



# Bank Deployment of Information Technology (IT) Solutions and Bank Performance: An Assessment of Deposit Money Banks in Nigeria

Ugwuanyi, Willy<sup>a</sup>, Ugwunta, David Okelue<sup>b</sup>, Ugwuanyi, Georgina Obinne<sup>c</sup>

<sup>a</sup>Department of Banking and Finance, Enugu State University of Science and Technology, Enugu State, Nigeria.

<sup>b</sup>Department of Accountancy, Renaissance University Ugbawka, Enugu State, Nigeria.

<sup>c</sup>Department of Accountancy, School of Financial Studies, Institute of Management and Technology Enugu, Enugu State.

### ARTICLE INFO

#### Article history:

Received: 6 May 2013;

Received in revised form:

7 May 2013;

Accepted: 15 May 2013;

#### Keywords

Information technology,  
ATM,  
Relationship,  
Bank performance,  
Bank branches.

### ABSTRACT

Whether the level of deployment of information technology solutions actually enhances bank performance is still a matter of debate in academic circles. This paper set out to assess the effect of deployment of information technology solutions on the performances of deposit money banks in Nigeria. Data spanning over a seven year period (2005 to 2011) were generated from annual financial reports of sampled banks to ascertain the relationship between bank deployment of IT solutions and enhanced bank performance using a regression equation expressed in a multiple form. Findings revealed that deployment of IT solutions have been on the increase especially in the post-consolidation period as evidenced by increased number of bank branches and ATM which were interlinked via IT solutions. The correlation matrixes revealed that information technology solutions deployment have a positive relationship with increased bank profitability thus suggesting that increased banks investment in IT solutions enhances bank performance.

© 2013 Elixir All rights reserved.

### Introduction

Organizations normally are carefully established and effectively managed to pursue and realize specific goals which usually constitute the corporate objectives of their owners (Guiltnan and Paul, 2002). Banking organisations play a major role in the economic development of a country. They are the major financial intermediaries between the sources and the uses of funds. In order to accomplish their missions, these entities continually seek to identify and service the needs and expectations of their clients, by providing them with mutual offerings at a consideration called profit. According to Adeyemi (2008), as the nature of bank businesses become more complex and wide, it becomes very imperative for all the banks to be connected with a modern means that would be simpler, faster, and more convenient to their businesses. This gave birth to the modern day banking system of using information technology. Banks are now getting connected with the information technology facilities which make their operations easier, faster, more effective and efficient. The impact of information technology has become far reaching to the extent that sectors jostling for relevance in a competitive environment cannot help but embrace the potentials of the e-revolutions (Mejabi, 2008).

In an increasingly globalised economy, information technology is one of the key determinants of competitiveness and growth of organisations. Organisations such as banks are becoming more competitive on the basis of their knowledge rather than on the basis of their natural endowments or low labour costs. It is becoming increasingly apparent that the role of traditional sources of comparative advantage (a large labour force) in determining competitiveness in banks is diminishing. The competition in banks is gradually being determined by access to information technology and knowledge. Information technology is a man-made resource, embracing principally, the

electronic technologies of computers and telecommunication; comprising of electronics, hardware and computer software. Information technology plays a major role in the success of bank organisations in today's highly competitive world by providing easy and fast means of collecting, storing, retrieving, processing, transmitting, and distributing information. The evolution and recent developments in information and communication technology has radically changed how banking is done all over the world. The volume and speed of banking transactions has improved tremendously as a result of growth in information technology (Modum, 2005). The emergence of the World Wide Web (www) and mobile telephones (telecommunication system) are the driving force behind this development. Consequently, manual and traditional forms of doing businesses are suddenly becoming outdated, and are giving way for this sophisticated technology based on computers and other electronic devices.

Today's bank business environment is very dynamic and experiences rapid changes as a result of creativity, innovation, technological changes, increased awareness and demands from customers. The banking industry of the 21st century operates in a complex and competitive environment characterized by these changing conditions and highly unpredictable economic climate with Information and Communication Technology (ICT) at the centre of this global change curve. The environment in which banks operate is a dynamic one and hence, the need for banks to respond to the challenges of the time. The expectation of users of Nigeria banking services has changed in line with technological development. Some of the problems evident in the operation of Nigeria banks prior to the introduction of information technology include:

- Ineffective business strategies requiring restructuring and reengineering of programs;

- Too much time spent on various banking transactions and unnecessary use of material resources such as paper;
- Frequent system break down without provision for an alternative means of attending to customers during the period of breakdown: absence of parallel system arrangement;
- Inefficiency in payment and transactions processing systems;

It should be realized that no bank can afford to ignore the need to adopt measures that will quicken the processing and transmission of business information. Whether the level of deployment of IT in banking really enhances bank performance, is still a matter of debate in academic circles. In view of the above, this paper sets out to assess the relationship between bank deployment of information technology and the performances of Nigerian banks.

## Review of Related Literature

### *The Concept of Information Technology*

The application of information and communication technology concepts, techniques, policies and implementation strategies to banking services has become a subject of fundamental importance and concerns to all banks and indeed a prerequisite for local and global competitiveness. ICT directly affects how managers decide, how they plan and what products and services are offered in the banking industry. ICT has continued to change the way banks and their corporate relationships are organized worldwide and the variety of innovative devices available to enhance the speed and quality of service delivery. All these to a large extent affect bank performance.

Information and Communication Technology (ICT) is a term that largely covers the coupling of electronic technology for the information needs of bank business at all levels. ICT has surpassed the role of support services or only electronic data processing; its fields of applications are slightly global and unlimited. Its devices especially the Internet and modern computer email facilities have further strengthened early modernizations like the telephone and fax. Other ICT devices include data recognition equipment, factory automation hardware and services, telecomputing and teleconferences using real time and online system (Adeoti, 2005). Nkwocha (2004) defines Information Technology as an extremely fast, computer driven scientific means and process involved in obtaining, storing, editing, retrieving, packaging, and communicating information with one person or a group of persons with a feedback mechanism. According to Samba (2001), Information Technology is the technology that supports activities involving the creation, storage, manipulation and communication of information together with their related methods, management, and application. The American Heritage Dictionary describes Information Technology as a technology that is concerned with improvement in a variety of human and organizational problem solving endeavors, through the design, development, and use of technologically based systems and processes that enhance the efficiency and effectiveness of information in a variety of strategic, tactical, and operational situations. In the words of Irechukwu (2000), Information Technology is the automation of processes, controls, and information production using computers, telecommunication software and ancillary equipment such as automated teller machines and debit cards. Longley and Michael (2005) defines Information Technology as the acquisition, processing, storage and dissemination of vocal, pictorial, textual and numeric information by a micro-electronics-based combination of computing and

telecommunication. Mejabi (2008) identifies Information Technology as a general term that describes any technology that helps to produce, manipulate, store, communicate and disseminate information. Pedro (2010) agrees with Anderson (1990), defining Information Technology as the combination of telecommunication and computer science for the capture, storage, and transmission of information to all nooks and corners. Both see Information Technology as a term which generally covers the harnessing of electronic technology for the information needs of business at all levels. Information and Communication Technology (ICT) therefore, is the automation of processes, controls, and information production using computers, telecommunications, software and other gadget to ensure smooth and efficient running of activities.

### *Information Technology and the Nigerian Banking Industry*

The Nigerian banking sector has come of age. Competition has forced banks to start looking for innovations that can keep their customers satisfied, and even win more. In recent years, the financial sector has been an interesting case for service innovation as it moves towards using the web for commercial purposes through internet banking and information technology (Adeyemi, 2008). According to Chukwu (2009), the Nigerian banking industry has witnessed tremendous changes linked with the developments in information and communication technology over the years. In Nigeria, information technology gave birth to electronic banking which presents benefits such as anywhere banking, anytime banking, and elongated banking hours to customers. These benefits provide comfort and convenience for bank transactions.

According to Irechukwu (2000), the quest for survival, global relevance, maintenance of existing market share and sustainable development has made exploitation of the many advantages of information communication technology through the use of automated devices imperative in the industry. Aragba (2008) is of the view that the application of information technology in Nigerian banks has become the backbone of bank's service regeneration in Nigeria. He cited the Diamond Integrated Banking Services (DIBS) of the then Diamond Bank PLC. According to Odubanjo (2007), the operational efficiency in banks will eradicate most abnormal situations in the banking sector like long queue, transaction delays, safety and security, and call for healthy competitions among banks to bring about better satisfaction to customers. Customers do not even need to worry about either if a cheque has been cleared or the status of their deposits in savings account. He also identifies the ability of banks now to provide immediate account enquiries or statements online for their customers, and so customers do not have to wait till the end of the month for historical dual mail statement.

Accad (2009), writes that information technology enables financial information to be presented to customers in a customized user friendly fashion, allowing them to conveniently track data in the form that is best suited to their purpose. He goes further to say that another major area where the application technology has tremendously assisted the banking sector is the provision of various financial services. Many financial service providers are seizing the opportunity offered by the internet to create entirely new business, and smart banks are using the information technology to reinvent new roles and the way they deliver values. The information technology driven bank have leveraged on the new technology innovation and delivery of quality services. Pedro (2010) asserts that traffic in banking halls will be greatly reduced without necessarily compromising

transaction profit if information technology is optimally utilized. He says that the internet is recognized and acclaimed all over the world as the leading vehicle and engine for growth and development. Olawepo (1999) observes that online banking gives the ability to pay bills electronically. Utility bills such as PHCN bills in Nigeria, DSTV subscriptions and other revenue bills can now be paid electronically. Such electronic payment can be credited the same day or the next day. Customers can also download account transaction online in their home or office without necessarily entering the banking hall. Ovia (2005) has it that the introduction of smart cards will lead to a reduction in transactions involving cash; with long prospect of minimal cash handling which will also assist in the reduction of risk exposure, robbery and other vices. Information technology has invaded and transformed the Nigerian banking industry. This is not unexpected considering the fact that the banking industry relies most heavily on information gathering and record keeping. Much of bank's works centers on paper, an area where data processing finds its greatest utility which makes banking system essentially information oriented (Modum, 2005).

According to Inyama (2000), the uniqueness and peculiar manner in which the banks are swiftly transformed manifests amply in the speedy manner with which banks especially the new generation banks have grown technologically. Even the older banks have braced trail in other not to be caught napping. The call is even more compelling when we recall that commercial banks in particular operate in a rapidly changing regulatory and economic environment. Umezurike (1996), emphasized the need that banks operate in a competitive environment given the narrowing product distinctions offered by them and other financial institutions.

Aragba-Akpore (2008), reports that both the, Western Union Money Transfer, and Moneygram are all electronic money transfers which are made possible by the convergence of telecommunications and computers. With the introduction of the computer in banking, the following classical operations could then be automated:

- The checking operation can be done by machine.
- Deposits and withdrawals can be entered and new balance determined by the computer.
- Online systems permit a teller to get the balance of an account by simply keying in the account number.

Other functional areas that computers assist banks are, cost analysis, investment analysis, loan analysis, portfolio selection and market research (Modum, 2007). Modum goes further to state that centralized file systems combine savings, current, personal loan, and mortgage files for an individual into a single integrated file. Banks and financial institutions also use cash flow analysis to invest and control the funds essential for effective operations. Umeh (2006) observes other electronic and technological banking services to include the following; Globus, Equilink, UNISYS, and UNIX. Each of these represents the specific nomenclatures and corporate feelings of the owners and are thus their unique configurations. There are also the Automated Teller machines (ATM), the SQL image machine, Electronic Funds Transfer (EFT), Magnetic Ink Character Recognition (MICR), Optical Character recognition and others. Udeh (2007) summarizes the cumulative effects of computer information technology application on the banking industry as follows-;

- A sharp reduction in time-consuming paper work and mailing, which are replaced by simple messages transmitted from computer to computer.
- The elimination to the barest minimum of fraud and errors of dishonesty in the banking system through the establishment of checks and balances in the computer systems.
- Improved customer services through installation of real-time banking system by eliminating the time wasted in banking transactions.

Udeh (2007) went further to say that by doing all the above, banks can now build and sustain good identity, premium image, goodwill and thus sound relations with their customers.

Customer services (relationship) according to Guitnan and Paul (2002) are those activities that facilitate the sale or enhance the satisfactory use of firm's (bank's) products or services. Building bank relationships is not just about saving money or granting loan, more fundamentally, it is about understanding the customer and serving him so well, such that the task of selling becomes merely superfluous.

Generally speaking, the use of technology (automation) in banking has impacted greatly on both corporate and individual customers as transactions are faster, safer, and more convenient. It has greatly assisted these banks in improving their customer services and remarkably enhanced productivity of staff and profitability of operations. Services now rendered at most banks have become faster, far from the old, clumsy habit of tally carrying method, which were both slow and painful to both customers and staff of banks (Aragba-Akpore, 2008). Umeh (2006), reports that because information technology has made transactions easier by eliminating ledger carrying and minimizing errors. Customer satisfaction has been made a way of life. Banks generally depend a great deal on information generated either manually or electronically for day to day running of their businesses, maintaining effective communications and relationships with their numerous customers and regulatory authorities. Quick and accurate decisions must be taken in response to changes in the money market, customer enquiries, foreign exchange availability, credit facilities and other financial variables. He further counsels that information generated for a particular activity must be communicated promptly to the users. The information areas for management in banks include profit and loss, balance sheet, trial balance, fixed assets, personal records, salary administration and many more other reports. All these have necessitated the overriding need for computerization and automation in banks. Electronic banking according to Ogunsemore (1996) is a kind of banking that involves electronic forms of money transmission. Here, banking services are fully automated such that transactions are concluded in a jiffy. It involves the use of computer network in dispensing cash and transfer of funds. The primary objective is to replace the intensive labour operations and thus help reduce waiting of customers. He is also of the opinion that electronic banking is natural fallout of intense competition going on in the market. It is brought about by the efforts of banks to introduce automation into the banking business.

Information technology has completely transformed and changed the mode of operations of banks into a more welcome and rewarding operations. Bank computerization has helped in reducing drastically and substantially, the volume of clerical work, the waiting hours of customers and available rigors usually associated with banking operations, ensure security of funds, enhance bank customer relations, goodwill and increased

patronage. Information technology does not only determine the market share and profitability of the banks in tomorrow's global economy, but it also has a huge impact on future generations of workers and a country's economic prospects. All these aid the continuous growth, development and expansion of the banking industry.

#### **The Relationship between Information Technology Capability and Organizational Performance in Nigerian Banks**

The concept of IT capability was introduced by Ross *et al.* (1996) and defined IT capability as the firm's ability to assemble, integrate and deploy IT based resources. Heijden (2000) pointed out that the measurement of IT capability covers relationships in IT department with the rest for the business. It also broadens the explanation of accepted views of organizational IT capabilities on an organization's information technology function. Bharadwaj (2000) defined IT capability as the ability of a firm to mobilize and deploy IT based resources in combination with other resources and capabilities. Those IT-based resources are IT enabled resources, which consist of technical and managerial IT skills; intangible IT-enabled resources; such as knowledge, assets, customer orientation and synergy- the sharing of resources and capabilities across organizational division. Therefore capabilities reflect the ability of these firms to combine resources to promote superior performance (Amit and Shoemaker, 1993).

Capability can be in form of competence that organization demonstrates in its capability to make use of IT tools and processes that are required to maintain market and customer information (Tippins and Sohi, 2003). Hence, IT competence was conceptualized to include three dimensions: IT operations, IT object and IT knowledge (Tippins and Sohi, 2003). A high level of

IT experience enables organizations to be innovative in service delivery and cost containment strategy that would enhance performance as well as meet customer requirement (Bhatt and Grover, 2005; Clark *et al.*, 1997). The task of IT capabilities for improving organizational performance was well established in the literature. Various IT studies suggest IT capabilities provide the basis of gaining competitive advantage and enhancing organizational performance (Bhatt and Grover, 2005; Santhanam and Hartono, 2003). An extensive body of IT capabilities literature agreed that IT capabilities are resource to facilitate an effective collection and utilization of information (e.g., Bharadwaj, 2000). IT capabilities certainly enhance service reliability, reduce transaction errors and increase consistency in performance. Further additions to the observations are that IT capabilities can contribute to enhancing service quality through better customized or individualized services, and in creating knowledge links for identifying and sharing organizational expertise (Quinn *et al.*, 1994). Tippins and Sohi (2003) commented that IT capabilities, which are also known as IT competencies, improve performance through elimination of inefficiency, reduction of long term cost, improve service reliability and reduced transaction errors. In this study, the term IT capability is adapted from the study conducted by Tippins and Sohi (2003). The study used IT knowledge, IT infrastructure and IT operations among the dimensions of measuring IT capability. IT knowledge concerns with the extent to which a firm possesses a body of technical knowledge about objects such as computer based systems (Tippins and Sohi, 2003). IT knowledge encompasses professional qualification, expertise and skills such as programming, systems analysis and

design, and competencies in emerging technologies. IT operations include IT functions, coordination and interaction with user community. Hence, IT operation was conceptualized as the extent to which organization utilizes IT to manage market and customer information. The computer based hardware, software and support staff were referred to as IT objects.

Kabiru, Mohd and Norlena (2012) determined the effects of Information Technology (IT) capability on the organizational performance of Nigerian banks. The study used stratified random sampling and simple random probability procedure in selecting the organizations as the sample. Data was collected using the questionnaire survey approach. Out of 560 questionnaires distributed, 417 respondents were found to be useable for further analysis representing 74% valid response rate. Multiple regression analysis was used to analyze the data using SPSS software. The findings showed that IT capability is significantly related to organization performance of banks based on resource based view (RBV) of organization performance. The outcome of this study provides important information on the effect of IT capability on organizations' performance, to the managers and academics in Nigeria.

#### **Methodology**

This paper relied heavily on historic data as data that was used in the analysis were generated from annual financial reports of the sampled banks for a seven year period (2005 to 2011). In line with the approach adopted by Leckson-Leckey, Osei and Harvey (2011) this paper handpicked data from the balance sheet and income statements of the sampled banks to assess the relationship between bank deployment of information technology and bank performance.

A sample of four (4) banks was selected for this study via a non-probabilistic sampling method. Owing to paucity of data for the research variables of interest, the four banks selected are namely; First City Monument Bank (FCMB), Guaranty Trust Bank (GTB), First Bank (1<sup>st</sup> Bank), and Zenith Bank to represent the entire deposit money banks in Nigeria. The choice of the banks is because they carry information regarding the research variables in their annual reports and account for the study period.

The models for this paper were structured in a way that it showed the relationship between bank deployment of information technology and the performances of the sampled banks after the 2005 concluded consolidation exercise in Nigeria. The ratios used are stated and defined thus: Return on Asset (ROA). Return on Assets (ROA) comes into help since assets include financial and physical assets such as equipment and buildings. Most of the banks' activities represented by revenues and expenses are closely related to their total assets. Changes in returns on assets reflect more accurately to changes in profitability. ROA shows the profit earned per dollar of assets which reflects bank's management ability to utilize the bank's financial and real investment resources to generate profits (see, Naceur, 2003). The ROA is a functional indicator of bank's profitability. It is a ratio calculated by dividing net income by total assets.

$$\text{Return on Assets} = \frac{\text{PBIT}}{\text{Total Assets}} \dots \dots \dots (1)$$

Where; PBIT = Profit before Interest and Tax.

This paper investigates the relationship and magnitude of investment in Information Technology and banks' performance by using a multiple regression comprising of panel data. This research analysed the relationship within the framework, that

investments in Information Technology (I.T) influence firm performance, i.e. IT has a positive effect on performance by referring to prior research of Kim and Davidson (2004) and includes control variables which are firm characteristics drawn from extant literature. We investigate the relationship and the impact of investment in IT on bank performance by using a regression equation expressed in a multiple form based on return on equity (ROA).

$$\text{Profitability}_{it} = a_0 + a_1 + a_2\text{Branch} + a_3\text{ATM} + a_4\ln\text{ITEXP} \dots \dots \dots (3)$$

Profitability<sub>it</sub> = Return on Equity (ROE) of bank i at the end of fiscal year t.

Branch<sub>it</sub> = Total number of branches of bank i at the end of year t

ATM = Total number of ATM machines of bank i at the end of year t.

lnITEXP<sub>it</sub> = the natural log of IT investment of bank i at the end of fiscal year t

These estimated coefficients provide evidence on whether the banks that spend more on IT (i.e. high IT level that links ATM machines and bank branches) have a greater impact on the financial performance. Key independent variable information in this study, IT investments (ITEXP) was collected from sampled banks as it is not publicly available for all the banks in Nigeria. In the instance where data was not available, figures reported in financial statements as investment on computers was used as a proxy for IT investments.

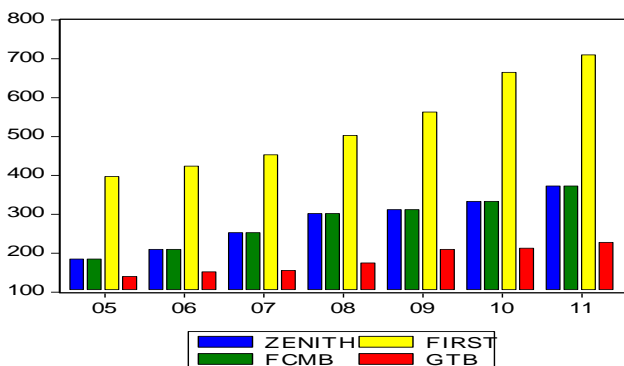
**Findings**

We present the data gathered from the sampled banks as well as analysis and interpretation of results given the role information technology plays in the modern day banking in this section. Information technology ensures the interconnectivity of remote computers that enhances the provision of banking products.

The table above shows the number of ATM and the bank branches which their interconnectivity is made possible by the banks' deployment of information technology.

**Fig. 1.**

Number of ATM



In 2005, the beginning of the period, First Bank Nigeria Plc has the highest number of ATM of 397 and followed by Zenith Bank Nigeria Plc which has 185 ATM while FCMB has 120 ATM, the least for the year. In 2011, First Bank Nigeria Plc also maintained the lead in the number of ATM with 710, an increment of about 79% from that of year 2005 while Zenith bank Nigeria Plc 373 which is an increment of 101% from that of 2005. Also, GTB Plc recorded 140 ATM in 2005 while the number increased to 213 in 2011 whereas FCMB recorded a decline in the number of ATM from 170 in 2010 to 165 in 2011.

**Test of hypothesis**

H0: Banks deployments of information technology do not have a significant positive relationship with bank profitability.

H1: Banks deployments of information technology have a significant positive relationship with bank profitability.

Banks profitability was used to measure performance and the Return on Asset a measure of profitability was adopted. This was used to test for a significant positive relationship between number of a bank's ATM and branches.

Looking critically at table 2 above, ATM and bank branches have a positive relationship with ROE. This result implies that banks deployment of ATM and the expansion of bank branches interconnected via information technology have a direct relationship with bank profitability showing that information technology drives bank profitability. We therefore, reject the hypothesis that Information Technology investment does not have a significant positive relationship with bank business performance while accepting the alternate that information technology deployments have a positive relationship with bank performance.

**Conclusion**

Given that sound and information technology driven banks can compete favourably in the current banking arena, provide banking services efficiently and remain profitable in the current Nigerian banking scene, this study has discussed the relationship between information technology deployment and bank performance. We applied Pearson correlation to test our hypothesis that Information Technology (IT) deployment does not have a significant positive relationship with Bank profitability for acceptance or rejection. A sample of consolidated banks in Nigeria was selected to determine the relationship between bank information technology deployment and bank performance. Results arising from the basic descriptive statistics confirm strongly that this objective has been met. All the sampled banks recorded increase in the number of ATMs and bank branches which were made possible the deployment of IT solutions. Assessing the successes so far achieved, this study observed that it is obvious that banks deployment of information technology in offering products and services enhances productivity and drives performance.

In order to achieve greater efficiency in the banking sector, for banks to function effectively in discharging their financial intermediation role and hence play its role as a catalyst to economic development, Central Bank of Nigeria should prioritize the promotion of macro-economic stability which is the first condition for banking stability over banking supervision though important. Thus, reiterating the stance of Ogewewo and Uche (2006) that monetary stability is a prerequisite to a sound financial system and indeed for the economic development of any country. Nigerian banks should also put in place good corporate governance, effective internal control and effective information technology solutions in order to reap the benefits of economies of scale.

**References**

Accad, M. (2009) The Future of Electronic Banking in Nigeria: The Role of the Internet (online) [www.pdfgeni.com/articles/](http://www.pdfgeni.com/articles/) (accessed, October 2011)  
 Adeoti, J. O. (2005) "Information Technology Investment in Nigerian Manufacturing Industry: The Progress So Far", Selected Papers for the  
 Adeyemi, A. (2008), *IT and the Financial System in Nigeria*, Ibadan: Oxford Press

**Table 1. Sampled Banks ATM/Branch Network**

Zenith Bank Plc.	Years	No. of ATM	No. of Branches
	2005	185	130
	2006	210	170
	2007	253	213
	2008	302	253
	2009	312	272
	2010	333	293
	2011	373	327
First City Monument Bank Plc.	2005	120	88
	2006	127	96
	2007	139	109
	2008	185	145
	2009	198	153
	2010	170	130
	2011	165	125
First Bank Nigeria Plc.	2005	397	362
	2006	424	383
	2007	453	418
	2008	503	468
	2009	563	523
	2010	665	590
	2011	710	650
Guaranty Trust Bank Plc.	2005	140	97
	2006	152	112
	2007	156	121
	2008	175	130
	2009	210	170
	2010	213	178
	2011	228	188

Source: Sampled Banks Annual Reports for various years

**Table 2. Pearson Correlations Result**

		ROAit	ATMit	Branchit	ITExpenditure
Pearson Correlation	ROAit	1.000	.028	.036	-.192
	ATMit	*.028	1.000	.999	-.760
	Branchit	*.036	.999	1.000	-.770
	ITExpenditure	-.192	-.760	-.770	1.000
Sig. (1-tailed)	ROAit	.	.446	.430	.173
	ATMit	.446	.	.000	.000
	Branchit	.430	.000	.	.000
	ITExpenditure	.173	.000	.000	.

Amit, R. and Shoemaker, H. J. (1993), "Strategic assets and organizational rent", *Strategic Management Journal*, Vol. 13, pp. 33-46.

Anderson, R.G. (1990) *Data processing: Information Systems and Technology*, London: Pitman Publishing

Aragba-Akpore, B. (2008) "Information Technology: The Backbone of Banks' Services Regeneration", *The Guardian*: July 22

Bharadwaj, A. S. (2000), "A Resource-based Perspective on Information Technology Capabilities and firm performance: an empirical investigation", *MIS Quarterly*, Vol. 24: 169-182

Bhatt, G. D. and Grover, V. (2005), "Types of information technology capabilities and their role in competitive advantage: an empirical study", *Journal of Management Information Systems*, Vol. 22 No. 2: 253-277.

Chukwu, A. (2009) "Electronic banking in Nigeria", *Business Times*, Lagos: Daily Times Publications

Clark, C. E., Cavanaugh, N. C., Brown, C. V. and Sambamurthy, V. (1997), "Building change readiness capabilities in the IS organization: insights from the Bell Atlantic", *MIS Quarterly*, Vol. 44, pp. 158-179

Guiltnan, J. P. and Paul, G. W. (2002) *Marketing Management: Strategies and Program's*, New York: Mc Graw-Hill Inc

Heijden, H. V. D. (2000), "Measuring IT core capabilities for electronic commerce results from a confirmatory factor analysis", *Paper presented at the 21st. International Conference of Information Systems*, Australia

Inyama, H.C. (2000) *Computer Application and Information Technology*, Enugu: Dynamic Press

Irechukwu, G. (2000) *Enhancing the Performance of Banking Operations Through Appropriate information Technology in the Nigerian Banking Industry*, Ibadan: Spectrum Books

Kabiru, J. R., Mohd, R. R. and Norlena, H. (2012) "The Moderating Effect of IT Capability on the Relationship between Business Process Reengineering Factors and Organizational Performance of Banks" *Journal of Internet Banking and Commerce*, Vol. 17, No.2.

Leckson-Leckey, G. T. Y. Osei, K. A. and Harvey, S. K. (2011), "Investments in Information Technology (IT) and Bank Business Performance in Ghana" *International Journal of Economics and Finance* Vol. 3, No. 2: 133-142.

Longley, D. and Michaels, S. (2007) *Dictionary of Information Technology (2<sup>nd</sup> edition)*, London: Macmillan Press

- Mejabi, O.V. (2008) *Relevance of Information Technology to Management*, Ilorin: Smaat Publications
- Modum, U. (2005) *Management Information System: Analysis and Design*, Enugu: Fourth Dimension
- Nkwocha, J. (2004) *Digital Public Relations vol.1*, Lagos: Zoom Lens Publishers
- Odubanjo, K. (2007) "Assessing the Impact of IT on Productivity of Banks" *Punch Newspaper* vol.17.no.4
- Ogewewo, T. I. and Uche, C. (2006). "[Mis] Using bank share capital as a regulatory tool to force bank consolidation in Nigeria". *Journal of African law*, 50,
- Ogunsemore, A. (1996) "Banking Services: The Emergence and Impact of Electronic Banking" *Journal of the Chattered Institute of Banking of Nigeria*, Jan/March
- Olawepo, G.T. (1999) *An Introduction to Data Processing/management Information System*, Ilorin: Igbagbobi Publishers
- Ovia, J. (2005), "Enhancing the Efficiency of the Payment System in Nigeria", *CBN Bullion*, Vol. 29 (1): 8-18.
- Pedro, M. (2010) "Impact of I.T in an Organisation" *Business Times*, Lagos: Daily Times Publications
- Quinn, J. B., Baily, M. N., Herbert, G. R. and Willett, D., et al. (1994), "Information technology: increasing productivity in services: executive commentary", *The Academy of Management Executive*, Vol. 8 No. 3: 28.
- Ross, J., Beath, C. and Goodhue, D. (1996), "Develop long-term competitiveness through information technology assets", *Sloan Management Review*, Vol. 38 No., 1: 31-42.
- Samba, A.S. (2001) *Information Technology and Globalization: Challenges for Nigeria's Population Management*; A Paper Presented at NIPR Conference/ AGM, Abuja
- Santhanam, R. and Hartono, E. (2003), "Issues in linking information technology capability to firm performance", *MIS Quarterly*, Vol. 27 No. 1: 125-153.
- Tippins, M. J. and Sohi, R. S. (2003), "IT Competency and firm performance: is organizational learning a missing link? *Strategic Management Journal*, Vol. 24: 745-761
- Udeh, M. (2007) "E-Commerce: The Challenges for Nigeria", *Business Times*, Lagos: Daily Times publications
- Umeh, A.C (2006) "Computer Networking Communication and Management of Information in Banks" in Nwosu, I.E and Ekwo, U. (ed.) *Mass Media And Marketing Communication: Principles, Prospects and Practices*, Enugu: Thought Communication Publication
- Umezurike, I.E.C (1996) "Essay on Contemporary Legal issues in CBN and the Management of Distressed Bank Decree No.25 of 1991". *Paper Presented by the Society of Legal Research, University of Nigeria, Nsukka.*