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INVESTMENT IN INFORMATION TECHNOLOGY AND GROWTH OF BANKING SECTOR, A STRATEGY FOR SUSTAINABLE DEVELOPMENT IN AFRICA. EVIDENCE FROM NIGERIA

[1]Dimgba Uguru Kalu and [2]Ezema, Clifford Anene. Ph.D

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Abstract

This study appraised the investment in information technology and growth of Nigerian banking sector from 2014 to 2023. The objectives were to: ascertain the effect of investment in IT on the profit for the year of Nigerian banking sector; determine the effect of investment in IT on Nigerian banks Asset growth and investigate the effect of investment in IT on the equity of Nigerian banks. The study adopted ex-post facto design as historic data was adopted while regression analysis was used for the purpose of this study. It was discovered that investment in IT has significant effect on the profit for the year, return on assets and return on equity of Nigerian banking sector. The research recommended that Nigerian banks should continually invest in upgrading their IT infrastructure, including cloud computing, cybersecurity systems, and big data analytics, to ensure sustainable growth and operational efficiency. They should equally adopt a structured approach to regularly evaluate the effectiveness and return on investment (ROI) of their IT solutions to ensure alignment with organizational goals and improve decision-making. From the findings of the study, it is implied that IT investment is not just an operational necessity but a strategic tool for sustainable growth and competitiveness among banks. Also, digital transformation initiatives can serve as a key strategy for sustainable economic development in Nigeria and potentially across Africa.

1.0 Introduction

Banks are financial institutions which mainly intermediate between units with surplus fund (depositors) and deficit units (borrowers) in need of funds. It was in view of this that Ofanson, Aigbokhaevbolo and Enabulu

[1]Department of computer sciences, Faculty of physical Sciences, Enugu State University of Science and Technology, (ESUT), Enugu
[2]Department of Insurance and Risk Management, Faculty of Management Sciences, Enugu State University of Science and Technology, (ESUT), Enugu

(2010) noted that banks are the hubs of productive activity that perform the vital role of financial intermediation and effecting good payments system as well as assisting in monetary policy implementation. The banking services in developing countries like Nigeria have in recent years transformed, aided by the adoption and implementation of information technology (IT) (Krishna, 2015). Therefore, information technology has gone to a great extent in improving the financial activities of Nigerian banks thereby prompting Yinus and Waidi (2011) to assert that technology innovation has influenced the performance of all Nigerian banks, especially in the last ten years where tremendous achievements were seen in banks networking, service delivery, profitability, and customer's responses. Technological advancement facilitates payments and creates convenient alternatives to cash and cheque for making transactions. These new practices and innovations have led to the development of a truly global, seamless and Internet enabled 24-hour banking operations (Obasan, 2011).

The customers' demand for better services and the drive to meet this demand are driving banking institutions to keep updating their information and communication technology (ICT) for effective and efficient service delivery. Banking information systems are classified as IT solutions, which include hardware and software, processes and people that are employed by banks for their services (Bruno et al., 2016). The IT solutions are hardware and applications which ensure data entering, processing, and storage and are operated by specialized personnel. They facilitate automated teller machine (ATM) operations, online banking, back-end operations etc. They have become the live wires on which banking operations run. In an average bank, a few hundred applications are running at the same time on this system to ensure these channels of delivery are effective and efficient. This has resulted in complexity in the system (Alamoudi and Kumar, 2017) and in complex systems there are bound to be issues, if not managed adequately.

Olawale, Folorunso and Alalade (2022) are of the view that an efficient banking operation contributes to the stability, sustainability and financial inclusion drive of commercial banks in Nigeria. However, despite efforts pulled together by monetary authorities to enhance a seamless banking operation through technological innovations in the banking sector, various commercial banks continue to experience low operational efficiencies occasioned by incessant network failures, system downtime, financial illiteracy, electronic fraud, and transaction errors. This affects banking activities to a great extent and is equally reflected in their performance and growth. This can be attributed to inappropriate IT evaluations in the banking sector.

This was why Ibitomi and Iyamu (2023) noted that the lack or limited evaluation of banking IT solutions can be attributed to both technical (IT solutions such as software, hardware, and network protocols) and non-technical (e.g., business processes and people) factors within the banking sector. The constraints of IT solutions are a major challenge, in that it often leads to over cost, over time (Chung et al., 2015), and as a result, some organizations are not able to achieve their strategic objectives and goals, which affects competitiveness (Jaafreh, 2017). To bridge the gap between the expected IT solutions' objectives and its very high failure rate, there is a need for evaluation. The purpose of IT solutions evaluation is to determine whether value accrues to the organization from its adoption and use of IT solutions (Ababneh et al., 2017). On the other hand, the inconsistent and insufficient IT infrastructure, marked by unreliable power supply and limited internet connectivity, presents significant obstacles which impedes the smooth implementation of IT systems and has the potential to cause disruptions in banking services thereby affecting both the profitability and asset growth of Nigerian banks.

To overcome these challenges, a comprehensive strategy is necessary, encompassing investments in infrastructure, cybersecurity protocols, employee training, and partnerships with regulatory entities. This approach aims to establish a conducive environment for the effective integration of IT in Nigerian banks. These necessitate the essence of this study on the investment in information technology and growth of Nigerian banking sector which covers the duration from 2014 to 2023. In order to address this gap, these objectives were identified:

1. Ascertain the effect of investment in IT on the profit for the year of Nigerian banking sector.
2. Determine the effect of investment in IT on Nigerian banks Asset growth.
3. Investigate the effect of investment in IT on the equity of Nigerian banks.

The underlisted null hypotheses were formulated from the objectives above:

1. Investment in IT does not have significant effect on the profit for the year of Nigerian banking sector.
2. Investment in IT of Nigerian banks does not significantly affect their asset growth.
3. Investment in IT does not have significant effect on the equity of Nigerian banks.

This study is structured into five different sections. Section one is the introduction which has focused on the preamble of information technology as well as its effect on bank growth. Section two covers the review of related literature, section three covers the methodology, section four covers the analytical techniques, section five covers the findings, conclusion and research implications.

2.0 Review of Related Literature

2.1 Conceptual Review

2.1.1 Effect of Information Technology on the Growth of Banks in Nigeria

In the twenty first century, financial markets and economies have been experiencing an explosion of innovation and technologies having modified financial services and products, especially banking services. The information technology adopted in the financial sector often termed financial technology (fintech) aims to provide automated and improved financial services (Chhaidar, Abdelhedi & Abdelkafi, 2023). It has initially designated the computer technology applied to the back office of banks or trading firms, but now, it bases its business model on new efficient information technologies such as the blockchain, artificial intelligence (AI), big data, and the Internet of Things (Song et al., 2021). The fintech can simplify the information transfer, improve the processing speed, reduce costs, and promote a continuous improvement in the transactional lending (Cenni et al., 2015; Liberti & Peterson, 2019). These technologies are aimed at improving the extent of customers' satisfaction which also reflects on the profitability and assets quality of various firms in the financial sector.

Today, the activities of almost every bank and financial institutions are based on financial technologies, providing online banking services (Asongu, 2018), high levels of automation, and facilitation of decision-making (artificial intelligence). Chhaidar et al (2023) is of the view that this entails spending on costly new technologies in order to implement new software and hardware being able to enhance the quality of banking services and thus provoking a digital transformation of traditional activities. There are diverse studies that support the role information technology play in the growth of the banking sector. For instance, Le and Ngo (2020) give proof that involving innovative technologies significantly contributes to enhancing the financial performance of the banking sector. The positive impact may be explained by the fact that the adoption of new software and online banking improves the management of credit risk (Campanella et al., 2017) and reduces the information cost access (Liberti & Peterson, 2019) and the operating cost (Dong et al., 2020). Zhang and Yang (2019) on the other hand demonstrate that the information technology system has a prominent contribution for companies to decrease their costs and therefore to increase their profitability. In addition, Wang et al. (2021) reveal that information technology improves the risk control and profitability of banks and decreases the cost of the financial intermediation.

From the ongoing, it is evident that information technology plays a crucial role in the banking industry, transforming traditional banking practices and enhancing overall efficiency by automating routine banking processes, such as account management, transaction processing, and statement generation while on the other hand, internet banking platforms made possible by information technology allow customers to access and manage their accounts online, check balances, transfer funds, and pay bills remotely.

It can therefore be inferred that information technology in banks is a catalyst for efficiency, innovation, and improved customer experiences. As technology continues to advance, its role in shaping the future of banking will likely evolve, with an increased focus on digital innovation and cybersecurity.

2.1.2 Theoretical Review

Constraint Theory of Innovation

This is a theory propounded by Silber in 1975. It is called the Silber's Constraint Theory of Innovation which was postulated by Silber in 1975 to provide rational motives for financial innovation employed by financial firms. The theory argues that financial innovation enhances the profitability of firms by reducing costs and increasing the speed at which financial services are delivered. The theory views that banks have both internal and external constraints which can be managed through the adoption of technologically enabled processes and products. Furthermore, the theory recognizes regulation as one of the key constraints to be overcome (Nekesa & Olweny, 2018).

Scholars such as Tufano (2003), Gakure and Ngumi (2013) have supported the validity of the theory on the grounds of its applicability in predicting financial performance and establishing a competitive advantage in the marketplace. The theory has however been criticized as either being unconfirmed empirically or excessively focused on financial innovation to the detriment of other factors (Arnalbodi & Rossignoli (2010); Hosein (2013) & Achieng, Karani & Tabitha (2018)).

Notwithstanding the criticisms, this theory is considered relevant for this study for a number of reasons. First, the theory is in alignment with the profit maximization objective of financial services sector were banks feature prominently. Additionally, in delivering financial innovation, the theory distinguishes technology as either physical (computers and networks related) or miscellaneous (applied information) and these two complements are fully at play when considering information technology for the banking sector.

2.3 Empirical Review

Salami, Akande and Alalade (2022) carried out a study on the determinants of technological innovation adoption and banking operations of selected deposit money banks in Nigeria. The research designs adopted for this study was survey research design. The target population used for this study was employees of the selected deposit money banks in Lagos State, Nigeria. The sample size for the study is 397 and simple random sampling technique was adopted for the study. The research instrument was questionnaire and the reliability was 0.843. The data for the study was analyzed using simple regression analysis. The study showed that technological innovations have significant effects on banking operations in selected deposit money banks in Lagos State, Nigeria. The finding also revealed that ease of use has significant effect on operational efficiency of deposit money banks in Lagos, Nigeria. The study equally revealed that compatibility has significant effect on operational structure of deposit money banks in Lagos, Nigeria. The study therefore concluded that investment in technology will bring an improvement in the operations of deposit money banks in Nigeria. It is however recommended that the government through CBN should provide adequate security measures towards the various e-banking products in Nigeria. This will aid in reducing the rate of fraud and forgery in the banking industry and encourage investors which in turn will increase the banks' cash inflow cum use of available fund for granting of credit facilities.

The study carried out by Omoge, Gala and Horky (2022) on disruptive technology and AI in the banking industry of an emerging market supports the findings of Salami et al (2022). Omoge et al (2022) studied the impact of technology usage and acceptance of AI-enabled banking CRM systems in Nigeria on consumer buying behavior via the mediation of customer satisfaction and service quality as well as the negative impact of technology downtime, a frequent phenomenon in the emerging market. They collected quantitative data via a face-to-face administered questionnaire from four hundred customers of ten different Nigerian banks regarding their

perceptions of technology use in the banking sector. They found out that technology usage has positive and direct effects on service quality, customer satisfaction and consumer buying behavior. The study also established that technology downtime has a moderating effect on technology usage, consumer buying behavior and customer satisfaction in the banking context.

Rufus, Olubunmi, Modupe and Abimbola (2022) investigated cyber security and financial innovation of selected deposit money banks in Nigeria. This study has a direct relationship with the studies carried out by both Salami et al (2022) and Omoge et al (2022). Their studies proved that IT has positive effect on diverse bank operations. Rufus et al (2022) adopted a survey research design with primary data obtained via a structured questionnaire administered to a sample size of fifty-six (56) Deposit Money Banks Staff purposively selected. The sampled staffs were senior member staff of key impacted departments while the Banks selected accounted for 93% of total market capitalization as on December 31, 2021. The primary data collected were analyzed using descriptive and inferential statistics. The study found that cybersecurity proxied by risk management and bank monitoring had a statistically and positively significant impact on financial innovation of deposit money banks in Nigeria. It was therefore recommended that deposit money banks should ensure regular review, revision and strengthening of their risk management framework to meet with emerging challenges from the deployment of financial innovative products and services. Additionally, deposit money banks should improve on the level of monitoring of the deployed e-banking channels (Card products, POS, ATMs and other channels) to facilitate greater reliance on them for the consummation of financial transactions.

3.0 Methodology

3.1 Research Design; Ex-post facto research plan was used for this study. The decision of the ex-post facto plan is on the grounds that the examination depended on currently recorded occasions, and researchers do not have command over the applicable reliant and free factors they are contemplating with the end goal of controlling them (Onwumere, 2009).

3.2 Sources of Data

This study made use of secondary data that covered a period of 10 years i.e. 2014 – 2023 obtained from the financial statements of the selected banks under study in Nigeria. The data used was based on the variables of the study being investment in IT, profit for the year, asset growth and equity.

3.3 Population and Sample Size of the Study

The population of the study covered all the quoted deposit money banks in Nigeria which are twenty-four (24). The sample size comprised of five (5) selected deposit money banks. The study used judgmental sampling technique in the adoption of the sample size of five (5) quoted deposit money banks. The selected samples included first bank, zenith bank, fidelity bank, guaranty trust bank and union bank. The judgement was based on the fact that the researchers had studied the banks in the population of study and is therefore knowledgeable enough to ascertain the ones with all the available data for the variables under study.

3.3 Model Specification

The model of the study is based on the multiple classical regression model of Brooks (2014).

The model is shown as follows;

$Y = \beta_O + \beta_1 X_1 + \beta_2 X_2 \text{ - - - - - } -\beta_n X_n + \mu_t$ ---------- 3.1

Where;

Y = dependent variable

X_1, X_2, ---Xn = Explanatory or independent variable

β_1, β_2, ---- β_n = the slope of coefficient of the parameter estimate

μ = Error or disturbance term

$_t$ = time

In relating this to the study

For hypothesis one

$PFY_{It} = \beta_0 + \beta_1 IIT_{It} + \mu_t$ ---------- (3.2)

Where:

IIT_{It} = Investment in IT

PFY_{It} = Profit for the Year

β_O = Constant

β_1 = Coefficient of Investment in IT

μ = Error or disturbance associated with the model

$_{It}$ = Panel Data

For hypothesis Two

$ROA_{It} = \beta_0 + \beta_1 IIT_{It} + \mu_t$ ---------- (3.3)

Where:

IIT_{It} = Investment in IT

ROA_{It} = Return on Assets

β_O = Constant

β_1 = Coefficient of Investment in IT

μ = Error or disturbance associated with the model

$_{It}$ = Panel Data

For hypothesis Three

$ROE_{It} = \beta_0 + \beta_1 IIT_{It} + \mu_t$ ---------- (3.4)

Where:

IIT_{It} = Investment in IT

ROE_{It} = Return on Equity

β_O = Constant

β_1 = Coefficient of Investment in IT

μ = Error or disturbance associated with the model

$_{It}$ = Panel Data

3.4 Method of Data Analysis

Panel data covering a period of 10 years from 2014 to 2023 was estimated using diverse techniques. Descriptive statistics and unit root test were used as the preliminary tests while random panel regression model was used as the analytical technique of the study.

4.0 Data Presentation and analysis

4.1 Descriptive Analysis

Table 1: Description of the Characteristics of the Variables under Study

	LIIT	LPFY	ROA	ROE
Mean	9.86E+08	0.259011	28283.10	0.610198
Median	8.78E+08	0.114627	29614.00	0.595905
Maximum	1.77E+09	1.103036	44706.00	0.721739
Minimum	3.60E+08	0.024843	11907.00	0.518820

Std. Dev.	5.54E+08	0.339619	11220.74	0.072038
Skewness	-0.622423	-0.734590	-0.036177	0.531616
Kurtosis	2.449959	2.878522	2.188449	3.438306
Jarque-Bera	3.086980	3.622076	1.106418	2.204292
Probability	0.213634	0.163484	0.575101	0.332157
Observations	50	50	50	50

Source: Author's Computation from Eviews 10.0, 2025

Table 1 showed the components used to ascertain the normality of the study variables. They include; skewness, kurtosis and Jarque – bera Statistics.

The table showed that the logs of investment in IT and profit for the year are negatively skewed relative to normal as well as return on assets, while return on equity is positively skewed relative to normal. The logs of investment in IT and profit for the year are platykurtic as their kurtosis values are less than three (3). This includes return on assets while return on equity is leptokurtic as its kurtosis value is greater than three (3).

The table also showed that all the variables are not normally distributed as the probability values of their Jarque-Bera statistics are greater than 5% (0.05). The assumption of normality is therefore rejected by the JB statistics. This, however, does not affect the goodness of the data for the estimation in this study as this is a preliminary test as the data will be subjected to other advanced estimation techniques.

4.2 Unit Root Test

This test tries to examine the property of the variables. It is used to check for the presence of a unit root i.e. whether the variables are stationary. This test is carried out using the Augmented Dickey Fuller (ADF) test. The ADF is carried out using E-views software package and the results from the test are tabulated below:

Table 2 Unit Root Test for the Variables under study

Variable	LLC		ADF – FISHER		PP – FISHER	
	Test Stat.	Order of integration	Test Stat.	Order of integration	Test Stat.	Order of integration
LIIT	-2.14 (0.0160< 0.05)	I(I)	63.98 (0.0000< 0.05)	I(I)	120.04 (0.0000< 0.05)	I(I)
LPFY	-9.97 (0.0000 < 0.05)	I(I)	62.81 (0.0000< 0.05)	I (I)	79.58 (0.0000 < 0.05)	I(I)
ROA	-6.41 (0.0000 < 0.05)	I(I)	52.01 (0.0001< 0.05)	I(I)	139.31 (0.0000< 0.05)	I (I)
ROE	-9.13 (0.0000< 0.05)	I(I)	81.12 (0.0000 <0.05)	I(I)	144.0 (0.0000<0.05)	I(I)

Source: Author's Compilation from Eviews 10

LLC = Levin, Lin and Chu Test
IPS = Im, Pesaran and Shin W – Stat
ADF FISHER = Augmented Dickey Fuller Fisher Chi – Square Test
PP FISHER = Philip Peron Fisher Chi – Square Test
Table 2 shows that the log of investment in IT, profit for the year, return on assets and return on equity are all integrated of order one. This indicates that all the variables are stationary at first differencing.

4.3 Hausman Test

Hausman Test is carried out to determine between random and fixed panel effect model which is a better model.

Decision Criteria for Hausman Test

The null hypothesis states that the random panel effect model is a better model than fixed effect panel model.

Table 3: Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.676458	1	0.1954

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LIIT	0.000001	0.000000	0.000000	0.1954

Cross-section random effects test equation:
Dependent Variable: LPFY
Method: Panel Least Squares
Date: 4/29/25 Time: 10:06
Sample: 2014 2023
Periods included: 10
Cross-sections included: 9
Total panel (balanced) observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	35.44739	8.892449	3.986235	0.0002
LIIT	8.64E-07	6.67E-07	1.296197	0.1991

Effects Specification			
Cross-section fixed (dummy variables)			
Period fixed (dummy variables)			
R-squared	0.399543	Mean dependent var	45.77778
Adjusted R-squared	0.247314	S.D. dependent var	43.13180
S.E. of regression	37.42006	Akaike info criterion	10.26738
Sum squared resid	99418.51	Schwarz criterion	10.79512
Log likelihood	-443.0322	Hannan-Quinn criter.	10.48020
F-statistic	2.624624	Durbin-Watson stat	2.210086
Prob(F-statistic)	0.002064		

Decision:

Since the probability value is 0.1954, it depicts that the random effect panel regression model is a better than the fixed effect panel regression model,

Hypothesis One

Step 1: Restatement of the hypothesis.

Investment in IT does not have significant effect on the profit for the year of Nigerian banking sector

Step 2: Statement of Decision Criteria

Reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is <0.05.

Step 3: Presentation of test result

Table 4: Test of Hypothesis One

Dependent Variable: LPFY
Method: Least Squares
Date: 4/23/25 Time: 09:43
Sample: 2014 2023
Periods included: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.22883	32.62903	0.313489	0.7666
LIIT	1.090182	2.085807	2.522667	0.0235

R-squared	0.899210	Mean dependent var	17.89790
Adjusted R-squared	0.818578	S.D. dependent var	0.781531
S.E. of regression	0.332883	Akaike info criterion	0.944801
Sum squared resid	0.554055	Schwarz criterion	1.096094
Log likelihood	0.275993	Hannan-Quinn criter.	0.778834
F-statistic	11.15202	Durbin-Watson stat	1.826921

Prob(F-statistic)	0.010475

Source: Author's Computation from E-View 10.0, 2025

Step 4: Decision

Since the decision criteria was to reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is < 0.05, table 4 therefore shows the t-statistics of log of investment in IT as 2.522667 > 2.0 with a probability of the t-statistics of 0.0235 < 0.05. We reject the null hypothesis (H0) and conclude that investment in IT has significant effect on the profit for the year of Nigerian banking sector.

Hypothesis Two

Step 1: Restatement of the hypothesis.

Investment in IT of Nigerian banks does not significantly affect their asset growth.

Step 2: Statement of Decision Criteria

Reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is <0.05.

Step 3: Presentation of test result

Table 5: Test of Hypothesis Two

Dependent Variable: ROA
Method: Least Squares
Date: 4/23/25 Time: 09:43
Sample: 2014 2023
Periods included: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.22883	32.62903	0.313489	0.7666
LIIT	1.638609	0.866996	3.889984	0.0074

R-squared	0.899210	Mean dependent var	17.89790
Adjusted R-squared	0.818578	S.D. dependent var	0.781531
S.E. of regression	0.332883	Akaike info criterion	0.944801
Sum squared resid	0.554055	Schwarz criterion	1.096094
Log likelihood	0.275993	Hannan-Quinn criter.	0.778834
F-statistic	11.15202	Durbin-Watson stat	1.826921
Prob(F-statistic)	0.010475		

Source: Author's Computation from E-View 10.0, 2025

Step 4: Decision

Since the decision criteria was to reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is < 0.05, table 5 therefore shows the t-statistics of log of investment in IT as 3.889984 > 2.0 with a probability of the t-statistics of 0.0074 < 0.05. We reject the null hypothesis (H0) and conclude that Investment in IT of Nigerian banks has significantly affect their asset growth.

Hypothesis Three

Step 1: Restatement of the hypothesis.

Investment in IT does not have significant effect on the equity of Nigerian banks.

Step 2: Statement of Decision Criteria

Reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is <0.05.

Step 3: Presentation of test result

Table 6: Test of Hypothesis Three

Dependent Variable: ROE
Method: Least Squares
Date: 4/23/25 Time: 09:43
Sample: 2014 2023
Periods included: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.22883	32.62903	0.313489	0.7666
LIIT	0.310918	1.301476	5.238897	0.0207

R-squared	0.899210	Mean dependent var	17.89790
Adjusted R-squared	0.818578	S.D. dependent var	0.781531
S.E. of regression	0.332883	Akaike info criterion	0.944801
Sum squared resid	0.554055	Schwarz criterion	1.096094
Log likelihood	0.275993	Hannan-Quinn criter.	0.778834
F-statistic	11.15202	Durbin-Watson stat	1.826921
Prob(F-statistic)	0.010475		

Source: Author's Computation from E-View 10.0, 2025

Step 4: Decision

Since the decision criteria was to reject H_O if the t-statistics is >2.0 and the probability of the t-statistics is < 0.05, table 6 therefore shows the t-statistics of log of investment in IT as 5.238897 > 2.0 with a probability of the t-statistics of 0.0207 < 0.05. We reject the null hypothesis (H0) and conclude that investment in IT has significant effect on the equity of Nigerian banks.

4.4 Findings and Discussion of Findings

The study discovered that investment in IT has significant effect on the profit for the year of Nigerian banking sector based on the premise that the t-statistics of log of investment in IT which was 2.522667 is greater than 2.0 and its probability value being 0.0235 is less than 0.05.

It was also discovered that Investment in IT of Nigerian banks has significantly affect their asset growth and equity due to the fact that the t-statistics of log of investment in IT for return on assets and return on equity which were 3.889984 and 5.238897 respectively were greater than 2.0 while their individual probability values being 0.0074 and 0.0207 respectively are less than 0.05.

5.0 Conclusion and Recommendations

It was found out that investment in IT has significant effect on the profit for the year, return on assets and return on equity of Nigerian banking sector. This is in line with the findings of Omoge, Gala and Horky (2022) who studied the impact of technology usage and acceptance of AI-enabled banking CRM systems in Nigeria on consumer buying behavior via the mediation of customer satisfaction and service quality as well as the negative

impact of technology downtime, a frequent phenomenon in the emerging market. They discovered that technology usage has positive and direct effects on service quality, customer satisfaction and consumer buying behavior.

It is therefore recommended that Nigerian banks should continually invest in upgrading their IT infrastructure, including cloud computing, cybersecurity systems, and big data analytics, to ensure sustainable growth and operational efficiency. They should equally adopt a structured approach to regularly evaluate the effectiveness and return on investment (ROI) of their IT solutions to ensure alignment with organizational goals and improve decision-making.

Implications of the Study

Strategic Importance of IT Investments:

The findings show that investment in Information Technology significantly enhances profitability, asset growth, and equity in the Nigerian banking sector.

This implies that IT investment is not just an operational necessity but a strategic tool for sustainable growth and competitiveness among banks.

Digital Transformation as a Driver of Sustainable Development:

By confirming that IT investment leads to better financial performance, the study implies that digital transformation initiatives can serve as a key strategy for sustainable economic development in Nigeria and potentially across Africa.

Need for Continuous Technological Innovation:

Since technological improvements have measurable positive effects, the study suggests that banks must continuously upgrade and innovate their IT systems — not just to maintain relevance, but also to drive profitability and organizational growth.

Regulatory and Infrastructure Support:

The study implies that government and regulatory bodies (e.g., CBN) need to provide enabling environments (like stable internet, reliable electricity, cybersecurity frameworks) because these are crucial for maximizing the returns on IT investments in the banking sector.

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Appendix

Return on Assets = $\frac{\textbf{Profit for the Year}}{\textbf{Total Assets}}$

Return on Equity = $\frac{\textbf{Profit for the Year}}{\textbf{Total Equity}}$

Financial Statement of First Bank

	IIT	ROA	PFY	ROE	TA	TE
2014	6495145	0.097710	2678881	0.252810	27416381	14438947
2015	8731978	0.108980	3418381	0.263620	31367813	14981048
2016	21239049	0.109060	3670555	0.255450	33656352	16589171
2017	2713094	0.086040	3454991	0.237040	40156508	20039356
2018	8410482	0.139510	6023219	3.092920	43172624	23994931
2019	8275891	0.008980	1512687	0.127130	28820107	11542026
2020	12239461	0.040580	1153295	0.036140	28417005	12285297

2021	12379328	-0.010440	-296402	0.036140	28392951	11056734
2022	7723984	0.010550	299998	0.126340	28423121	11742791
2023	4198476	0.029890	823085	0.044530	27528040	12676146

Source: Financial Statement of First Bank

Where: IIT = Investment in IT

ROA = Return on Assets

ROE = Return on Equity

TA = Total Assets

TE = Total Equity

Financial Statement of Zenith Bank

YR	RE	ROA	PFY	ROE	TA	TE
2014	100517175	0.260870	27910091	3.526010	106987883	46570094
2015	67123955	0.173930	30332118	3.704500	174389432	50172162
2016	40400000	0.178390	38434033	2.647390	215447123	78304741
2017	81674450	0.149990	38042714	2.570315	253633629	93447892
2018	207193655	0.170440	43080349	2.390670	252759633	112359185
2019	1800	0.078660	754523	0.562550	9592381	5870431
2020	1920	0.007470	77140	0.491720	10329160	7121637
2021	145972218	0.077240	28396777	1.892240	367639915	165805542
2022	6198464	0.086250	33009292	19.34069	382726540	178150934
2023	76885994	0.047380	18419398	1.036090	388766316	166644184

Source: Financial Statement of Zenith Bank

Financial Statement of Fidelity Bank

	ROA	PFY	IIT	TA	TE	ROE
2014	0.525011	107750578	6284111	205234734	28384891	1.157712
2015	0.695290	244595621	5957110	351789279	1.72E+09	0.606658

2016	9.638684	391688687	6644111	405657055	1.94E+09	0.897403
2017	2.337690	364189081	7854110	155790120	54876381	0.345976
2018	3.733078	490877801	8774011	131494136	7.22E+08	1.187164
2019	33.99796	554592199	19265833	163125169	1.17E+09	1.242037
2020	11.99603	735300741	23224938	612953529	1.46E+09	1.125557
2021	0.414668	55776837	24830779	134509662	1.71E+08	1.027997
2022	0.953759	60414721	27368919	633437859	2.05E+09	1.099675
2023	1.093400	104006574	29272186	951221889	2.67E+09	1.097438

Source: Financial Statement of Fidelity Bank

Financial Statement of Guaranty Trust Bank

YR	ROA	PFY	ROE	IIT	TA	TE
2014	0.384332	218305419	1.074734	803872754	568012091	747973870
2015	0.356212	413731491	1.173827	153225052	116147453	1305346553
2016	0.594868	698326	0.901215	1158896	1173917	1285926
2017	0.541158	713285	0.780152	1172952	1318072	1503491
2018	2.878887	827035	0.766061	1322693	287276	1726616
2019	0.496865	895354	0.613790	1183191	1802008	1927679
2020	0.541651	1126559	0.631179	1443123	2079862	2286393
2021	0.622805	1580250	1.022258	2958058	2537311	2896652
2022	1.746685	1989313	0.629580	1908420	1792398	3031260
2023	5.495943	2138132	0.619033	1993979	2552963	322117

Source: Financial Statement of Guaranty Trust Bank

Financial Statement of Union Bank

YR	ROA	PFY	ROE	IIT	TA	TE

2014	0.910459	33561836	-0.401970	97321	36862557	-242113
2015	1.376228	43385172	-0.523930	362419	31524701	-691727
2016	1.394624	47694924	-0.121850	109508	34199119	-898715
2017	1.416045	55043605	-0.251750	526777	38871371	-2092495
2018	1.455228	56199939	-0.119170	408742	38611514	-3430000
2019	1.218061	56078434	-0.000560	25935	46039111	-4608386
2020	1.139176	51333214	0.109009	639932	45061717	5870431
2021	1.156184	55891520	0.140375	999698	48341376	7121637
2022	1.003596	41810413	0.071599	549223	41660605	7670860
2023	1.125103	48315304	0.057108	464600	42943015	8135460

Source: Financial Statement of Union Bank