

# Bank Fraud and the Performance of Money Deposits Banks (Mdb): Nigerian Experience

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**ABSTRACT:** - *This study investigated the relationship between bank fraud and the performance of Deposit Money Banks (DMBs) in Nigeria. Expected loss from fraud, number of fraud cases, number of staff involved and volume of fraud involved (proxy for bank fraud) were regressed against earnings before tax (proxy for performance of DMBs). Secondary data on the indicators of bank fraud were collected from the Central Bank of Nigeria (CBN) annual reports and Statistical Bulletin for the period 1991–2012. The study employed Ordinary Least Square (OLS) method of econometrics technique, unit root tests, co-integration and error correction mechanism using E-view Version 7.1 Software, to analyse data on the variables. The findings revealed that bank fraud has a significant inverse relationship with bank performance. The study therefore recommended that regulatory authorities and bank management should put policies and measures in place to curtail the incidence of bank fraud to avoid systematic distress and the collapse of the entire banking system in Nigeria.*

**Keywords:** Bank fraud, Performance, Earning before tax, Expected loss, Bank distress

## INTRODUCTION

Corruption has permeated every facet of our society and the present lip service being paid to it by government is not helping matters (Iroko, 2007). The terrible consequences of fraud and other financial crimes have over the years pervaded the banking community and the financial system in general as well as the international business arena and these seem to be threatening the every fabrics of economic development and security of the country (Wole, 1996).

It must be emphasized that the creation of financial markets and advances of computer technology have provided increased opportunity for fraud and other financial crimes in the globe. Modern financial system, in addition to legitimate commerce, also allows criminal-minded persons to commit various kinds of fraud undetected and with so much speed in today's financial system. Deposit money banks (DMBs) in any financial system play a key role in determining and influencing the course of economic

development of the country. Thus, as financial institutions that serve as intermediaries between savings-surplus unit and savings-deficit units in the economy, the extent to which deposit money banks successfully and efficiently perform the intermediation function profoundly determines not only the level of public trust in the banking system but also the performance of the deposit money banks themselves as well as the general economy.

However, the efficient performance of the intermediation function requires the observance of sound, safe and prudential banking practice which is not always the case as the incidence of bank failures and distress at different times in Nigeria and elsewhere has come to prove. As opined by Idolor (2010), the failure of banks to adequately fulfil their role arises from the several risks that they are exposed to, many of which are not properly managed and one, of such risks, which is increasingly becoming a source of worry, is the banking risk associated with fraud. Fraud is defined as a conscious and deliberate action by a person or

group of persons with the intention of altering the truth or fact for selfish personal gains (Onibudo, 2007).

Recent statistics on the incidence of fraud in the Nigerian banking system as published by the Nigerian Deposit Insurance Corporation (NDIC) in its Annual Report for the year ended 31<sup>o</sup> December, 2012 is both alarming and amazing. For example, Deposit Money Banks (DMBs) reported a total of 3380 fraud cases involving the sum of N17.97 billion with expected/contingent loss of about N4.52 billion in 2012. The expected/contingent loss had increased by N455 million representing a 10.9% increase over the amount of N4.072 billion reported in 2011. The number of reported cases for the year 2012 which was 3380 represented an increase of 43.7% over the number of reported cases of 2352 in 2011 (NDIC Annual Report, 2012).

In terms of number of banks' staff involved in fraud cases, the number increased from 357 in 2010 to 498 cases reported in 2011, an increase of 39.50%, to 531 fraud cases in 2012 representing an increase of 6.63% over the 2011 figure. In terms of the status of banks' staff involved in fraud cases, the published figures for the year 2012 show that temporary staff constituted 42.46% and by far the largest. Clerks and Cashiers accounted for 22.03%, Officers, Accountants and Executive Assistants 16.76% and Supervisors and Managers 14.69% while Typists, Technicians and Stenographers were 0.94%. Messengers, Drivers, Cleaners, Security Guards and Stewards accounted for only 3.01%. Considering the types and nature of frauds and forgeries committed during the year 2012, the NDIC Annual report goes further to reveal that ATM frauds, fraudulent transfers/withdrawals, internet banking fraud, suppression of customers' deposits and conversion of cheques constituted the major sources of fraud and forgeries in the Nigerian banking system (NDIC Annual Report, 2012).

In view of the above observations, the pertinent questions arise as to what the relationship is between bank fraud and bank performance. Is there any relationship between the total amount involved

in cases and the earnings of banks? What is the impact of expected/contingent loss attributable to fraud on banks' earnings before tax? To what extent does the number of banks' staff involved in fraud cases affect the performance of banks in Nigeria? The concerns as to the nature and extent of the impact of bank fraud on the operations and performance of banks in Nigeria, has remained largely inconclusive and is of interest to researchers, industry practitioners and the monetary authorities alike. Writers like Ovuakporie (1994), Udegbonam (1998), Aderibigbe (1999), Kazeem and Ogbu (2002), Onibudo (2007) as well as Omachonu (2009) and Dolor (2010) have at one time or the other contributed variously to the on-going debate. This study attempted to contribute to the debate by employing more recent and robust econometric techniques involving the use of unit root tests, cointegration and error correction mechanism. The objective of this study was to examine the relationship between expected loss from fraud, number of fraud cases, number of bank staff involved, volume of fraud cases and the earnings before tax of deposit money banks (DMBs) in Nigeria. This objective forms the basis of the hypotheses tested in this study.

The rest of this paper is structured as follows: Section two provides an empirical literature review while section three deals with the study methodology. Section four dwells on data presentation, results and discussion of the results, and section five provides the conclusion and recommendations.

## **EMPIRICAL LITERATURE REVIEW**

Many studies have been carried out to examine the nature and extent of fraud in the Nigerian banking sector and their impact on the performance of banks. Idowu (2009) examined the means of minimizing the incidence of fraud in the Nigerian banking industry. His findings showed that many factors contribute to the incidence of frauds in the banks amongst which are poor management of policies and procedures, inadequate working conditions, bank staff staying longer on a particular

job as well as staff feeling frustrated as a result of poor remuneration. In another study, Abdul-Rasheed, Babaitu and Tinusa (2012), investigated Use impact of fraud on bank performance in Nigeria using the method of linear regression. Their results revealed that there is a significant relationship between banks' profit and total amount of funds involved in fraud.

On the causes of frauds in the Nigerian banking sector, Ojo (2008) classified the causes of bank frauds and forgeries into institutional or endogenous and the environmental or exogenous factors. Some of the endogenous factors he identified include weak internal control system, inexperienced staff and poor remuneration while among the exogenous factors are low moral values in the society, lack of effective deterrent and punishment as well as fear of negative publicity. In a related study, Idolor (2010) examined the common types of bank fraud that are frequently carried out in the banking system, the underlying causes, level of staff involvement, consequences and possible means of ameliorating the problem. The author used primary data collected from a sample of 100 respondents from Benin City which were analyzed using the t-test. The findings revealed that respondents did not view unofficial borrowing and foreign exchange malpractice as forms of bank fraud since they were common and an industry-wide practice. In addition, the findings showed that there was an equal level of staff involvement in initiating and executing fraud, with concealment of fraud coming last in their agenda. Also, among the factors hypothesized to encourage bank fraud, the major individual-based factors were greed, infidelity and poverty, while organizational factors were inadequate staffing, poor internal controls, lack of personal ethics and weak corporate governance as managerial factors that help propagate frauds in banks.

The study by Ikpefan (2007) empirically tested whether there is no significant relationship between deposits on the one hand, and the following explanatory variables-fraud, actual/expected loss and Money Laundering Act (MLA) between 1989 and 2004. The methodology adopted was regression

analysis and the results showed that three of the four tests were statistically useful in explaining the variability in deposits that as MLA has a positive and significant impact on deposits; Actual Loss also has a significant impact on deposits while fraud has an inverse relationship with deposits.

The empirical study by Akindele (2011) set out to identify the causes of bank fraud, its impact and identify means of controlling it. The study used the survey research method and his major findings revealed that lack of adequate training, communication gap and poor leadership skills were the greatest causes of fraud in the Nigerian banking Industry. The author therefore recommended that adequate internal control systems should be put in place and that workers satisfaction and comfort should be taken care of.

In a recent work involving the use of cointegration and the error correction mechanism, Nwankwo (2013) evaluated the impact of fraud on the performance of banks in Nigeria. The research work also sought to ascertain the relationship between Bank ATM Fraud, Forged Cheque, Clearing Cheque Fraud and Bank Performance, The findings demonstrated that there is significant impact of fraud on the performance of banks in Nigeria, The author therefore asserted that there is an urgent need for effective monitoring of bank fraud through the use of ATMs to allow for the growth of Nigerian banks, The study by Kanu and Okoroafor(2013) also investigated the nature, extent and impact of bank fraud on deposit money bank in Nigeria by employing descriptive and inferential statistics. The authors reported a positive and significant relationship between bank deposits and fraud in the Nigerian banking industry.

Furthermore, Uchenna and Agbo (2013) also evaluated the impact of fraud and fraudulent practices on the performance of banks in Nigeria within the period 2001-2011. The authors employed secondary data which were analyzed using the Pearson Moment Correlation Coefficient and Multiple Regression techniques. The empirical results revealed that the percentage of mobilized

funds lost to fraud was highest between 2001 and 2005 and a significant decrease was recorded between 2006 and 2011 due to the stringent measures adopted by the regulatory bodies to tackle the menace of fraud and fraudulent activities in Nigeria. The authors recommended that banks should strengthen their internal control systems and regulatory bodies should improve on their supervisory roles in order to check and curtail the incidence of fraud and fraudulent activities in the banking system in Nigeria.

**METHODOLOGY**

To achieve the objectives of this study and investigate the impact of fraud on the performance of DMBs in Nigeria, the study employed econometric method of data analysis using E-view software version 7.1. The relationship between bank performance and indicators of fraud is captured in the multiple regression model specified as follows:

$$EBT = f(ELF, NFC, NSF, VFC)$$

The above model is transformed into an explicit regression equation as stated below:

$$\log (EBT) = \beta_0 + \beta_1 \log (ELF) + \beta_2 \log (NFC) + \beta_3 \log (NSF) + \beta_4 \log (VFC) + u \dots(1)$$

Where;

EBT = Earnings before tax of DMBs in Nigeria (N million) used as proxy for bank performance.

ELF = Expected Loss from Fraud cases (N million)

NFC = Number of fraud cases

NSF = Number of Staff involved in Fraud cases

VFC = Volume (amount) involved in the fraud cases (N million)

$\beta_0$  is the constant, and  $u$  is the error term of the equation.  $\beta_0, \beta_1, \beta_2, \beta_3,$  and  $\beta_4$  are the parameter coefficients of the indicators. That is  $\beta_0 > 0, \beta_1, \beta_2, \beta_3$  and  $\beta_4 < 0$ .

**DATA PRESENTATION, RESULTS AND DISCUSSION**

**Data presentation**

To estimate the multiple regression model specified in equation (I) above, annual data of the specified variables were sourced from the Annual Reports and the Statistical Bulletin of the Central Bank of Nigeria (CBN) for the period 1991-2012. The data relate to aggregate returns made to the CBN by all the insured DMBs in Nigeria for the specified period. Table 1 presents the aggregate data which were analysed with the aid of the econometric software package E-Views 7.1.

**Table 1: Aggregate Data on Indices of Bank Fraud Performance in Nigeria (1991-2012)**

Year	EBT (N' million)	ELF (N' million)	NFC (N' million)	NSF	VFC (N' million)
1991	2210.8	26678.6	96	514	388512.7
1992	24196.2	73.11	108	436	411.75
1993	35516.6	246.37	122	516	1419.09
1994	41588.5	950.65	170	737	3399.39
1995	47012.4	229.13	141	625	1011.36
1996	52802.3	375.24	606	552	1600.68
1997	50460.2	227.44	487	566	3777.9
1998	47144.1	692.25	573	311	3196.51
1999	96630.1	2730.06	195	596	7404.28
2000	132654.3	1080.57	403	493	2851.11
2001	254151.4	906.3	943	152	11243.94
2002	245284.2	1200.69	796	85	12919.55
2003	272300.6	857.46	850	106	9383.67
2004	41588.5	2610	1175	383	11754.18
2005	120391.1	5602.05	1229	378	10606.18

2006	88806.4	2768.67	1193	331	4832.17
2007	186407.3	2870.85	1553	273	10005.81
2008	206507.3	17543.09	2007	313	53552.86
2009	-1373330	7549.23	1764	656	41291.41
2010	6-7340	11679	1532	357	21291.41
2011	-6710	4071	2352	498	28400.86
2012	<u>525340</u>	<u>4517</u>	<u>3380</u>	<u>531</u>	<u>17965</u>

Source: CBN Statistical Bulletin,

### 2012 Results

The analysis and results of the study are presented in this section beginning with a summary of the descriptive statistics as shown in Table 2.

### Descriptive Statistics

From Table 2, the mean value of (EBT) is N83782,32 million with a standard deviation of

N361889.4 million while the mean value for ELF is N4343.535 million with standard deviation of N6555.545 million. For NFC, the mean value is 985.2273 and standard deviation of 852.9354 while NSF has a mean value of 427.6818 and standard deviation of 176.1056. Lastly, VFC has a mean value of N29398.90 million and a standard deviation of N8 1339.41 million.

**Table 2: Descriptive Statistics**

	EBT	ELT	NFC	NSF	VFC
Mean	83782.32	4343.535	985.2273	427.6818	29398.90
Median	92718.25	1954.845	823.0000	464.5000	9694.740
Maximum	607340.0	26678.60	3380.000	737.0000	388512.7
Minimum	-1373330.	73.11000	96.00000	85.00000	411.7500
Std. Dev.	361889.4	6555.545	852.7354	176.1056	81339.41
Skewness	-2.926686	2.296219	1.106707	-0.367402	4.175309
Kurtosis	13.45046	7.684095	3.900122	2.406387	18.96128
Jarque-Bera	131.5180	39.44529	5233637	0.817953	297.4541
Probability	0.000000	0.000000	0.073035	0.664330	0.000000
Obs	22	223	22	22	22

Source: Author's Computation

### Correlation Matrix

The correlation matrix for all the variables in the model is presented in Table 3. The table shows that the correlation between ELF and NFC is 0.186860;

between ELF and NSF is 0.031075. The correlation between NSF and NFC is -0.146160 while the between VFC and NFC is -0.119695. In all, it is evident that the variables are not perfectly correlated.

**Table 3: Correction Matrix**

	EBT	ELT	NFC	NSF	VFC
EBT	1.000000				
ELT	- 0.040071	1.000000			
NFC	0.072800	0.186860	1.000000		
NSF	- 0.419300	0.031075	- 0.416160	1.000000	
VFC	- 0.098124	0.843889	- 0.119695	0.095461	1.000000

Source: Author's Computation

### Level Series Multiple Regression Analysis

In Table 4, the results of the estimated level series multiple regressions are presented. The estimated

results show an adjusted R2 of approximately 69.37%, an F-statistic of 11.75775 and a D-W statistic value of 1.466289 which suggests the

presence of some level of positive autocorrelation in the estimated model. This therefore means that the results of the estimated level series multiple regression model cannot be relied upon for analysis and policy making (Ogbutu, 2012).

**Table 4: Level Series OLS Multiple Regression Results**

Method: Least Squares

Sample: 1991-2012

Included Observation: 20

Variable	Coefficient	Std.Error	t-Statistic	Prob.
C	11.77931	3.247000	3.627752	0.0025
LOG (ELF)	0.318745	0.296818	1.073874	0.2999
LOG (NFC)	0.862206	0.204355	4.219162	0.0007
LOG (NSF)	-0.570813	0.355189	-1.607071	0.1289
LOG(VFC)	-0.536419	0.290066	-1.849302	0.0842
R-squared	0.758185		Mean dependent var	11.44334
Adjusted R-squared	0.693702		S.D dependentvar	1.265223
S.E of regression	0.700228		Akaike info criterion	2.337496
Sum squared resid	7.354787		Schwarz criterion	2.586429
Log likelihood	-18.37496		F-statistic	11.75775
Durbin-Watson stat	1.466289		Prob(F-statistic)	0.000159

Source: Authors Computation

Consequently, we examined the time-dependent characteristics of the variables in the multiple regression models using the Augmented Dicky-Fuller(ADF) unit root test.

**Unit Root Tests**

The results of the ADF unit root tests conducted on the variables are as shown in Table 5.

**Table 5: ADF Unit Root Test Results**

Variable	ADF Test Statistic at 1 <sup>st</sup> Diff.	Order of integration
EBT	-4.926223	1 (1)
ELF	-5.465158	1 (1)
NFC	-4.336254	1 (1)
NSF	-4.160372	1 (1)
VFC	-4.540116	1 (1)

Critical Value: 1% -3.8304; 10% -2.6552

The ADF unit root test results indicate that all the variables are integrated of order one-That means, they become stationary after the first differencing.

**Co-integration Test**

Having established that the variables in equation (1) are all integrated of order one, the Johansen co-integration test is conducted to examine whether there is any long-run relationship between the dependent and independent variables. Table 6

shows the results of the Johansen co-integration test which assumes a linear deterministic trend in the data and conducted with a lag interval of 1 to 1. The test indicates that there are two co-integrating equations at the 5% level of significance. The test confirms the existence of two long-run dynamic combinations of the dependent and independent variables in the bank performance-fraud relationships.

**Table 6: Johansen Co-integration test Result**

Sample (adjusted): 1993 2012				
Included observations: 20 after adjustments				
Trend assumption: linear deterministic trend				
Series: EBT ELF NFC VFC				
Lags interval (in first differences): 1 to 1				
Unrestricted cointegration rank test (trace)				
Hypothesized NO. of CE (s)	Eigenvalue	Trace statistic	0.05 critical value	Prob.**
None*	0.911704	97.42050	69.81889	0.0001
At most 1*	0.792001	48.87936	47.85613	0.0399
At most 2	0.400033	17.47490	29.79707	0.6049
At most 3	0.215171	7.257285	15.49471	0.5479
At most 4	0.111347	2.360980	3.841466	0.1244
Max-eigenvalue test indicates 2 con-integration at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**Mackinnon-Haug-Michelis (1999) P-values				

Source: Authors' Computation

**Error Correction Mechanism (ECM)**

Given the existence of a long run relationship among the variables, we applied the error correction mechanism to examine the dynamic behavior of the model when confronted with short-run shocks. Table 7 presents the results of the parsimonious error correction model estimates which were derived by employing the general to specific approach.

**Table 7: Parsimonious Error Correction Estimates**

Dependent Variable: D (LOG(EBT))

Method: Least Squares

Sample (adjusted): 1993-2008

Included Observations: 16 after adjustment endpoints

Dependant Variable: D(LOG(EBT))				
Method: Least Squares				
Sample (adjusted): 1993 – 2008				
Included Observations: 16 after adjustment endpoint				
Variable	coefficient	std. Error	t-Statistic	Pro.
C	0.262605	0.079359	3.309075	0.0107
D (LOG(EBT(-1)))	-0.042621	0.105682	-0.403296	0.6973
D(LOG(ELF))	-0.363913	0.106985	-3.401516	0.0093
D(LOG(NFC))	-0.477882	0.175071	-2.729644	0.0259
D(LOG(NFC(-1)))	-0.668352	0.161348	-4.142305	0.0032
D(LOG(NSF))	-0.190048	0.126245	-1.505383	0.1706
D(LOG(VFC))	0.695601	0.165524	4.202416	0.0030
ECM01(-1)	-0.113235	0.154527	0.732784	0.4846
R-squared	0.796446	MeanDependent Var	0.134009	
Adjusted R-squared	0.618336	S.D. dependent var	0.361307	
S.E of regression	0.223211	Akaike info criterion	0.145458	
Sum squared resid	0.398587	Schwarz criterion	0.531753	
Log likelihood	6.836334	F-statistic	4.471661	
Durbin- water stat	2.038313	Prob (F-statistic)	0.025904	

Source: Authors' Computation

The parsimonious CM estimates are obviously more robust than the level series results in Table 4 given a

D-W statistic value of approximately 2.04 which indicates the absence of autocorrelation in the ECM

model. The adjusted R<sup>2</sup> of the model is approximately 61.83% indicating that the independent variables jointly explain about 61.83% of the total variation in EDT, the dependent variable. Furthermore, the F-statistic is 4.47 with a p-value of 0.024 which is significant and means that the model is a good fit. However, the error correction coefficient (ECM001) of -0.113235 is appropriately signed but not significant at 0.4846 showing that the speed of adjustment of the model back to equilibrium approximately 11.32% per annum.

### **Test of Hypothesis**

#### **Hypothesis 1**

The estimated results show that ELF has an inverse relationship with EBT as expected and is significant at 5% level of significance given a t-statistic of -3.40 and p-value of 0.0093. Therefore, we reject the null hypothesis and accept the alternative which says there is a significant relationship between the expected loss on fraud cases and the earnings before tax of DMBs in Nigeria.

#### **Hypothesis 2**

From Tables, NEC also has an inverse relationship with EBT in line with apriori expectation, with a coefficient value of -0.477882, at-statistic value of -2.729644 and p-value of 0.0259. Number of fraud cases (NFC) therefore is significant at the 5% level of significance. We reject the null hypothesis and accept the alternative which says that the number of fraud cases has a significant impact on the earnings before tax of DMB5 in Nigeria. The results also indicate that NFC lagged one period is appropriately signed and also significant at the 5% level of significance.

#### **Hypothesis 3**

Number of Staff involved in fraud cases (NSF) demonstrates an inverse relationship with EBT as expected but is not significant with a t-statistic of -1.505383 and a p-value of 0.1706. The null hypothesis that there is no significant relationship between the number of staff involved in fraud cases

and the earnings before tax of DMBs in Nigeria is accepted.

#### **Hypothesis 4**

The relationship between volume of fraud cases (VFC) and earnings before tax (EBT) is positive contrary to theoretical expectation but is significant since the t-statistic is 4.202416 and p-value is 0.0030. We therefore reject the null hypothesis and accept the alternative which says that there is a significant relationship between volume of fraud cases and the earnings before tax of DMBs in Nigeria.

### **Discussion of Results**

The empirical findings of the study demonstrate an inverse relationship between three (3) of the four (4) indicators of fraud employed in the study and earnings before tax of DMBs in Nigeria. Specifically, the indicators are Expected Loss on Fraud (ELF), Number of Fraud Cases (NFC) and Number of Staff involved in Fraud Cases. The observed results are in agreement with apriori expectations and corroborate earlier works such as Nwankwo (2013), Ikpefan (2007), Kane and Okoroafor (2013) as well as Abdul-Rasheed, Babaitu and Tinusa (2012) who found a significant relationship between bank fraud and bank performance in Nigeria.

The observed inverse and significant relationship between fraud and bank performance in this study vividly demonstrates that an increase in the incidence of bank fraud has a negative and debilitating impact on bank performance and this calls for concerted efforts to curtail the incidence of bank fraud in Nigeria.

The results of the Granger causality tests are also in consonance with theoretical expectation and underscore the uni-directional causality from fraud to bank performance.

However, the observed positive but significant relationship between Volume (Amount) of Fraud cases (VFC) and earnings of DMJ3s in the parsimonious SCM estimates is contrary to apriori expectation and calls for further enquiry. This could

be due to specification error or the presence of multicollinearity in the independent variables.

## **CONCLUSION AND RECOMMENDATIONS**

This paper set out to investigate the nature and extent of the relationship between bank fraud and the performance of Deposit Money Banks in Nigeria as well as the direction of causality between bank fraud and bank performance. In the course of the study, the paper also examined the types and forms of bank fraud as well as the identified causes of bank fraud in Nigeria.

The empirical findings of the study reveal the following: (i) that there is a negative and significant relationship between Expected Loss on Fraud cases (ELF) and Earnings before tax (EDT) of DMBs in Nigeria. (H) there is a negative and significant relationship between Number of Fraud cases (NFC) and EDT of DMBs in Nigeria (Hi) there is a positive and significant relationship between Volume of Fraud cases (VFC) and EBT of DMBs in Nigeria (iv) there is a negative but insignificant relationship between Number of Staff involved in fraud cases (NSF) and EDT of DMEs (v) the Granger casualty tests demonstrate that there is a uni-directional causality relationship from ELF and VFC to EDT respectively while the study reports no Granger causality relationship between NEC, NSF and EBT respectively.

The study recommended that in the light of the observed negative impact which bank fraud has on bank performance and the identified causes of bank fraud in Nigeria, concerted efforts should be made by the regulatory authorities and the banks themselves to curtail the incidence of bank fraud in Nigeria.

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