

## Technological Infrastructure Investments and Financial Performance of Banks in Nigeria

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### ABSTRACT

This study investigated the effects of Money Deposit Banks' investments in technological infrastructure on financial performance in Nigeria. The study was built under the usage of technology and Unified Theory of Acceptance framework. To obtain answers to the research questions and to test the hypotheses formulated, data were obtained from annual reports of banks listed on the floor of the Nigeria Stock Exchange (NSE). Quantitative research design was employed. Data obtained were analysed using descriptive statistics, Pearson correlation analysis, and percentage change trend analysis. Hypotheses testing were done using linear regression analysis. The results from the analyses revealed that investments in technological infrastructure is positively and significantly correlated with net interest income, electronic business income, and customers' deposits; but was positively and insignificantly correlated with net profit after tax. The study concludes that investments in technological infrastructure positively influence the financial performance of banks in Nigeria. The study thus recommends among others that there should be an objective evaluation of the computer equipment as well as other fixed assets of the focused banks in order to distinguish the revenue assets from those that should be divested.

**Keywords: Technological infrastructure, financial performance, Money Deposit Banks**

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### INTRODUCTION

One of the ways in which the business environment in modern times is affecting the operational stability of organizations is via technological dynamisms. This constant and progressive flux in the introduction/adoption, usage, and availability of technological infrastructures impacts on the

performance of firms. The money deposit banks in Nigeria are not an exception.

Technological infrastructure, in business context, is seen as a "set of interrelated components that collect (or retrieve), store, and distribute information to facilitate speedy execution of business/economic transactions, and as

well, support decision making and control in an organization” [1].

[2] , note that this support system does not only improve firm's operational effectiveness and efficiency but also increase their commercial viability and financial profitability. A firm is said to be financially profitable when its major financial performance indicators such as sales, net profit before tax, returns on investments, etc are increasing.

Strategic investments in technological infrastructure play a key role in the development of new products/services as well as improve major financial performance indicators [3]. Thus, information technology provides new forms of customer services, new distribution channels, new information based products, improved productivity, and has the capacity to influence the structure of the industry like any other business entities, banks are deploying products and services that are rooted in technological innovation in order to ensure their future survival, meet the changing expectations of their customers, and increase their profitability.

Actually, banking environment worldwide has become transformed over the years and the banking public has become more sophisticated in their purchase decisions. To respond to this increasingly sophisticated customer and market demand therefore, banks need to put in

place operational processes that ensure greater customer convenience, better delivery of and increased accessibility to financial services and products. And this, according [4], has resulted in banks' investments in and utilization of some technological infrastructures such as optic character recognition (OCR), broadband, mobile banking, software security applications, electronic payment systems, automated teller machines, electronic cards (that is credit and debit cards) and other technological infrastructure.

#### **Statement of the Problem**

Despite the growing interest and importance of technological infrastructure in many banks in Nigeria, the introduction/adoption, usage, and availability of technological infrastructures have not been impressive. It is expected that banks that are using recently introduced cutting-edge technologies will enjoy the benefit of improved financial performances arising from shrink unbanked population (that is financial exclusion), high volume of transactions, quick service delivery, and reduced operating cost, among others. But contrary to the aforementioned expectations, our preliminary investigation revealed that there are still queues in the banking halls and banks' Automated Teller Machine (ATM) terminals, some banking issues take

several days to resolve, inadequate network to carryout online transactions, etc, which cumulatively could affect the financial profitability of banks. This prompts the question as to whether investments in technological infrastructures have any effect on the financial performances of Nigerian banks.

### **Objectives of the Study**

The main aim of this study is to examine the effect of investments in technological infrastructure on banks performance in Nigeria. Other specific objectives include to:

- Provide statistical evidence on the effect of investments in technological infrastructure on the net interest income of deposit money banks in Nigeria
- Examine how net profits of deposit money banks are affected by investments in technological infrastructure in Nigeria.
- Substantiate the effect of investments in technological infrastructure on the electronic business income (that is e-business income) of deposit money banks in Nigeria.
- Evaluate how technological infrastructure acceptance and diffusion in the Nigeria banking industry affected banks financial performance.

### **Research Hypotheses**

In other to statistically substantiate the effect of investments in technological

infrastructures on the financial performance(s) of banks in Nigeria, the study put forward the following hypotheses:

H0: There is no significant relationship between net interest income and investments in technological infrastructure of money deposit banks.

H0: There is no significant relationship between net profits and investments in technological infrastructure of money deposit banks.

H0: There is no significant relationship between investments in technological infrastructure and e-business income of money deposit banks.

H0: Technological infrastructure acceptance and diffusion has no significant effect on banks financial performance.

### **Conceptual Framework**

Technological Infrastructure [1], explained technological infrastructure in business context as "a set of interrelated components that collect (or retrieve), store, and distribute information to support decision making and control in an organization". Sailing along the same coast, [5] further described it as the application of communication technology and information to deal with the collection, storage, manipulation and transfer of information using electronic means. In this study, technological

infrastructure is defined as those facilities, machines, and tools that are used [at least in its basic form] to facilitate the execution of economic transactions/activities in an effective and efficient manner.

### **Technological Infrastructure Devices**

Some of the devices, facilities, machines, and tools that are being used in financial institutions to facilitate operational activities are briefly identified to include:

#### **Automated Teller Machine (ATM)**

ATMs are electronic terminals that ease the strains of banking anytime. The machine is controlled electronically through a combination computer terminal, a record-keeping system and cash vault in one unit, which allows users to access the banks book-keeping system with a plastic card which contains a personal Identification Number (PIN) 24 hours a day [6].

#### **Point of Sales**

POS device is a system that allows consumers to pay for retail purchase with a debit card [7]. The money for the purchase is transferred immediately from account of debit card holder/customer to the store's/merchant's account at purchase point [5]. The retail purchase could be made at a physical store/business centre or on online stores.

### **WEB Purchase**

Web is a technology that permits the display of information over an internet [8]. For instance, products of various features and qualities can be displayed online. WEB purchase is the term that is used to generally refer to purchase transactions done via online/internet. Some of the technologies that are used to engineer electronic commerce in the Nigerian banking industry include Internet Banking, GTBank Automated Payment System (GAPS), Diamond E-Bills Pay, GTMobile and First Pay Link Banks Financial Performance.

In the modern business environment, there is separation of ownership from management where the owners invest some financial and nonfinancial resources while the management utilize the resources [so invested] to achieve the organization's goal and objectives . It is therefore necessary that there exist some modalities wherein the way in which managers have judiciously utilized the resources that have been entrusted to them could be measured [9]; and to ensure that managers do not misuse those resources. The parameters that are used to measure how managers have used organizations resources are usually known as performance measurement indices.

Thus, this study measures the performance of money deposit banks in terms of profitability and market acceptance using net interest income, net profit, e-business income and carrying amount of customers' deposits for market acceptance and technological diffusion.

### **Net Interest Income**

Net interest income is the difference between the revenue that is generated from a bank's assets and the expenses associated with paying out its liabilities. It is typically the differential profit between the revenues generated by interest-bearing assets and the cost of servicing (interest-burdened) liabilities. A typical bank's assets consist of all forms of personal and commercial loans, mortgages and securities; and on the other hand, the liabilities are the customer deposits and other financial obligations.

### **Net Profit**

In general, net profit represents the number of sales revenue remaining after all operating expenses from a firm's total revenue. For corporate organizations, it might include other deductions such as interest, taxes and preferred stock dividends (but not common stock dividends). In other words, it is the profit a business entity made after taking care of all expenses incidental to generating the total revenues. Net profit is obtained

by subtracting both overhead and interest payable from gross profit.

Regretfully, a lot of business entities give due considerations to net profit as it is the actual profit; and does give insights into a lot of poor business performance indices - decreasing sales, poor customer experience, inadequate expense management, and so on.

### **E-Business Income**

This basically represents revenues generated from online buying and selling activities. Put differently, e-business is income specifically derived from e-commerce. The income includes but not limited to those derived from facilitating collaborative (local and international) payments systems, cashless transactions, digital cash and other electronic based projects.

### **Customers Deposits**

Banks as a financial institution accept deposits from the public [7]. These deposits from the various surplus economic units (households, businesses, and governments) are re-channeled to the deficit units for investments and lubrication of economic transactions. Usually, banks give incentives to the public to make deposits by paying them interests on amount deposited. The amount deposited by the public (other than those from banks) are classified 'deposits from customers' and are usually

recorded in the financial statements at 'carrying amount' as required by International Financial Reporting Standards.

### **Theoretical Review**

Every scientific investigation into the unknown, adds to the repository of the knowledge available in that particular research area. It is therefore important to take into cognizance relevant theories underpinning the phenomenon to be studied [10]. To this end, this research reviewed one theory that is specifically relevant to the study. That is Unified Theory of Acceptance and Use of Technology (UTAUT)

It is a theory that modeled technology acceptance. The theory tries to explain what could be the users' intention to use a new information system and what could be his subsequent usage behavior [11]. The theory posits that users will show great excitement and interest in using a particular information system where such information system meets his performance expectations. [12] see performance expectations as the functionalities embedded in an information system which allow users to do what they want to do.

Secondly, the authors propound that effort expectancy is another factor that influences users' intention and behavior toward new information system. [11], added that users would identify with

new information system where such system does not require them to put more effort in its usage. In other words, the information system should be user friendly.

Lastly, the theory has it that users' subsequent behavior towards the use of an information system is influenced by 'facilitating conditions'. According to [11], facilitating conditions are any condition, circumstance or procedure that enable users' to use any information system to carry out their tasks conveniently.

### **Application of Unified Theory of Acceptance and Use of Technology (UTAUT)**

This theory has been utilized in a number of studies in Germany, Finland, South Africa, Belgium, United States, and Nigeria due to its usefulness. For instance, [5] in their study applied the theory to the perceptions of 243 individuals in Northern Finland in the use of mobile services and technology. Their study find that the time expended using the devices did not affect consumer perceptions of the facilities, but familiarity with the devices as well as user skills actually had an impact.

In the same vein, [12] applied the theory to computer usage frequency in an estimated 714 university freshmen in Belgium. Their study found that the theory was highly useful in explaining the differences in the computer usage. [13]

applied the Unified Theory of Acceptance and Usage of Technology in clinical informatics research. This empirical study found that the country leading in the

application of the theory was the United States of America followed by Malaysia. While in Africa, South Africa took the lead followed by Nigeria [13]

**METHODOLOGY**

The study employed a quantitative research design. In addition, the non-probability sampling method was adopted to sample out ten (10) out of eleven (11) money deposit banks in Nigeria as at December 31, 2016. The banks were chosen based on the availability of the required data set from 2012 - 2016. Data for the study were basically obtained from secondary sources such as the annual financial reports and various issues of Fact-books both from the selected banks and Nigerian Stock Exchange covering the period 2012 - 2016. In this study, quantitative data analysis technique was adopted.

Descriptive statistics was used to identify the mean and variations from the mean of the data set. Pearson correlation was utilized in ascertaining the nature and direction of the correlation between the dependent and independent variables. Linear regression analysis was specifically used to test the relationships between the study variables with the aid of analytical software - Statistical Package for Social Sciences version 21. The tolerant error was set at 5% significance level; and the acceptance and rejection criteria were hinged on it.

Thus: If alpha value  $\leq 0.05$ , reject null hypothesis and accept alternative hypothesis  
 If alpha value  $\geq 0.05$ , accept null hypothesis and reject alternative hypothesis.

**Operational Definition of Variables**

In this study, technological infrastructure investments (TIIs) refers to investments in computer equipment, and software and were measured using the carrying amount of 'computer equipment' and 'purchased computer software' in each of the years from 2012 to 2016.

On the other hand, financial performance was operationally measured By Net Interest Income (NII), Net Profit (NP), E-Business Income (EBI), and the 'Carrying amount of Deposits From Customers' (DFCs)) as an indication of market acceptance and technological diffusion. And they were coded as follows:

- NII = Net Interest Income for the year:
- NP = Net profit before tax for the year
- DFCs= Deposits from Customers [at carrying amount]
- EBI = E-business income for the year

[specifically fees and commissions relating to the use of electronic devices]

**Mathematical Modeling**

Regression model was developed to predict the outcome of the response variables to the explanatory variables.

$$Y_i = b_0 + b_1x_i + e_i \tag{3.1}$$

$$NII = \alpha_0 + \alpha_1TII_{ij} + e_1 \tag{3.2}$$

$$NP = \beta_0 + \beta_1TII_{ij} + e_2 \tag{3.3}$$

$$EBI = \lambda_0 + \lambda_1TII_{ij} + e_3 \tag{3.4}$$

$$DFCs = \mu_0 + \mu_1TII_{ij} + e_4 \tag{3.5}$$

Where,

$Y_i$  = Response variable

NII = Net Interest Income

NP = Net Profit

EBI = e-business Income

DFC = Deposits from Customers (DFCs)

$b_0$  = Constant

$b_i$  = Coefficient of the explanatory variable

$x_i$  = Explanatory variables

**DATA PRESENTATION AND ANALYSIS**

**Data Presentation**

Data obtained were presented in tables. The yearly summaries of the net interest income, net profits, electronic business income, deposit from customers and investment in technological infrastructure of the ten (10) selected banks were presented. The aforesaid data were presented alongside their respective yearly percent changes.

The descriptive statistics discloses the means and standard deviations of the data set. Furthermore, model summary of the data set were presented reflecting the behavior of the variables - how they are correlated and the coefficients of determination (R Square).

**Technological Infrastructure Investments and Net Interest Income of Banks in Nigeria**

Table 1 Time Series Data on Technological Infrastructure Investments (TIIs) and Net Interest Income of Banks

S/N	YEAR	NII	% Δ in NII	TIIs	% Δ in TIIs
1	2012	856,106,584	-	26,921,737	-
2	2013	896,652,616	4.73609	25,629,895	-4.79851
3	2014	963,626,204	7.46929	36,758,070	43.41873
4	2015	1,040,896,695	8.01872	45,381,679	23.46045
5	2016	1,162,492,620	11.68184	51,248,079	12.9268

SOURCE: Researchers' Computation using MS Excel 2010 software, 2017

<b>Table 2 Descriptive Statistics</b>			
	Mean	Std. Deviation	N
NII	98395494.38	65245415.036	50
TIIs	3718789.20	2326656.322	50

SOURCE: Researchers' Computation using SPSS version 21 software, 2017

Table 3 Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.357 <sup>a</sup>	.127	.109	61582366.690	.127	7.003	1	48	.011

a. Predictors: (Constant), TIIs

SOURCE: Researchers' Computation using SPSS version 21 software, 2017

Table 1 reveals that the net interest income (NII) of the selected banks increased over the years using 2012 as the base year. Investments in technological infrastructure (TIIs) increased as well with the exception of 2013 financial year that witnessed a reduction of about 4.8%. Comparatively, the percentage increment in technology was more proportionate than that of net interest income.

Table 2 shows that the mean value of net interest income is 98395494.38 and the standard deviation value is 65245415.036; while those of TIIs are 3718789.20 and 2326656.322 respectively. The mean and standard deviation values were computed with reference to 50-item comprising 5-year net profit of the ten (10) selected banks.

Table 3 indicates that net interest income is positively correlated with technological infrastructure investments (R = 0.357). This positive correlation means that an

increase in TIIs will lead to an increase in NII. However, the correlation is weak which means that increase in TIIs will result in less proportionate increase in NII. The table equally reveals that at one degree of freedom (n-1), the coefficient of determination (R Square) is 0.127, which reflects the percentage proportion of variation in the dependent variable (net interest income) account by investments in technological infrastructure (TIIs). The Adjusted R<sup>2</sup> = 0.109 (11%) and it represents that real variations in the figures that is explained by the regression model.

**Technological Infrastructure Investments and Net Profit of Banks in Nigeria**

Table 4 Time Series Data on Technological Infrastructure Investments (TIIs) and Net Profit of Selected Banks

S/N	YEAR	NP	% Δ in NP	TIIs	% Δ in TIIs
1	2012	396,359,615	-	26,921,737	-
2	2013	368,403,488	-7.05322	25,629,895	-4.79851
3	2014	429,938,593	16.70318	36,758,070	43.41873
4	2015	366,807,403	-14.6838	45,381,679	23.46045
5	2016	443,122,735	20.80529	51,248,079	12.9268

SOURCE: Researchers' Computation using MS Excel 2010 software, 2017

	Mean	Std. Deviation	N
NP	40092636.68	38526181.147	50
TIIs	3718789.20	2326656.322	50

SOURCE: Researchers' Computation using SPSS version 21 software, 2017

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.188 <sup>a</sup>	.035	.015	38232020.925	.035	1.757	1	48	.191

## a. Predictors: (Constant), TIIs

SOURCE: Researchers' Computation using SPSS version 21 software, 2017

Table 4 reveals that given 2012 as the base year, money deposit banks in Nigeria recorded reduction in both investments in technological infrastructure and net profit after tax in 2013 (-4.8% and -7.1% respectively). Though, the percentage change in TIIs remains positive afterwards which indicate yearly increment in technological infrastructure investments, while net profit after tax (NP) fluctuates between -15% and 21%.

Table 5 shows that the mean value of net profit is 40092636.68 and the standard deviation value is 38526181.147; while those of TIIs are 3718789.20 and 2326656.322 respectively.

There is positive but weak correlation between net profit and investments in technological infrastructure which is an indication that increased investments in technological infrastructure disproportionately increase net profit (see table 6). An increase in TIIs can only lead to 18.8% increase in profit and vice versa. The table points out that TIIs accounts for 3.5% variations in NP of the selected banks. The  $R^2 = 0.015$  and this represents the real variation explained by the regression model.

### Technological Infrastructure Investments and Electronic Business Income of Banks in Nigeria

Table 7 Time Series Data on Technological Infrastructure Investments (TIIs) and Electronic Business Income of Banks

S/N	YEAR	EBI	% Δ in EBI	TIIs	% Δ in TIIs
1	2012	192,039,978	-	26,921,737	-
2	2013	195,576,312	1.841457	25,629,895	-4.79851
3	2014	200,403,733	2.468306	36,758,070	43.41873
4	2015	192,587,496	-3.90025	45,381,679	23.46045
5	2016	234,718,088	21.87608	51,248,079	12.9268

SOURCE: Researchers' Computation using MS Excel 2010 software, 2017

<b>Table 8 Descriptive Statistics</b>			
	Mean	Std. Deviation	N
EBI	20306512.14	12723195.095	50
TIIIs	3718789.20	2326656.322	50

SOURCE: Researchers' Computation using SPSS version 21 software, 2017

<b>Table 9 Model Summary</b>									
Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate	Change Statistics				
					R Squared Change	F Change	df1	df2	Sig. F Change
1	.297 <sup>a</sup>	.088	.069	12276634.147	.088	4.630	1	48	.036

a. Predictors: (Constant), TIIIs

SOURCE: Researchers' Computation using SPSS version 21 software, 2017

Table 7 reveals that both electronic business income and investments in technological infrastructure increased the years 2012 - 2016 except 2015 with a reduction of about 3.9% (-3.9) in EBI and 4.8% in TIIIs. The percentage growth in EBI before 2016 was a gradual one (that is from -3.9 to 2.5%). However, 2016 recorded a significant increase in EBI (that is 22%).

Table 8 shows that the mean value of electronic business income is 20306512.14 and the standard deviation value is 12723195.095; while those of TIIIs are 3718789.20 and 2326656.322 respectively.

Table 9 reveals that the correlation (R) and the coefficient of determination (R<sup>2</sup>) values are 0.297 and 0.088 respectively. This statistically indicates that TIIIs

improvement will lead to 30% increase in EBI of Nigeria banks and vice versa. The table further indicates that 9% variation in EBI is caused by TIIs. The  $R^2$  which

represents the real fitness of the regression model is 0.069.

**Technological Infrastructure Investments and Customers’ Deposits of Banks in Nigeria**

Table 10 Time Series Data on Technological Infrastructure Investments (TIIs) and Customers’ Deposits of Banks

S/N	YEAR	DFCs	% Δ in DFCs	TIIs	% Δ in TIIs
1	2012	9,998,301,329	-	26,921,737	-
2	2013	12,095,366,976	20.97422	25,629,895	-4.79851
3	2014	13,190,064,201	9.05055	36,758,070	43.41873
4	2015	12,600,904,592	-4.46669	45,381,679	23.46045
5	2016	13,666,399,269	8.4557	51,248,079	12.9268

SOURCE: Researchers’ Computation using MS Excel 2010 software, 2017

	Mean	Std. Deviation	N
DFCs	1231020727.34	711822884.859	50
TIIs	3718789.20	2326656.322	50

SOURCE: Researchers’ Computation using SPSS version 21 software, 2017

Table 12 Model Summary									
Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate	Change Statistics				
					R Squared Change	F Change	df1	df2	Sig. F Change
1	.451 <sup>a</sup>	.203	.187	64195022 9.981	.203	12.247	1	48	.001

a. Predictors: (Constant), TIIs

SOURCE: Researchers' Computation using SPSS version 21 software, 2017

Banks in Nigeria witnessed growth in customers' deposits in 2013, 2014 and 2016 (20.9%, 9.1% and 8.5% respectively). A look at the table indicates that there was accompanying growth in technological infrastructure investments in those years (see table 4.10).

Table 4.11 shows that the mean value of 'deposit from customers' is 1231020727.34 which doubles the mean value of TIIs by over 330 times. However, the standard deviation values for DFCs and TIIs remain 711822884.859 and 2326656.322 respectively.

The correlation between the dependent variable (DFCs) and the independent variable (TIIs) is positive and moderate (R = 0.451<sup>a</sup>). This statistically means that an improvement in TIIs will bring about moderate improvement in customer/market acceptance of technological infrastructure and

consequently, an increase in customers' deposit. Furthermore, the table indicates that the coefficient of determination which represents the proportion of variations in DFCs caused by TIIs is 20% (R<sup>2</sup> = 0.203). However, the real variations in the figure as explained by the regression model remains 19% (Adjusted R<sup>2</sup> = 0.189).

**Test of Hypotheses**

Hypotheses' testing is done to statistically substantiate whether or not there is significant relationship between investments in technological infrastructure and the identified dependent variables - net interest income, net profit, electronic business income, and customers' deposits.

Hypothesis 1: "There is no significant relationship between investments in technological infrastructure and net interest income of money deposit banks."

Table 13 Coefficients of the Relationship between TIIs and NII								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for $\alpha$	
		A	Std. Error				Beta	Lower Bound
1	(Constant)	61185660.086	16539948.770		3.699	.011	27929864.200	94441455.971
	TIIs	10.006	3.781	.357	2.646	.011	2.403	17.608

a. Dependent Variable: NII

SOURCE: Researchers' Computation using SPSS version 21 software, 2017

Table 13 above shows the regression results reflecting the nature and significance of the relationship between investments in technological infrastructure and net interest income. At 95% confidence interval for  $\alpha$ , the coefficients of constant, TIIs, and significant value are (Constant = 61185660.086; TIIs = 10.006; and Sig. = 0.011). This statistically means that the relationship between the variables is such that when TIIs = 0, NII = 61185660.086. The positive value of the 'constant' means that TIIs is positively correlated with NII. Hence, equation 3.2 is therefore restated

to reflect this nature of the relationship thus:

$$NII = \alpha_0 + \alpha_1 TIIs_{ij} + e_1 \text{ ----- 3.2}$$

$$NII = 61185660.086 + 10.006 TIIs + e_1 \text{ ----- 3.6}$$

Since the significant value is less than 5% (0.011 ≤ 0.05), the null hypothesis was rejected. The study therefore concludes that there is significant relationship between investments in technological infrastructure and net interest income of money deposit banks in Nigeria.

Hypothesis 2: “There is no significant relationship between investments in technological infrastructure and net profit of money deposit banks.”

**Table 14 Coefficients of the Relationship between TIIs and NP**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for $\beta$	
		B	Std. Error				Beta	Lower Bound
1	(Constant)	28521537.852	10268453.479		2.778	.008	7875428.381	49167647.323
	TIIs	3.112	2.347	.188	1.325	.191	-1.608	7.831

a. Dependent Variable: NP

SOURCE: Researchers’ Computation using SPSS version 21 software, 2017

Table 14 above shows that at 95% confidence interval for  $\beta$ , the following regression results were obtained - (Constant = 28521537.852; TIIs = 3.112; and Sig. = 0.191). The constant is positive indicating that TIIs and NP are positively correlated. This statistically means that the relationship between the variables is such that when TIIs = 0, NII = 28521537.852. Hence, equation 3.3 is therefore restated to reflect the nature of the relationship thus:

$$NP = \beta_0 + \beta_1 TIIs_{ij} + e_2 \quad \text{-----} \quad 3.3$$

$$NP = 28521537.852 + 3.112 TIIs + e_2 \quad \text{-----} \quad 3.7$$

Since the significant value is greater than 5% ( $0.191 \geq 0.05$ ), the null hypothesis was accepted. The study therefore concludes that there is no significant relationship between investments in technological infrastructure and net profit of money deposit banks in Nigeria

Hypothesis 3: “There is no significant relationship between investments in technological infrastructure and electronic business income of money deposit banks.”

**Table 15 Coefficients of the Relationship between TIIs and EBI**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for $\lambda$	
		$\Lambda$	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	14275073.021	3297289.643		4.329	.036	7645427.859	20904718.182
	TIIs	1.622	.754	.297	2.152	.036	.106	3.137

a. Dependent Variable: EBI

SOURCE: Researchers’ Computation using SPSS version 21 software, 2017

Table 15 above shows that at 95% confidence interval for  $\lambda$ , the following regression results were obtained - (Constant = 14275073.021; TIIs = 1.622; and Sig. = 0.036). The constant is positive indicating that TIIs and EBI are positively correlated. This statistically means that the relationship between the variables is such that when TIIs = 0, EBI = 14275073.021. Hence, equation 3.4 is therefore restated to reflect the nature of the relationship thus:

$$EBI = \lambda_0 + \lambda_1 TIIs_{ij} + e_3 \quad \text{-----} \quad 3.4$$

$$EBI = 14275073.021 + 1.622 TIIs + e_3 \quad \text{-----} \quad 3.8$$

Since the significant value is less than 5% (0.036  $\leq$  0.05), the null hypothesis was rejected. The study therefore concludes that there is significant relationship between investments in technological infrastructure and electronic business income of money deposit banks in Nigeria.

Hypothesis 4: “There is no significant relationship between investments in technological infrastructure and Customers’ Deposits of money deposit banks.”

**Table 16 Coefficients of the Relationship between TIIs and DFCs**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for $\mu$	
		$\mu$	Std. Error				Beta	Lower Bound
1	(Constant)	71805068 7.872	17241662 6.498		4. 16 5	.0 0 0	3713838 25.8	10647175 49.9
	TIIs	137.940	39.416	.451	3. 50 0	.0 0 1	58.689	217.191

a. Dependent Variable: DFCs

SOURCE: Researchers’ Computation using SPSS version 21 software, 2017

Table 16 above shows that at 95% confidence interval for  $\mu$ , the following regression results were obtained - (Constant = 718050687.872; TIIs = 137.94; and Sig. = 0.001). The constant is positive indicating that TIIs and DFCs are positively correlated. This statistically means that the relationship between the variables is such that when TIIs = 0, DFCs = 718050687.872. Hence, equation 3.5 is therefore restated to reflect the nature of the relationship thus:

$$DFCs = \mu_0 + \mu_1 TIIs_{ij} + e_4 \quad \text{-----} \quad 3.5$$

$$DFCs = 14275073.021 + 1.622 TIIs + e_3 \quad \text{-----} \quad 3.9$$

Since the significant value is less than 5% (0.001 ≤ 0.05), the null hypothesis was rejected. The study therefore concludes that there is significant relationship between investments in technological infrastructure and customers’ deposits of money deposit banks in Nigeria.

### CONCLUSION/RECOMMENDATIONS

Summarily, the study specifically substantiated that:

1. There is significant and positive relationship between investments in technological infrastructure and net interest income;
2. There is positive but no significant relationship between investments

in technological infrastructure and net profit after tax;

3. There is significant and positive relationship between investments in technological infrastructure and electronic business income; and
4. There is significant and positive relationship between investments in technological infrastructure and customers' deposits.

### CONCLUSION

The modern banking business environment has been characterized by stiff competition given the homogeneity of banking products and services. Nowadays, banks therefore are deploying products and services that are rooted in technological innovative in order to ensure their future survival, meet the changing expectations of their customers, and increase their profitability. This study therefore evaluated the effect of investments in technological infrastructure on the financial performance of money deposit banks in Nigeria and came to the conclusion that investments in technological infrastructure positively affect the financial performance of banks.

Consequently, the researchers hereby recommends as follows:

1. The efficacy of the software applications of the selected banks

need to be reviewed to ensure that they are working properly. This will improve the accessibility and reliability of the electronic banking platform.

2. There should be an objective evaluation of the computer equipment as well as other fixed assets of the focused banks in order to distinguish the revenue assets from those that should be divested.
3. The cashless policy on which efficacy of financial innovations is hinged should be properly implemented. The Apex bank should monitor the implementation process.
4. Effort should be made to educate the masses on the benefits of proper adoption and use of technological infrastructure.

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