

at establishing the impact of one variable and another. The research design came in handy for the explanation of determining the relatedness or variation between two variables. Enough information and data was used to establish this by testing for the cause and effect relationship. It focused on determining the impacts of electronic fraud as it relates with bank failure of banking industry in Nigeria. In this research work, Return on asset and qualities of asset were used as an index to determine bank failure; return on asset ROA is expressed as;

$$\text{Return on assets} = \frac{\text{Profit before tax}}{\text{average total asset}} \times 100$$

The return of assets (ROA_t) was regressed on mobile banking (MB_t) and internet banking (IB_t) with the use of the researcher's model. This model is specified below:

$$\text{ROA} = b_0 + b_1\text{IB}_t + b_2\text{MB}_{it} + e_t$$

$$\text{ROA} = \text{Return on asset's value at time } t$$

$$Y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + e$$

Where;

Y= the financial performance of deposit money banks as expressed by ROA- ratio of after tax profits to total assets

X₁= % of Mobile Banking fraud

X₂=% of Internet Banking fraud.

X₃=% of ATM fraud

X₄=% of PoS fraud

The quality of asset and returns on asset were chosen as the measure of bank failure/success. Quality of asset and returns on asset was regressed on mobile banking,

internet banking and PoS by making use of the researcher's model as stated below:

$$\text{QOA}_t = b_0 + b_1\text{IB}_t + b_2\text{MB}_{it} + e_t$$

$$\text{QOA} = \text{Quality of asset's value at time } t$$

$$Y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + e$$

Where;

Y= the financial performance of deposit money banks as expressed by QOA ratio of total capital to risk weighted assets

X₁= % of Mobile Banking fraud

X₂=% of Internet Banking fraud.

X₃=% of ATM fraud

X₄=% of PoS fraud

SPSS version 22 was used to estimate the coefficients of the models and interpret with the aim of testing the vigor of the models

The population of the study consists of all deposit money banks in Nigeria. The study covers the period 2006- 2018. The period was considered appropriate because electronic banking full adoption in Nigeria started between 2003 and 2004, hence, the effect cannot be felt within few years of adoption. Secondary data was used for the study and was obtained from the Central Bank of Nigeria's annual reports and statistical bulletin and the NDIC financial statements for banks; return on assets, revenue generated from ATMs, POS and electronic banking, mobile banking and the deposits for the banks. The Ordinary Least Square technique and correlation were used for the study

Year	No. of Reported fraud cases	Amount of fund involved in fraud (₦b)	Expected Actual loss ₦b	Profit before Tax ₦b	Bank Deposit ₦b	Return on Assets ₦b	Quality to Assets ₦b
2006	1,193	4.83	2.77	610.12	3412.3	4797	2840
2007	1533	10.1	2.87	619.96	5357.2	13822	5250
2008	2007	53.52	17.54	658.1	8702	14125	6851
2009	1764	41.27	7.55	-1370	9989.8	12624	7593
2010	1532	28.4	11.68	607.34	10837.1	10256	8150
2011	2352	28.4	4.07	-6.71	12330	11625	7273
2012	3380	17.97	4.52	525.34	14386	12426	2458.7
2013	3786	21.8	5.76	539.97	16671.6	13513	23169
2014	10612	25.61	6.19	601.2	177996	14100	26233
2015	12279	18.02	3.17	588.86	17486.7	14742	26589.8
2016	16,751	86.83	3.6	445.36	18542.4	15120	203648
2017	26,182	12.012	3.75	158.25	19381.5	15201	302213
2018	28954	125.48	4.10	128.3	13856.2	15436	38951.1

4. Data Presentation and Analysis

The purpose of this section is to analyse the study data and interpret the results so as to answer the research questions. The study sought to examine the electronic fraud an emerging cause of bank failure in Nigeria. The population of the study consists of all deposit money banks in Nigeria. Secondary source of data was used for this study, and the data were sourced from Central Bank of Nigeria's annual reports and NDIC annual reports. The study covers the period 2006-2018. The period was considered

appropriate because electronic banking full adoption in Nigeria started between 2003 and 2004, hence, cannot be felt within few years of adoption.

Table 4.1: Data on Reported Cases of Fraud

Source: NDIC Reports 2018

Table 4.2: Reported Cases of Electronic Banking Fraud

Year	ATM/Card-Related Fraud (₦b)	Web-Based (Internet Banking) Fraud (₦b)	Fraudulent Transfers/mobile banking (Withdrawal and Deposits) (₦b)	PoS (₦b)
2006	0.050	0.670	0.124	0.011
2007	0.020	0.940	0.322	0.017
2008	0.280	1.530	0.670	0.017
2009	0.370	1.330	0.359	0.019
2010	0.320	1.160	0.224	0.117
2011	0.380	2.280	0.425	0.072
2012	0.495	2.670	0.354	0.045
2013	0.413	1.683	1.162	0.056
2014	1.242	3.196	0.583	0.036
2015	0.504	0.857	0.562	0.075
2016	0.476	0.582	0.626	0.036
2017	0.798	0.709	0.318	0.073

Source: NDIC Reports, 2018**Findings and hypothesis testing**

Decision Rule: Reject H_0 , if p -value < 0.005 , or otherwise.

Hypothesis One

H_0 : There is no significant relationship between Electronic Fraud and Bank Failure

Table 4.3: Correlation Spread of Electronic Fraud Channels

		ASSET	ATM	INTERNET	MOBILE	POS
ASSET	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	26156				
ATM	Pearson Correlation	.637*	1			
	Sig. (2-tailed)	.000				
	N	24138	24138			
INTERNET	Pearson Correlation	.920*	.537*	1		
	Sig. (2-tailed)	.000	.000			
	N	24138	24138	24138		
MOBILE	Pearson Correlation	.580*	.233*	.215**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	24138	24138	24138	24138	
POS	Pearson Correlation	.087*	.219*	.005	.024*	1
	Sig. (2-tailed)	.000	.000	.451	.000	
	N	24138	24138	24138	24138	24138

Source: SPSS

A correlation analysis is to determine the level of relationship between variables, measured within -1 to 1. Correlation value (i.e. Pearson correlation value) within 0 to 0.49 is a weak positive correlation, while value within the range of 0.5 to 1 is a strong positive correlation and same principle

applies to the negative wing. The table 4.3 above shows the correlation spread of electronic fraud channels (which are the variables) with the total bank asset (determinant of bank failure/success). Therefore, looking at the ATM column with Pearson value of 0.637, symbolizes that there is relatively strong, positive correlation between ATM fraud and bank failure. Also, since p -value of (0.000) is less than 0.05, we reject the null hypothesis and accept the alternative, which is, there is significant relationship between electronic fraud and bank failure.

More so, internet banking has an extremely positive correlation with bank failure with a Pearson value of 0.920. Also revealing that, there is significant relationship between electronic fraud and bank failure; since p -value (0.00) is less than 0.05. Intermittently, the correlation analysis to determine whether mobile banking had an influence on bank failure, shows that relationship exist ($r = 0.580$, p -value= 0.00). This implies that mobile banking is significant to increased bank failure. The study also sought to determine whether PoS had influence on Bank failure and it shows a weak positive and significant relationship exists ($r = 0.087$, p -value=0.00). The relationship is suggesting PoS being a significant factor, slightly increased bank failure. It can therefore be concluded that all the variables were significant to the study problem although the degrees of influence varied.

Hypothesis Two

H_0 : Electronic Frauds does not significantly affect returns on asset in the Nigerian banking industry.

Table 4.4: Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.675 ^a	.456	.145	2672.416	1.942

a. Predictors: (Constant), PoS (?a), Web-Based (Internet Banking) Fraud (?a), Fraudulent Transfers/mobile banking (Withdrawal and Deposits) (?a), ATM/Card-Related Fraud (?a)

b. Dependent Variable: Return on Assets ?a

Source: SPSS

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the above table 4.4 the value of adjusted R squared was 0.145, an indication that there was variation of 14.5% on performance of deposit money banks in Nigeria due to changes in internet banking, point of sales, automatic teller machine, mobile banking and size of the bank at 95% confidence interval. This shows that 14.5 % changes in financial performance of deposit money banks could be accounted to changes in internet banking, point of sales, automatic teller machine, mobile banking and size of the bank. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables as shown by 0.675.

Table 4.5: ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	418658 14.621	4	104664 53.655	1.46 6	.003 ^b
1 Residual	499926 50.296	7	171418 07.185		
Total	918584 64.917	11			

a. Dependent Variable: Return on Assets.

b. Predictors: (Constant), PoS, Web-Based (Internet Banking) Fraud, Fraudulent Transfers/ mobile banking (Withdrawal and Deposits), ATM/Card-Related Fraud

Source: SPSS

This implies that as the total amount involved in electronic bank fraud increases, it directly affects returns on asset, that is, electronic fraud of any sort strongly and directly decreases bank asset and vice versa. The coefficient of determination in the model summary in table 4.4, connotes that; there is a strong positive correlation between electronic fraud channel and bank asset. However, the more the asset of a bank reduces over time, the more it tends to failure or event total liquidity. Also, analysis carried out affirm that, the p-value is 0.003 which is less than 0.05; which simply depicts that we reject the null hypothesis (H₀). Hence, we can conclude that, Electronic Frauds significantly affect returns on asset in the Nigerian banking industry.

Hypothesis Three

H₀: Electronic Frauds do not significantly affect the quality of asset in Nigerian banking industry.

Table 4.6 Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.818 ^a	.670	.481	69640.91 43089	1.330

a. Predictors: (Constant), PoS, Web-Based (Internet Banking) Fraud, Fraudulent Transfers/ mobile banking (Withdrawal and Deposits), ATM/Card-Related Fraud

b. Dependent Variable: Quality to Assets.

Source: SPSS

The table 4.6 above, presents the coefficients of model fitness on how electronic banking affects Quality of asset which is used in this context as a measure for bank failure. The Quality of asset has an overall correlation with e-banking of 0.818 which is strong and positive. This means that approximately 81.8% variations from quality of asset are explained by the electronic fraud channel variables at 5% level of significance. These indicate good fit of the regression equation used. Therefore, this is a good indication of the true position that bank failure can be explained by the number of electronic fraud channels.

Table 4.7: ANOVA^b

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	68785605 310.209	4	17196401 327.552	3.5 46	.049 ^b
Residual	33948998 620.500	7	48498569 45.786		
Total	10273460 3930.709	11			

a. Dependent Variable: Quality to Assets ?
b. Predictors: (Constant), PoS, Web-Based (Internet Banking) Fraud, Fraudulent Transfers/ mobile banking (Withdrawal and Deposits), ATM/Card-Related Fraud

Source: SPSS

The table 4.7 showed the overall significance of the regression estimation model. It indicates that the model is significant in explaining the relationship between Quality of asset and electronic fraud channel at 5% level of significance. Analysis of Variance shows that F-calculated is greater than F-critical that is $3.546 > 0.2275$. This implies that the regression equation was well specified and therefore the co-efficient of the regression shows that there is a strong relationship between Quality of asset and electronic fraud channel. The analysis of variance of the predictors of the model has a significance of 0.049. From the table 4.7 above; the p-value is 0.049, which is less than 0.05. We reject the null hypothesis. That is, electronic frauds significantly affect the quality of asset in Nigerian banking industry. The study also revealed that the Durbin-Watson statistics of 1.330 confirm a positive auto correlation detected within variables. The DW statistics can vary between 0 and 4 with a value of 2 meaning that the residuals are correlated (Fried, 2001).

A linear positive relationship exists between electronic fraud channel and quality of assets of deposit money banks in Nigeria as it is confirmed by the regression coefficient of 0.818 in the table. The F-statistic (3.546) is significant as shown by the P-value of 0.049 in the table. This means that electronic fraud is a strong predictor of bank's quality of asset in deposit money banks in Nigeria. The study, therefore, rejects the null hypothesis and concludes that electronic frauds significantly affect the quality of asset in Nigerian banking industry.

Table 4.8: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	1.233	60463.233		1.484	.000
	ATM/Card-Related Fraud	.271	80526.651	.843	3.119	.048
	Web-Based (Internet Banking) Fraud	.118	29842.194	-.865	3.306	.021
	mobile banking Fraud	.208	79893.295	-.015	.068	.043
	PoS fraud	.035	68396.0168	-.017	.075	.028

a. Dependent Variable: Quality to Assets

Source: SPSS

The table generated established regression equation;

$$QOA = 1.232 + 0.271 X_1 + 0.118X_2 + 0.208 X_3 + 0.035X_4 + \epsilon$$

Where QOA= Value of Quality of Assets at time t

From the above regression model, holding internet banking, point of sales, automatic teller machine, mobile banking to a constant zero, and quality of asset (determinant for bank failure) of money deposit banks would be 1.232. This means that a unit increase ATM fraud would cause a 27.1% decrease in quality of asset in money deposit banks. Also, a unit increase in Internet banking fraud would lead to 11.8% decrease in quality of asset in money deposit banks.

A unit increase in mobile banking fraud would lead to a 20.8% decrease in quality of asset in money deposit banks, and further unit increase in PoS fraud would cause to a 3.5% decrease in quality of asset in money deposit banks. This clearly shows that there is a positive relationship between quality of

asset of money deposit banks and electronic fraud channels. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that all the independent variable was statistically significant and thus in position to make conclusion for the study.

5. Recommendations

1). The strict and administrative bodies of banks in Nigeria be supposed to develop their supervision by every tool at their disposal to appropriately catch and curtail the incidence of fraud and false practices in the banking hard work in Nigeria.

2). Establishment of sufficient and swish electronic passage curb system is in addition optional for fraud prevention. For example, planned account-holders be supposed to be verified before any checking account is opened and the entire payments instrument with colossal quantity must be referred to the issuing tilt before payment.

3). The fraud pack reproduction as urban by Okoye (2016), which concerns corporate ascendancy in seminal fraud-risk factors in banks, must be put in place by the management. Narrow establishment like centralized department of Finance, CBN and NDIC be supposed to make certain acquiescence to applicable statutes and sunny corporate governance. This will lend a hand slash abuses and fraud.

4). When new products are introduced, there should be proper test for efficiency. Limits should also be placed on transactions that can be done per time pending when the product is fully developed and incorporated

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