	20	2640
WBF	26	738.63	696.96	201	3850
FCFT	26	156.19	404.63	20	1930

Source: STATA 14.2 Output

Table 4.1 shows that the mean Forensic Accounting (FA) of ₦20.907 billion with a standard deviation (SD) of ₦39.364 billion which is higher than the mean for the period under study. The FA also has a minimum and maximum value of ₦782.23billion and ₦199.188billion respectively. The table also shows that the mean ATMF in the deposit banks for the period under study was ₦0.311 billion with a SD of ₦0.552billion which is higher than the mean, indicating a wide variation in ATMF among the banks for the period covered in the study. ATMF also has a minimum and maximum value of ₦0.020 billion and ₦2,640 billion respectively. Thurthermore, the result revealed that WBF on average for the period was ₦0.73862billion, with SD of ₦0.696 billion which is lower than the mean. This indicates a low variation in WBF among the deposit money banks for the period covered in the study. The result further revealed that WBF has minimum and maximum value of ₦0.201billion and ₦3.850billion respectively. Finally, the data for Foreign Currency Fraud (FCF) on average was ₦0.1561billion and SD of ₦0.4046billion. The SD is greater than the mean indicating a wide variation in FCF for the period under study.The statistics also revealed that FCF has a minimum and maximum ₦0.02 billion and ₦1.930 billion respectively.

4.2.2 Correlation Coefficients

This section contains the relationship or levels of association among the variables of the study. The summary of the correlation coefficients and p-values are presented on Table

Table 4.2: Correlation Matrix:

	FA	WBF	FCF
FA	1.0000		
WBF	0.3239	1.0000	
FCF	0.7466	0.5800	1.0000

Source: STATA 14.2 Output

Table 4.2 presents the strength and type of relationship that exists between the study independent variables. A correlation coefficient which is 0.90 and above is considered very high, 0.75-0.89 is considered high and could cause problems in the result (Akpa, 2011). From table 4.2, there exist no high correlation among the study variables as there exist no correlation that is above 75%.

4.3 Diagnostic Tests

To ensure that the data for this study is fit for the model, the study conducted data normality test as well as a test for multicolinearity and heteroscedasticity among explanatory variables. This section presents the result of data normality test and VIF test, while test for heteroscedasticity is presented along with the regression result in section 4.4.

4.3.1 Data Normality Test

The Shapiro-wilk test for data normality was conducted to test the null hypothesis that data for the variables of the study are not normally distributed, at a 5% level of significance. The result of the test was shown in Table 4.3.

Table 4.3: Result of Shapiro-wilk Test for Data Normality

Variables	OBS	W	V	Z	Prob>z
FA	26	0.9837	0.464	-1.576	0.9425
ATM	26	0.7325	7.650	4.170	0.0000
WBF	26	0.8019	5.664	3.554	0.0002
FCF	26	0.6727	9.360	4.583	0.0000

Source: STATA 14.2 Output

Table 4.3 has shown that FA has the W coefficient of 0.9837, which is insignificant at the p-value of 0.9425; ATM has the w coefficient of 0.7325 at an significant p-value of 0.0000; WBF has the w coefficient of 0.8019, which is significant at the p-value of 0.0002; FCF has the w coefficient of 0.6727 atsignificant p-value of 0.0000. Therefore, the study accepts the null hypothesis that data for FA is not normally distributed and accepts the alternate hypothesis which states that data for ATM, WBF and FCFp-value of 0.0000; are normally distributed. Consequently, these abnormalities in FA indicate that these data values require a more generalized regression analysis.

4.3.2 Test for Multicolinearity

The Variance Inflation Factor (VIF) test was conducted to check for multicolinearity among explanatory variables of the study. It was expected that the VIF for all independent variables should be less than 5, while their tolerance levels should be greater than 0.10. The result of the VIF test is shown on Table 4.4.

Table 4.4: Result of Variance Inflation Factor (VIF) Test for Multicolinearity

Variable	VIF	1/VIF
FCF	3.18	0.3148
ATM	2.35	0.4246
WBF	1.57	0.6367
Mean VIF	2.37	

Source: STATA 14.2 Output

Table 4.4 shows that FCF has a VIF of 3.18 and tolerance level of 0.3148; the VIF of ATM is 2.35at the tolerance level of 0.4246; while the VIF of WBF is 1.57at the tolerance level of 0.6367. The Table also shows the mean VIF is 2.37. In each case, the VIF is less than 5 and tolerance level is greater than 0.10. This result has shown that there is absence of perfect multicolinearity among the independent variables, indicating the fitness of the data variables for the model of the study.

4.4 Regression Analysis and Test of Hypotheses

This section discusses the time series analysis using the Autoregressive Fractionally Integrated Moving Average (AFRIMA) Model to test the formulated hypotheses. Results of these tests are presented on Table 4.5.

Table 4.5: Result of AFRIMA for FA

Variables	Coefficient	Z	P>/t/
ATM	-18.3158	-3.38	0.001
WBF	-5.5323	-3.52	0.000
FCF	17.8882	2.21	0.027
Cons	4.6256	12.98	0.000
ARMA ar: L1	0.5133	0.07	0.942
L2	0.3218	0.11	0.914
L3	0.0145	0.01	0.996
ma:L1	-0.0939	-0.01	0.989
Sigma	0.2891	4.86	0.000
Prob > F Obs	0.0000 26		

Source: STATA (Version 14.2) Output

Table 4.6 contains the result of Autoregressive Fractionally Integrated Moving Average (AFRIMA)for fitted values of FA. The total number of observations for the time series analysis was 26 (that is 1994to 2019). The overall equation is significant at 0.0000 (below 1%) level, indicating that the model is fit to be used for interpretation and the results can be generalised.

ATM fraud has a negative coefficient of 18.3158, z-value of -3.38 and p-value of 0.001. This showed that FA has a negative and significant affects ATM fraud. This imply that for every unit increase in forensic accounting, there isa significant reduction in ATM fraud by 3.38%. This also means that forensic accounting can significantly be used in reduction of ATM related fraudulent issues among deposit money banks in Nigeria. The study also revealed web based fraud (WBF) with a negative coefficient of 5.5323at the z-value of -3.52and p-value of 0.000. This indicates a significant decrease in WBF via the instrumentality of Forensic Accounting (FA) by 3.52%. Similarly, the study revealed positive and significant relationship between FA and Foreign Currency Fraud (FCF) with a coefficient of 17.8881, and z-value of 2.21 with p-value of 0.027<5% level of significance. This implies that any increase in FAwill lead to a corresponding increase in foreign currency fraud by 2.21%.

4.5 Test of Hypotheses

In this section, the hypotheses formulated earlier in chapter one are tested based on the OLS robust regression results presented in Table 4.7. The level of significance for this study was 5% and the decision rule for testing the hypotheses was to accept (or reject) the null hypotheses based on the P- value. If the p-value is significant at 5%, accept that the variable is significant else it is not significant.

Ho_1: The use of forensic accounting has no significant effect on automated teller machine/card related fraud in the Nigerian deposit Money banks.

Table 4.6 shows the z-values and the associated *p*-values for the test of this hypothesis. The critical value of z-statistics is ±1.96 at 95% confidence level. Given that the calculated z-value of -3.38 which is above ±1.96, and *p-value* = 0.001 which is below 5%. However, future projection revealed z-statistics of 0.07 and p-value of 0.942. This result reject the null hypothesis and concludes that the use of forensic accounting has significant effect on automated teller machine/card related fraud in the Nigerian deposit Money banks in the short-run but will have no significant effect on automated teller machine/card related fraud in the Nigerian deposit Money banks based on future projection**.**

Ho_2: The use of forensic accounting has no significant effect on web base/internet related fraud in the Nigerian deposit money banks.

Table 4.6 shows the z-values and the associated *p*-values for the test of this hypothesis. The critical value of z-statistics is ±1.96 at 95% confidence level. Given that the calculated z-value of -3.52 which is above ±1.96, and *p-value* = 0.000 which is below 5%. However, future projection revealed z-statistics of 0.11 with p-value of 0.914. This result reject the null hypothesis and concludes that the use of forensic accounting has significant effect on web base/internet related

fraud in the Nigerian deposit Money banks in the short-run but will have no significant effect on web base/internet related fraud in the Nigerian deposit Money banks based on future projection**.**

Ho_3: The use offorensic accounting has no significant effect on foreign currencies theft in the Nigerian Deposit Money Banks.

Table 4.6 shows the z-values and the associated *p*-values for the test of this hypothesis. The critical value of z-statistics is ±1.96 at 95% confidence level. Given that the calculated z-value of 2.21 which is above ±1.96, and *p-value* = 0.027 which is below 5%. However, future projection revealed z-statistics of 0.01 and p-value of 0.996. This result also reject the null hypothesis and concludes that the use of forensic accounting has significant effect on foreign currencies theft in the Nigerian deposit Money banks in the short-run but will have no significant effect on automated teller machine/card related fraud in the Nigerian deposit Money banks in the nearest future based on future projection**.**

V. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This is the last chapter of the research. The chapter presents a summary of the finding and then draws conclusions based on the research objectives and hypothesis. Recommendations are also made in this chapter. The contributions of the research to knowledge are also highlighted.

5.2 Summary of Findings

In this research, hypotheses were formulated, data were collected and analyzed using t-test. The statistical package of social science program aid was used in the computation and analysis of the data. The following findings are therefore summarized below;

i. The use of forensic accounting has significant effect on automated teller machine/card related fraud in the Nigerian deposit Money banks in the short-run but will have no significant effect on automated teller machine/card related fraud in the Nigerian deposit Money banks based on future projection**.**

ii. The use of forensic accounting has significant effect on web base/internet related fraud in the Nigerian deposit Money banks in the short-run but will have no significant effect on web base/internet related fraud in the Nigerian deposit Money banks based on future projection**.**

iii. The use of forensic accounting has significant effect on foreign currencies theft in the Nigerian deposit Money banks in the short-run but will have no significant effect on automated teller machine/card related fraud in the Nigerian deposit Money banks in the nearest future based on future projection**.**

5.3 Conclusion

This study set out to determine the application of forensic accounting as a tool for fraud prevention in the Nigerian deposit money bank. Previous studies were reviewed and responses were analyzed and tested. Based on this, the study discovered that Forensic accounting is an effective tool for addressing financial crimes in the banking system.. Thus, the forensic accounting is an effective tool for combating financial crimes in the banking system. After all, the forensic accountants are expert thus, can easily detect and prevent fraudulent activities in Nigerian deposit money banks irrespective of the challenges they faced in carrying out their professional duties.

5.4 Recommendations

Consequent upon several revelations from the research conducted, there is need to make some recommendations, which are stated below;

Action and Recovery: Appropriate sanctions should be applied when fraud is detected. Where persecution is considered to be the appropriate sanction, proper Forensic procedures need to be followed during investigation and trained experts like the Professional Forensic Accountants should conduct the investigation, where there is evidence of fraud, appropriate disciplinary action in accordance with the Provision of Public Service Rules should be implemented. Criminal prosecution may also be instituted as well as civil action to recover any losses of public money or property. Nigerian deposit money bank is hereby encouraged to learn from what others are doing on fraud prevention, detection and investigation using state-of-the-art technique called “Forensic Accounting”.

Training: Training and guidance is vital in maintaining the effectiveness of the strategy for the detection and prevention of fraud and corruption and its general credibility. The government needs to support induction and work related training, particularly for employees involved in internal control system and the accounting sector, to ensure their responsibilities and duties are regularly highlighted and reinforced and that best practices is followed across organizations service. Significantly, Forensic Accounting or any anti-fraud and corruption strategy can only work if heads of departments and senior managers are committed to it. The anti-graft agencies like the EFCC and the ICPC should ensure they have their technical, investigative and accounting staff trained in the field of Forensic Accounting. Adequate structure and mechanism must be put in place.

Standards: For Nigerian deposit Money banks to properly embrace the practice of Forensic Accounting, the standard setting process should be modernized and streamlined to ensure that guidelines can be altered, created, or eliminated as changing conditions dictate. Accordingly, the state should embrace the practice or implementation of the Nigerian Accounting Standard Board (NABS) guideline. This should be strengthened for accounting standard setting toward broad

principle aimed at elevating the quality of financial report. This if done will enable the Professional Forensic Accountant to operate more independently and effectively.

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