RESEARCH ARTICLE

Impact of Electronic Banking on the Performance of Financial Institutions in Nigeria (A Study of First Bank Plc)

Okolie, Paschal I. P. PhD[1*] and Eze, Justina[2]
Department of Management, Accounting and Finance, The University of America, Curacao[1]
Department of Banking and Finance, Enugu State University of Science and Technology, Agbani, Nigeria[2]

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This work investigated the impact of electronic banking on the performance of financial institutions in Nigeria. Three research objectives guided this study and they sought to: determine the effect of pre and post electronic banking adoption on net profit margin; ascertain the effect of pre and post electronic banking adoption on return on assets; and evaluate the effect of pre and post electronic banking adoption on return on equity of deposit money banks in Nigeria. The study adopted the ex-post facto research design, wherein data from First Bank Plc were collected for a cumulative period of twenty-eight years – 1994 to 2007 for pre-adoption era and 2008 to 2021 for post-adoption era. Comparative analysis was used for test of hypotheses, wherein the mean of the performance indicators are compared between pre- and post- adoption era. Findings revealed that there is significant difference in the effect of pre adoption era and post adoption era of electronic banking on net profit margin (NPM) of First Bank Plc; there is insignificant difference in the effect of pre adoption era and post adoption era of electronic banking on return on assets (ROA) of First Bank Plc; and that there is insignificant difference in the effect of pre adoption era and post adoption era of electronic banking on return on equity (ROE) of First Bank Plc. This implies that electronic banking has significant effect on NPM but insignificant effect on ROA and ROE. Consequently, it was recommended that commercial banks should sustain and improve on the use of electronic banking systems in Nigeria.

ABSTRACT

Keywords: *Electronic Banking; Financial Institutions; Nigeria; Performance*

Introduction

Compared to traditional banks, internet banks rely more on core deposits for funding. Although there is a weak negative correlation between profitability and providing internet banking (less than 5%), there is a stronger negative correlation between the risk profiles of the banks (more than 10%), suggesting that internet-based banks are better protected from risks like non-performing loans. Electronic banking, according to Abaenewe, Ogbulu, Onyemachi and Ndugbu (2013) is the conduct of banking business electronically which involves the use of information communication technology to drive banking business for immediate and future goals. Al-hajri (2008) describes e-banking as the provision of banking services to customers through internet technology. According to Basel Committee on banking supervision (2003), Electronic banking is defined as the delivery of large-value electronic payment and other wholesale banking services as well as retail and small-value banking products and services via electronic channels. The definition of electronic banking, according to Alsmadi and Alwabel (2011), varies among scholars in part because the term encompasses a variety of services that allow bank customers to seek information and conduct banking transactions. Ovia (2001) asserted that in the world of banking and financial services, electronic banking is a byproduct of e-commerce. Therefore, to put it briefly, electronic banking is the application of information technology in banking processes. Today's business environment is extremely dynamic and experience rapid changes as a result of technological improvement, increased awareness and demands that banks serve their customers electronically. Historically, banks have been in the forefront of utilizing technology to enhance their offerings. These shifting circumstances and the extremely unpredictable economic environment create a complex and competitive environment in which the banking business of the twenty-first century functions. The Electronic Banking System in Nigeria is currently experiencing a global shift curve that is centered on information and communication technology (ICT). Managers in the banking sector in Nigeria cannot disregard information systems because they have a significant influence on the present banking system and are tied to most institutions' entire cash flow (Ogare, 2013). The following are some examples of common e-banking manifestations, according to Ogare (2013): mobile/SMS banking, telephone banking, electronic funds transfers, self-service (PC) banking, POS banking (Credit and Debit cards), ATMs, Interactive TV, and branchless banking. However, the introduction of electronic gadgets to help in the delivery of high-quality services to bank customers sparked a revolution in the banking sector in Nigeria. The introduction of these electronic devices has enhanced industry competition, which has significantly decreased the amount of time that clients must wait to do financial operations. This innovation is brought in by the use of computers and other networking gadgets. Abaenewe, Ogbulu, Onyemachi and Ndugbu (2013) noted that in Nigeria, the networking started with the LAN (Local Area Network) MAN (Metropolitan Area Network) and subsequently the WAN (Wider Area Network).

One of the benefits banks derive from electronic banking products and services delivery is improved efficiency and effectiveness of their operations so that more transactions can be processed faster and most conveniently, which will undoubtedly impact significantly on the overall performance of the banks. Despite the potential advantages of ICT and e-commerce, it is unclear whether and how use of these technologies enhances bank performance. ICT use and investment involve complementary investments in people, processes, and ideas, and both investment and change come with risks and expenses in addition to possible rewards. E-banking has good effects on bank productivity and profitability, and to a lesser extent, on employment, especially when e-commerce is a component of the bank's bigger commercial strategies. By increasing market share, broadening the product offering, creating specialized goods, and better meeting customer demand, e-banking can help banks perform better. E-banking still has an impact on how banks operate and how they make money. Activities that up till now have been mostly shielded from ICT changes are among those that may be exposed to increasing pressures for change. This generally pertains to retail banking activities that can be standardized as well as advancements in remote banking.

Statement of the Problem

In general, banks' automation makes data processing and transaction processing highly accessible for hasty management decisions. This resulted in a further level of benefit and paved the way for what is now known as electronic banking. Banks can speed up their retail and wholesale banking services with the use of electronic banking. The banking sector thinks that by using e-banking, banks will be able to enhance customer service and forge stronger bonds with their clients. From another perspective, what actually motivates the investment in electronic banking is largely the prospects of minimizing operating costs and maximizing operating revenue. However, the advent of

electronic banking (e-banking) has significantly increased risk exposure for the banking sector. Since its implementation in the economy, both the volume of deposits and the fraudulent activities faced by Nigerian banks have increased. Therefore, there is no reason to question the success of information technology deployment in banks. The fact remains that the massive volume of information that these institutions manage every day makes employing IT in banks a necessity. Cash is withdrawn from or placed by customers, checks are deposited or cleared, statement of accounts are given, money is transferred, etc. Banks require current data on accounts, credit facilities, recovery, interest, deposits, fees, income, profitability indices, and other types of financial information control.

But when it comes to the profitability of banks, experts haven't paid much attention to this transformation brought on by electronic banking. Nigerian banks have been forced to increase their asset investments in order to maintain their competitive posture as a result of the upheaval in the country's banking sector brought on by the introduction of electronic banking. Since a large portion of earnings had to be held back to fulfill this duty, shareholders were denied dividends with the hope that future dividends would be larger. The banks incur significant financial expenditures when the banking software is frequently improved on a short-term basis. If information driven technology (e-banking) is utilized, the funding suppliers anticipate that the project will generate enormous returns. Reading over the yearly financial reports of Nigerian banks in recent years reveals that, in contrast to the expectations of the shareholders or investors, dividend returns are declining and other performance indicators appear to be weak. In general, it doesn't seem like banks' returns on equity and assets, among other performance measures, have improved as much as predicted. This study seeks to close a knowledge gap and add to existing literature on electronic and internet banking in Nigeria. Although extensive research has been done on the advantages that bank consumers will experience when switching to electronic banking, less work has been done in the areas of returns on assets and returns on equity to investors. Hence this study is prompted by the worry to ascertain, statistically, the impact of electronic banking (before and after adoption) on the returns and profit margins of First Bank of Nigeria Plc.

Objectives of the Study

The main objective of this study is to examine the impact of electronic banking on the performance of financial institutions in Nigeria (a study of First Bank Plc).
The specific objectives are to:
1. Determine the effect of pre and post electronic banking adoption on net profit margin of First Bank of Nigeria Plc
2. Ascertain the effect of pre and post electronic banking adoption on return on assets of First Bank of Nigeria Plc
3. Evaluate the effect of pre and post electronic banking adoption on return on equity of First Bank of Nigeria Plc

Research Hypotheses

The following hypotheses were tested in this study
1. There is no significant difference on the effect of pre/post electronic banking adoption on net profit margin of First Bank of Nigeria Plc.
2. There is no significant difference on the effect of pre/post electronic banking adoption on return on assets of First Bank of Nigeria Plc.
3. There is no significant difference on the effect of pre/post electronic banking adoption on return on equity of First Bank of Nigeria Plc.

Review of Related Literature

Conceptual Framework

Electronic Banking

The term electronic banking (e-banking) is technically and intricately complex to define as it may be interpreted differently from different accessing viewpoints. The complexity of being precisely specified in the literature grows due to the adaptability of e-banking as a multichannel distribution method. Nonetheless, several attempts have been made to offer succinct and all-inclusive meaning of e-banking (Furst et al, 2010; Basel Committee Report on Banking Supervision, 1998; Kricks, 2009; Auta, 2010). E-banking, for example, was described by Furst et al. (2000) as the automated provision of new and traditional banking goods and services to customers through electronic, interactive channels. Kricks (2009) defined e-banking as automated delivery of new and conventional banking products and services directly to customers. Kricks (2009) is more emphatic in his definition of e-banking because it has not replaced conventional banking products and services but has transformed them in order to improve service quality, real-time access, lower operating costs, and ultimately achieve the highest levels of operational efficiency in banking operations (Ovia, 2011; Gonzalez, 2008). Although clients can conveniently satiate their desires for bank transactions using automated, interactive channels called "e-banking," other places have found that the name refers to something much broader than user satisfactions (Pyun, 2012). Additionally, e-banking is understood to be the method through which a customer conducts banking transactions electronically without visiting a physical location (Simpson, 2002). In this instance, e-banking is described as branchless or virtual banking, implying that physical location in the banking industry is becoming less significant as banks adopt e-banking. However, the Basel Committee Report on Banking Supervision's definition of e-banking is the one that is most frequently used (1998). E-banking is "the provision of retail and small value banking goods and services through electronic channels," according to the committee. In this essay, e-banking is defined as the practice of conducting banking activities using intelligent devices connected to the internet. Such mobile or stationary intelligent gadgets (Oyewole, Abba, El-maude, and Abam, 2013).

Cashless Economy: An Offshoot of E-banking

Contrary to what is suggestive of the term, cashless economy does not refer to an outright absence of cash transactions in the economic setting but one in which the amount of cash-based transactions is kept to the barest minimum. It is an economic system in which transactions are not done predominantly in exchange for actual cash. This economic system does not also involve the exchange of products and services for other commodities and services (the barter system). In this type of economy, products and services are purchased online and paid for with electronic means. "One in which there are expected to be no transaction frictions that can be alleviated by the usage of money balances, and that therefore provide a justification for retaining such balances even when they earn rate of return," is how it is defined (Woodford, 2003). How much cash you have in your wallet is essentially meaningless in a cashless economy, according to (Omotunde, Sunday, & John-Dewole 2013). There are numerous credit cards and bank transfers that you can use to pay for your purchases. The objective of the cashless economy concept in Nigeria is to minimize cash transactions. For individuals, the CBN has imposed daily cumulative withdrawal and deposit restrictions of N150,000, and for corporations, N1,000,000 (now reviewed to N500,000 and N3million respectively). Per additional N1000, penalty costs of N100 and N200 will be assessed (now lowered to 5% and 3%, respectively) (Ezumba, 2011).

It should be said that as at now there are already some forms of cashless transactions that are taking place in Nigeria. It is noted that: Automated Teller Machines (ATM), point-of-sale terminals, mobile voice, web, inter-bank branch, and kiosks are just a few of the up to seven various electronic payment methods available in Nigeria today. E-payment initiatives in Nigeria have been undertaken by indigenous firms and have been stimulated by improvement in technology and infrastructure (Babalola, 2008). As noted above, the cashless economy does not imply an outright end to the circulation of cash (or money) in the economy but that of the operation of a banking system that keeps cash transactions to the barest minimum. The CBN had set daily limits of cumulative withdraws and lodgments of 150, 000 for individuals and 1,000,000 for corporate customers (now 500,000 and 3million respectively). The operation of the system does not mean the individual/corporations cannot hold cash in excess of 150,000/ N1million (now 500,000/N3million) respectively at any single point in time but that their cumulative cash transactions with the

bank must not exceed these limits over a period of one day. The system is targeted at encouraging electronic means of making payments, and not aimed at discouraging cash holdings. This policy on limits implies that an individual can actually have 5,000,000 (more than 150,000 now 500,000) under his pillow at home, buys goods and services with them but must not pay more than 500,000 into his bank in one day without attracting a fine of 5% per 1000 for the excess. What is anticipated by this policy is that instead of making large withdrawals to effect payment for goods and services, such monies will be kept in the banking system so that payments are made through "debit/credit card-like means (Ugwueze & Nwezeaku, 2016).

The POS — An overview

In this system users are issued with electronic cards which can be slotted into special electronic machines in order to effect payments. At the center of such payment system are the Point of Sales (POS) terminals (Azez, 2011). These are to be deployed across commercial points in the country. These POS terminals thus deployed will serve like the Automatic Teller Machines (ATM). In this case, upon completing a transaction and the value ascertained, the amount is entered into a POS terminal into which the electronic card has been slotted. Automatically, the sum is transferred from the payer's account to the payee's account in cash equivalent (Olaegbe, 2011). Users are given a card (the electronic purse). Revaluation terminals are used to add money to the electronic purse. Terminals come in three different varieties: coin and note, credit card, and payroll deduction. The cards are simply inserted into the revaluation terminal and certain programmed instructions are followed, and money is added onto the electronic purse. This can then be used to pay for goods/services by inserting them into the POS terminals. When the card is inserted into the POS, and the transaction amount entered, the reader reads the amount and is quickly deducted from the e-purse (the card) (Ugwueze & Nwezeaku, 2016).

It has to be noted that the operation of the cashless economy (electronic payment) system is not entirely free. Curiously, using the POS comes with a hefty price tag of 1.25 percent of the cost of every purchase or transaction that is affected in addition to the 5 for every 1000 Commission on Turnover that our deposit money banks are allowed by CBN to charge every time money is taken from our account (Omose, 2011).

Other Types and Delivery Channels of E-banking

E-banking can be classified into three basic types. These include Internet banking, Smart card banking and Mobile/telephone banking (Abaenewe, Ogbulu, and Ndugbu, 2013).

Internet banking: This is a form of online banking service where clients' requests are received and handled online. Customers have the option of taking advantage of financial services from the convenience of their homes and businesses thanks to internet banking. This means that buyers can order things online, instruct their banks to pay the seller the amount of the invoice, and have the goods delivered to the location of their choice.

Smartcard banking: This is the practice of carrying out financial transactions using electronic cards (Value Card, ATM Card, Debit Card, Credit Card etc.). Bank customers can easily access cash, make transfers, and inquire about their accounts without going to the banking hall thanks to the smart card technology. In cities, smart card facilities are typically installed in key locations including supermarkets, hotels, transportation hubs, and retail centers.

Mobile/Telephone Banking: This entails carrying out banking operations using mobile or fixed wireless phones. The steps are as follows: The computer receives commands by voice or short messages (SMS); it decrypts the message and executes the commands using a highly coded device. Then, the response is given back to the customer electronically.

Benefits of E-banking

Experts have pointed out specific areas in which the e-banking will enhance the quality of life. These, according to Ugwueze and Nwezeaaku (2016) include:

1. Faster transactions – reducing queues at points of sales
2. Improving hygiene on site – eliminating the bacterial spread through handling notes and coins.
3. Increased sales
4. Cash collection made simple – time spent on collecting, counting and sorting cash eliminated
5. Managing staff entitlements

Ugwueze and Nwezeaku (2016) further noted that electronic banking reduces transfer/processing fees, increases processing transaction time, offers multiple payment options and gives immediate notification on all transactions on customers' account. It is also beneficial to the banks and merchants; (there) are large customer coverage, international products and services, promotion and branding, increase in customer satisfaction and personalized relationship with customers, and easier documentation and transaction tracking. Rogers (1995) cited in Abaenewe, Ogbulu, and Ndugbu, (2013) posits that the rate of adoption of a new innovation is related to (perceived) relative advantage: The greater the perceived related advantage, the faster the adoption. Secondly, the desire to improve organizational performance is seen to be an enabler for technological change. However, the benefits of electronic banking encompass a broad range of functions and include: Electronic mail (e-mail) improves communication between individuals and the bank, within the bank, with the bank and external parties and between banks.

The accessibility of information online offers bankers and clients a potent tool for investigation. Banks can offer their clients internet access to information and services that they can pay for and use. By incorporating other parts of banking operations, such as management and financial control, banking procedures can be made more cost- and time-effective. Ovia (2001) posits that on-line banking services have now become a birth right of the customer as the customer demands the flexibility of operating an account in any branch of a bank irrespective of which branch the account was domiciled. With internet banking, users may conduct financial transactions while lounging in the comfort of their homes or offices and using a personal computer to connect to their banks' servers (Ovia, 2001). As a policy instrument, CBN has heaped a lot of praises on the cashless system. CBN has hinged economic development on the cashless system; it sees it as a tool for tackling corruption and money laundering. It has been pointed out that: "Among the reasons glibly advanced by the CBN for this policy include reducing the cost of cash management, making the Nigerian economy cashless, checking money laundering and the insecurity of cash in transit. Statistics show that cash management in 2009 cost N114.5 billion and this is projected to stand at N200 billion in 2020. In the same vein, the cashless system provides the opportunity of being able to "follow the money" and thus check money laundering across borders. Added to this is the perceived impact on the Naira. The system will reduce the pressure on the Naira. This can only happen if there is effective and standard cross-border electronic transmittal's reporting system. Following from the above therefore, it is anticipated that the cashless system will bring with it transparency in business transactions (Ugwueze and Nwezeaku, 2016). In the same token, the cashless economy will bring with it a leaning towards banking culture. It is seen that the effort is directed at "… ensuring 'cashless economy' and nurturing the culture of saving in the unbanked majority in the country" (Nonor, 2011). Most of Nigerians are still unbanked, and so we have large proportion of the citizenry not subject to such monetary policy instruments as are used in the banking system. This development will make CBN's policy tools more effective for achieving economic development and stability goals.

Challenges/Risks and Control of E-banking

Commercial banks in Nigeria offer a wide variety of services on the internet. Some of the obvious challenges to an effective banking service delivery in Nigeria include but not limited to the following:

1. There is no proper infrastructural development for performing e-banking activities in Nigeria.
2. Slow uptake of internet access and PCS due to high level of illiteracy among Nigerians
3. There are poor telecommunication network policies and slow-paced regulatory initiatives.
4. There are very few users of internet facilities across the country.
5. The banking infrastructure in terms of electronic payments and inter-bank connectivity is poor

6. There is no effective legal system to encourage e-banking activities in Nigeria
7. There is lack of skilled and efficient IT workforce
8. Cyber laws to prosecute cybercrimes are not in place
9. ATMs may have network problems, unavailability and shortage of money as experienced in most ATMs across the country
10. The price of computer, computer hardware, banking software and their maintenance are expressive.

Abaenewe, Ogbulu and Ndugbu (2013) noted that each financial institution should apply guidelines based on its scope and level of sophistication in e-banking technology. Typically, electronic banking amplifies the scale of exposure of banks to traditional risks, such as transaction, strategic, reputation and compliance risk, among others. As information systems become more connected and interdependent, the risk of computer intrusion will increase. Arguably, this is the single most challenging aspect of the "new" electronic delivery system. Banks with poor physical and system security are significantly more exposed to a variety of threats, several of which could result in bankruptcy. Potential consequences include direct currency loss, change reputation, improper disclosure, and law suits or regulatory sanction. Banks with poor physical and system security are significantly more exposed to a variety of threats, several of which could result in bankruptcy. Direct currency loss, reputational change, inaccurate disclosure, legal action, and regulatory sanctions are possible outcomes. As most Central Banks believe, bank consolidation may not be the only way to prevent bank distress and catastrophe. However, exposure to global risk brought on by the use of electronic banking might instantly wipe out a bank. Another issue is the security of credit and debit cards as seen by the cardholder. The risk of a fraudster breaking into the system to corner and steal money is always present, and a successful invasion could lead to a massive theft of money (Okafor, 2006).

According to Okafor (2006), another issue with payment card security is that any breakdown, no matter how brief or for what reason, could have catastrophic results. Therefore, banks using this technology should keep a look out for breakdowns and practice appropriate maintenance habits.E-banking should, therefore, be in line with the bank's overall business and strategic aims, and sufficient competence should be used to administer and maintain such systems. Ebanking risks must therefore be controlled as part of a bank's comprehensive risk management procedure. Banks' level of risk-taking must be consistent with their total risk tolerance, not with their capacity for risk management and control (Abaenewe, Ogbulu and Ndugbu, 2013).

Adoption and State of E-banking in Nigeria

Numerous studies have been done on Nigeria's e-banking adoption, customer acceptance of it and bank preference (Idowu et al., 2002; Ezeoha, 2005 & 2006; Chiemeke et al, 2006; Agboola, 2006; Salawu et al, 2007; Egwali, 2008; Ayo, Adebiyi, Fatudimu&Uyinomen, 2008; Agboola&Salawu, 2008; Ayo, Uyinomen, Ibukun&Ayodele, 2007; Maiyaki&Mokhtar, 2010; Adepoju et al, 2010; Olasanmi, 2010; Ayo, 2010; Ajah&Chibueze, 2011). Using an extended technology acceptance model, Ayo et al. (2010) examined the current state of e-banking implementation in Nigeria and evaluated the impact of trust on the uptake of e-payment. Chiemeke et al. (2005) looked at the level of internet banking adoption in Nigeria and discovered that it was only being offered at the most basic level of interactivity, with the majority of banks having information-heavy websites and offering few internets transactional services (2001). Additionally, Auta (2010) used the Kaiser-Mayar-Olkin (KMO) approach and Barlett's Test of Sphericity to empirically examine the impact of e-banking on Nigeria's economy and discovered that Nigerian customers' knowledge of the e-banking services available in the Nigerian banking sector is insufficient. In Nigeria, e-banking is rapidly gaining popularity, and the Central Bank of Nigeria's recent establishment of a cashless policy has increased the rate of adoption (Nigerian Television Authority, October, 2012).

E-banking vis-à-vis Traditional Banking in Nigeria

Five years after US banks introduced their electronic channels, Nigerian banks began implementing e-banking (Chiemeke, Evwiekpaefe & Chete, 2006). Prior to 2000, practically all banks in Nigeria were brick-and-mortar institutions. In other words, they were manually operating and severely constrained to the basic function of safekeeping. Therefore, up until this point, all commercial banks were traditional banks. Although there was some element of e-banking because users utilized the telephone to complete transactions, they still went to their banking locations. Following this time, practically all of Nigeria's commercial banks began to electronically implement e-

banking. All commercial banks in Nigeria are completely automated for e-banking at the moment, however, this article found that it has not yet been experimentally verified how e-banking affects bank performance in comparison to traditional banks.

Financial Performance

A company's financial performance can be used to measure how efficiently it uses the resources in its primary business to produce revenue. This phrase is frequently used to contrast similar companies operating in the same sector or to contrast entire markets. It can also be used as a general indicator of the state of a company's finances over a given time frame. What is known as CAMEL is a set of practical financial performance indicators. The five factors that make up a bank's condition are evaluated under the acronym "CAMEL": capital adequacy, asset quality, management, earnings, and liquidity. In 1997, a sixth element—a bank's sensitivity to market risk—was added, leading to the abbreviation CAMELS, (Gilbert, Meyer and Vaughan 2000).

By "bank performance," it is often meant whether a bank has performed well enough over a trading period to achieve its goals. Presumably, the public financial accounts are the only document that provides an explanation for this. Rose (2011) asserts that determining whether a bank has been successful in achieving the goals established by management and stockholders is the first step in any fair assessment of that bank's performance. Undoubtedly, each bank has a different set of goals. Some companies want to expand more quickly and meet long-term growth goals, while others seem to prefer a quieter existence, reducing risk, and projecting the image of a reliable bank while offering modest benefits to their shareholders (Rose, 2011). Typically, stock prices and their behavior are thought to reflect a company's performance. This is a market indicator; thus, it might not always be accurate. However, more trustworthy performance metrics might be considered to include the bank's size, deposit volume, and profitability. For the purposes of this study, bank performance is evaluated using profitability indicators, specifically the Return on Equity (ROE), Return on Assets (ROA), and Profit Margin (NPM). These ratios serve as measures of the effectiveness of management and the rate of return. These profitability criteria differ significantly over time and from one financial market to another, according to Rose (2011). Today, the ROE, ROA, and NPM are often used. According to Nikolai & Bazley (2009), the ratio of net income to total assets reveals how well a company utilizes its financial resources. They also emphasized that the corporation has favorable financial leverage when the ROE is higher than the ROA.

Effect of E-Banking on Financial Performance of Commercial Banks

Commercial banks assaulted by the pressure of globalization and competition from non-banking functions must find new ways to add value to their services. The question "what drives performance?" is at the top in understanding superior performance and hence striving for it. Substantial research efforts have gone into addressing this question, starting from the strategic level and going down to operational details. Customers in developing economies seems to keep the "technological factors" of services as the yardstick in differentiating good & bad services and the human factor – the employees seem to play a lesser role in discriminating the quality of service for banks. The variety of services provided by banks fosters the development of excellent customer service. Banking is no longer just seen as a business that deals with money transactions; it now appears to be a business that deals with financial transaction information (Padwal 1995). The level of consumer satisfaction is changing the technological environment as electronic banking spreads more widely. E-banking is one way that information technology contributes to providing better services for less money. Numerous cutting-edge IT-based services, including Automated Teller Machines (ATM), Internet banking, Smart cards, Credit Cards, Mobile banking, Phone banking, and Anywhere-Anytime banking, have given customers a number of practical services.

As a result, the likelihood that customers will be satisfied rises as service quality improves. Customer retention, mutual understanding, and a sense of trust between the customer and the bank all rise as a result of higher customer satisfaction. Customers have a higher opinion of banks that offer these services to them in huge quantities. However, technology-based products in public and private sector banks differ at the same time. E-banking is an improvement over traditional banking systems because it has reduced the cost of transaction processing, improved payment efficiency, financial services, and the banker-customer relationship. With the level of satisfaction, the relationship between e-banking and service quality can be investigated. Customer satisfaction is a product of both the customer's level of expectation and the organization's level of service excellence. Customers are more likely to be satisfied when

they use e-banking because it bridges the gap between the quality of service they expect and what they actually receive. Therefore, banks should identify ways to increase the accessibility of electronic services and give customers the ability to confirm the accuracy of e-banking transactions in order to close this gap. Overall, we can conclude that e-banking has taken the place of traditional banking and has increased client satisfaction (Ogare, 2013).

Theoretical Framework

This section presents the idea of customer loyalty and gives an outline of how information systems are adopted. It also discusses what influences customers' acceptance of e-banking. Since the problems are different in different contexts, all of the adoption models, such as TAM, TPB, and TRA, were created to investigate technology adoption in developed countries. However, technology adoption in developed countries may differ from that of underdeveloped countries (Molla and Licker, 2005).

Technology Acceptance Theory (TAT)

Davis, Bagozzi, and Warshaw (1989) proposes TAT to explain the conceptual model that users' intention or acceptance degree towards information system or new technology. TAT is constructed on the foundations of perceived usefulness and perceived ease of use. Perceived usefulness refers to individual belief to improve the degree of job performance through using particular new technology and information system. Perceived ease of use indicates how easy an individual learns how to operate or use new technology or information system (Davis et al., 1989; Gefen et al., 2003). The model places more emphasis on how perceived ease of use would positively affect perceived usefulness. Exogenous variables such as environment are also the antecedent that induces perceived usefulness and perceived ease of use. Thus, TAT is based on both important perceptive factors as perceived usefulness and perceived ease of use. TAT is widely applied on the research of information technology. Liu and Arnett (2000) examined the significant variables to build a successful website based on TAT theory. Gefen et al. (2003) combined TAT and rust to propose an integrated model for explaining online consumer behavior. Pavlou (2003) proposes e-commerce acceptance model of online consumers by separating and applying experiment designs and survey.

Follow-up studies such as Horst, Kuttschreuter and Guttering (2007) discusses whether or not the government of Netherlands should serve the public with electronic government like other countries do. The study integrates TAT factors, the experiences of the public, perceived risk and faith. The empirical results show that the principle of e-government is that people fully trust the governmental organization and that they highly identify with information technology. As a result of the empirical study, scholars find that TAT does not only apply to examine new information technology accept intention or behavior, but also ensures that TAT is suitable for the explanation of online user behavior issues (Liu and Arnett, 2000; Gefen et al., 2003; Pavlou, 2003; Horst et al., 2007).

Theory of Planned Behavior

Early studies mainly focus on theory of reason action (TRA) as identified by (Fishbein and Ajzen, 1975). TRA is based on the fundamental variables of attitude and subjective norms. The two variables are seen to have a positive effect on individuals' behavioral intentions, which positively induce individuals' actual action. Attitude is an individual's positive or negative evaluation of self-performance of a particular behavior. The concept is how much the behavior's performance is rated positively or adversely. A person's impression of a particular action that is influenced by the opinions of important others is known as a "subjective norm" (e.g., parents, spouse, friends, teachers). An indication of a person's preparation to carry out a specific behavior, behavioral intention is thought to be the immediate precursor to behavior. However, the basic hypothesis of TRA states that the occurrence of behavior is based on volitional control of one's willpower (Fishbein and Ajzen, 1975). Thus, the behavior occurs mostly from one's will.

Thus, Ajzen (1985) modifies TRA and further proposes the theory of planned behavior (TPB). Ajzen (1985) proposes TPB to explain and predict human behavior patterns. To account for the uncontrollable forces that affect persons, TPB expands the TRA theoretical framework and includes perceived behavioral control.

The three components of TPB—perceived behavioral control, attitude, and subjective norms—form its basis. Therefore, perceived behavioral control, attitude, and subjective norms all have an impact on behavioral intention. In turn, behavioral intention governs actual conduct. Individuals' perceived level of behavioral or 'difficulty' of

behavior is referred to as their perceived level of. In recent years, the use of the internet has been widespread and has been more diversified. Studies on TPB applying to electronic commerce have increased. To explore the elements that influence people's intention to use the internet, Tan and Teo (2000) integrate TPB and diffusion of innovation theory. According to empirical findings, people's intentions to utilize internet banking will be favourably impacted by attitude and perceived behavioral control. In the subsequent studies, Huanget al. (2006) find that TPB indeed can explain people's behavioral intention of online tax filing. Hsu et al. (2006) review users' continual behavior towards internet shopping by longitudinal investigation, which not only employs TPB factors (attitude, subject norms and perceived behavior control) but also integrate expectation disconfirmation theory to construct the research model.

The empirical results show that subjective norms, attitude, and perceived behavior control are the major factors affecting consumers' continuous intention of internet shopping. The pre-factors also omit the equity notion, which is valued by accounting experts (Jackson and Milliron, 1986; Moser et al., 1995; Efebera et al., 2004). To sum up, the empirical results of the above-mentioned literatures prove that TPB could be applied to explain the behavioral process of human being engaged in or accepted information technology.

The Theory of Reasoned Action

In-depth marketing research has made substantial use of Fishbein and Ajzen's 1975 Theory of Reasoned Action (TRA). The four general principles of TRA—behavioral attitudes, subjective norms, intention to use, and actual usage—have been used to explain behavior that goes beyond technology acceptance. It argues that individuals evaluate the consequences of a particular behavior and create intentions to act that are consistent with their evaluations. In more detail, TRA claims that one can predict people's behavior by looking at their intentions, which can be predicted by looking at their attitudes and subjective norms. Following the chain of prediction further back, attitudes can be predicted from an individual's beliefs about the consequences of the behavior. Subjective norms can be predicted by knowing how significant other individuals think the behavior should or should not be done. A particularly helpful aspect of TRA from a technology perspective is its assertion that any other factors that influence behaviour do so only indirectly by influencing attitude and subjective norms. The characteristics of the system architecture, user characteristics (such as cognitive preferences and other personality traits), and task characteristics are a few examples of such variables. Hence, TRA is quite appropriate in the context of predicting the behaviour of using multimedia technology. Although TRA, is a very general theory and as such does not specify what specific beliefs would be pertinent in particular situations. Nevertheless, the inclusion of subjective norm represents an important variable, which is not even included in more popular models.

Empirical Review

Ugwueze and Nwezeaku (2016) conducted a research study on E-Banking and Commercial Bank Performance in Nigeria: A Cointegration and Causality Approach. The rising use of electronic banking, which has redefined financial services both domestically and abroad, made the study necessary. The value of point-of-sale transactions served as a proxy for electronic banking, while client deposits served as a proxy for commercial banking success. Data were analyzed using the Engle-Granger cointegration model for the sample period of January 2009 to December 2013. The findings demonstrate that POS is cointegrated with demand deposits but not with savings or time deposits.

Okoro (2014) examine the impact of automated teller machine (ATM), point of sales (PoS), Mobile and Internet service values on the intermediation efficiency of the Nigerian economy using multiple regression technique on time series data of 2006 – 2011. According to the study's findings, there is a considerable association between the intermediation effectiveness of the Nigerian economy and the values of ATM, PoS, and Internet service. The study also demonstrates that, during the study period, there was no significant correlation between the value of mobile services and the effectiveness of the Nigerian economy's intermediation. He comes to the conclusion that the main tools used by deposit money bank customers in Nigeria are the ATM, Point of Sale, and Internet services, and he suggests that the banks increase their efforts to promote these goods in Nigeria.

Oyewole, El-maude, Gambo and Arikpo (2013) in their study on e-banking and bank performance: evidence from Nigeria, using panel data made consisting of annual audited financial statements of eight banks that employed e-banking while preserving their brand name banking between 2000 and 2010, the impact of e-banking on return on asset (ROA), return on equity (ROE), and net interest margin was investigated. (NIM). E-banking has a two-year lag

before beginning to positively impact bank performance in terms of ROA and NIM, according to the findings from pooled OLS estimations, whereas a negative effect was observed in the first year of adoption. It was suggested that sensible investment choices in electronic banking be made in order to justify the cost and income effects on bank performance.

Abaenewe, Ogbulu and Ndugbu, (2013) investigated the impact of electronic banking on profitability of commercial banks in Nigeria. using secondary data for the years 1997 to 2010 that was taken from the Nigerian Stock Exchange Factbook. Data gathered from four Nigerian banks were used to implement the judgmental sampling method. Using the collected data and a conventional statistical technique for an independent sample at a 5% level of significance for performance indicators including ROE and ROA, they examined the pre- and post-adoption of e-banking performance difference between means. They found that the returns on equity of Nigerian banks have grown significantly and favorably as a result of the implementation of electronic banking. They advise the banking sector to adapt to the complete and efficient deployment of ICT because of its sophistication and alleged benefits.

Omotunde, Sunday and John-Dewole (2013) study the impact of cashless policy in Nigeria using a questionnaire as a data collection tool in survey research. According to the respondents' responses, a cashless policy will boost employment, decrease cash-related robberies, which lowers the risk associated with carrying cash, minimize cash-related corruption, and bring in more foreign investment. The study demonstrates that Nigeria's adoption of a cashless economy might be considered as a positive development. Its effects are anticipated to be felt in the modernization of Nigeria's payment system, a decrease in the price of financial services, a decrease in the risks associated with high security and safety, and a reduction in banking-related corruption.

Ogare (2013) conducted a study on the effect of electronic banking on the financial performance of commercial banks in Kenya. The study made use of secondary data that was gathered from the Central Bank of Kenya's annual report and the annual reports of commercial banks. The study analyzed the data gathered for the years 2008 to 2012 using both descriptive and inferential statistics. The study's conclusions indicated that e-banking significantly and strongly influences the profitability of commercial banks in Kenya's banking sector. Thus, there is a good correlation between bank performance and online banking. The significance test revealed that bank innovations' effects on bank profitability were statistically significant, indicating that the aggregate impact of the research's bank innovations is statistically significant in explaining the profits of commercial banks in Kenya.

Aduda and Kingoo (2012) investigate the relationship between e-banking and performance of Kenya banking system. The goal of the study was to determine whether there is a relationship between the independent variables of investments in e-banking, the number of ATMs, and the number of debit cards issued to customers as a stand-in for e-banking, and the dependent variable of performance as measured by return on assets. The study analyzed the data from the years 2000 to 2010 using both descriptive and inferential statistics. The study generally showed that e-banking has significant marginal effects on returns on assets in the Kenyan banking sector. Thus, there is a good correlation between bank performance and online banking. They draw the conclusion that the use of electronic banking has facilitated banking transactions by bringing services closer to users and enhancing the efficiency of the banking sector.

Mohammad and Saad (2011) examine the impact of electronic banking on the Jordanian banks' performance. An empirical analysis of a panel of 15 Jordanian banks during the years 2000 to 2010 has been done. Accounting data were utilized to assess the performance of the institutions, and key variables were regressed using OLS. The findings demonstrate that the performance of banks is significantly harmed by electronic banking. The performance of these institutions has not increased as a result of electronic banking. Customers of Jordanian banks rely on conventional channels to conduct their financial transactions. As a result, the expenses of implementing electronic banking remain higher than the income generated by the sale of electronic services. They advise banks to concentrate their efforts on fostering consumer acceptance of electronic banking services and enticing them to adopt them.

Sumra, and Manzoor (2011) conducted a study on the impact of e-banking on the profitability of banks: A study of Pakistani banks. They contend that the growth and adoption of the internet have given the retail banking sector new perspectives and opportunities. Retail banks are now offering their goods and services via e-banking, an electronic platform. E-banking is thought to have a significant effect on how well banks perform. They, therefore, use a qualitative approach to analyze data from twelve banks across Pakistan for eight years to investigate the effect of e-

banking on the profitability of Pakistani banks (2002-2010). The findings demonstrate that e-banking has improved bank profitability by enabling them to cover costs and turn a profit even more quickly. Customers' lack of literacy is not seen as a significant barrier to offering their goods and services. For banks, retaining and growing their customer base is the primary reason for implementing e-banking. Bank profitability has increased as a result of the switch to e-banking.

Cheruiyot (2010) in his study titled, "Impact of internet banking on Financial Performance of Commercial Banks in Kenya", discovered that compared to non-internet banks, online banks are larger, have higher operating efficiency ratios, and are more profitable. Internet banks rely more on core deposits for funding than traditional banks do. Although there is a small significant correlation between profitability and offering internet banking (less than 5%), there is a larger significant and adverse correlation with the risk profiles of the banks (more than 10%), suggesting that internet-based banks are better protected from risks like non-performing loans. However, as technology continues to permeate the industry, the benefit anticipated from internet banking has yet to demonstrate any appreciable positive financial results, calling for further research beyond the financial indicators utilized in the study.

Malhotra and Singh (2009) examined the impact of internet banking on performance and risk tracing the experience of Indian commercial banks during June 2007. The research used an ex-post facto methodology. The hypothesis was tested using linear regression, and it was discovered that there is no meaningful relationship between the profitability and availability of internet banking.

Hernado (2006) examined the impact of the adoption of a transactional website on financial performance using a sample of 72 Spanish commercial banks over the period of 1994-2002. Multiple regression was employed to test hypotheses, and ADF unit root test was used for pretest analysis. Profitability was positively impacted, according to the outcome.

Onay, Ozsozand Helvacıoglu (2008) examined the impact of internet banking on banks' profitability of Turkish over the period (1995-2005). The data analysis method employed was ordinary least squares. They discovered that internet banking has a two-year lag before it starts to benefit banks' ROE, while a one-year lag had the opposite effect.

Maiyo (2013) conducted a study on the effect of electronic banking on financial performance of commercial banks in Kenya. The research design used in the study was descriptive. A data collecting form was created and distributed to the respondents of commercial banks in order to gather primary data. Secondary information was gathered from central bank of Kenya supervisory reports and public financial statements of the relevant commercial banks to supplement the main data. A multiple regression analysis was also utilized to explain the relationship between the variables and display the results, along with the appropriate frequency tables and charts. Secondary information was gathered from central bank of Kenya supervisory reports and public financial statements of the relevant commercial banks to supplement the main data. A multiple regression analysis was also utilized to explain the relationship between the variables and display the results, along with the appropriate frequency tables and charts.

Okiro and Ndungu, (2013) investigated the impact of mobile banking and internet banking on the financial performance of financial institutions in Kenya. The study also aimed to determine how widely mobile and online banking are used in financial institutions. 61 financial institutions that operate in Kenya made up the study's population of interest. The study found that, of the financial institutions surveyed, commercial banks used internet and mobile banking the most; SACCOs used it the second most, and none of the microfinance organizations did. The study discovered that mobile banking encounters a number of difficulties, including fraud, system delays by mobile money transfer service providers, sluggish transaction processing, particularly on weekends, high transaction prices, and a daily withdrawal cap. The study should be expanded to include more types of electronic banking, and its impact on their financial performance should be examined.

Gikandi and Bloor (2010) investigated adoption and effectiveness of electronic banking in Kenya. The results showed that there was a drastic shift in the importance attached to some e-banking drivers between years 2005 and 2009. In the 2005 survey, the number of other retail banks adopting e-banking was considered as a driver of medium importance by 70% of the banks, however, in the 2009 survey it was ranked among the extremely important drivers by a 100% of the banks. Similar observations were made in the case of competitive forces. Internet security was

identified as the most important future challenge in e-banking while customer trust, privacy and awareness were recognized as challenges of great importance. The study concluded that cost reduction and customer related factors have emerged as the main drivers of e-banking adoption in Kenya.

Onay (2008) studied the impact of internet-banking on banks profitability in Turkey. The analysis covered 13 banks that had adopted online banking in Turkey between 1996 and 2005. By using bank specific and macroeconomic control variables, they investigated the impact of internet banking on the return on assets (ROA) and equity (ROE), the interest spread, overhead expenses and on commission and fee income controlling for systemic bank crises in the country during the timeframe. The study included time-lagged measures of internet banking adoption to exhibit the changes in effect over time. The results showed that internet banking starts contributing to banks' ROE with a time lag of two years confirming the findings of while a negative impact is observed for one-year lagged dummy. The results provided some evidence that investment in e-banking is a gradual process. It would important to carry out similar research in Kenya since Turkey is an advanced economy compared to Kenya.

Abubakar (2014) carried out a study on The Effects of Electronic Banking on Growth of Deposit Money Banks in Nigeria, Using time series data from 2006 to 2012. Data were gathered from secondary sources using the Central Bank of Nigeria's yearly reports and statistical bulletins. The entire value of online and mobile banking was used to measure electronic banking, while the value of total deposits and the total assets of Nigeria's deposit money institutions were used to measure growth. Using the multiple regression technique, a total deposit was regressed on internet and mobile banking while a total asset was regressed on both. The analysis found that while there are strong links between online banking and total assets and between mobile banking and total assets, there are no significant relationships between internet banking and total deposits.

Siddik, Sun, Kabiraj, Shanmugan & Yanjuan (2016) in their study on impacts of e-banking on performance of banks in a developing economy: Empirical evidence from Bangladesh showed that although e-banking is becoming more popular there, its effect on bank performance has not yet been determined. This study empirically examined the effect of e-banking on the performance of Bangladeshi banks as assessed in terms of Return on Equity, Return on Assets, and Net Interest Margin using panel data of 13 banks over the period of 2003–2013. Results from pooled ordinary least square analysis indicate that e-banking has a negative impact in the first year after adoption, but after two years it starts to positively impact banks' Return on Equity. The empirical results of this study are more important for developing nations like Bangladesh because they will inspire bank management and policy makers to seek measures to expand e-banking.

Halili (2014) conducted a study on the impact of online banking on bank performance. The goal of this study is to draw attention to the difficulties associated with the adoption of internet banking. It involved five European nations for a 1999–2010 study period on the uptake of online banking. Data from 22 commercial banks in the following nations were used in the empirical analysis: the United Kingdom, Germany, Czech Republic, Latvia, and Poland. The study finds that the use of online banking is negatively correlated with three bank performance measures, including return on equity (ROE), return on asset (ROA), and margin (MRG).

Methodology

Research Design

Ex-post facto design was adopted for this study. The choice of this design for this study involves dependent and independent variables that had been recorded in the past, which the researcher cannot manipulate. Therefore, the *ex-post facto* design is suitable to this type of   study since it makes used of secondary data obtained from annual reports and accounts of First Bank of Nigeria Plc quoted on the Nigerian Stock Exchange.

Nature and Sources of Data

Secondary data were used for this study and were sourced from the annual reports and accounts of the selected financial institution (First Bank of Nigeria Plc).

Model Specification

For the evaluation of the effect of electronic banking on performance of banks, the relationship between the independent and dependent proxies was determined using independent sample t-test, otherwise called a comparative analysis model and it is specified as follows:

$$t = \frac{(x_1 - x_2) - (U_1 - U_2)}{S\, x_1 - x_2}$$

Where x_1 is mean for Pre – E-banking Adoption
x_2 is mean for Post – E-banking Adoption
U_1 and U_2 are the true means (that Ho says are the same) and S is the standard deviation

Methods of Data Analysis

The statistical tools for analysis in this study were comparative analysis.
Comparing the Sig. (probability) value (p = .000) to the α priori alpha level (α = .05).
If p <α, we reject the null hypothesis of no difference. But
If p >α, we retain the null hypothesis of no difference.

That is, if the mean difference of a variable is significant after comparing pre adoption era with post adoption era, there is a significant different therefore we reject the null hypothesis. Otherwise, there is no significant difference and we accept the null hypothesis

Description of Variables

Return on Assets (ROA)
Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. Calculated by dividing a company's annual earnings (profit after tax) by its total assets, ROA is displayed as a percentage.

$$ROA = \frac{NetIncome}{TotalAssets}$$

Return on Equity (ROE)

Return on equity (ROE) is a measure of profitability that calculates how many dollars of profit a company generates with each dollar of shareholders' equity. The formula for ROE is:

$$ROE = \frac{Net\ Income}{shareholders'Equity}$$

Net Profit Margin (NPM)

Net profit margin is the percentage of revenue left after all expenses have been deducted from sales. The measurement reveals the amount of profit that a business can extract from its total sales. The net sales part of the equation is gross sales minus all sales deductions, such as sales allowances. The formula is:

$$\frac{netprofits}{Netsales} \times 100$$

Results and Analysis
Descriptive statistics in the form of tables is used in the study to present relevant data computed from relevant annual financial statement of the firm under study. In addition, a comparative analysis (difference between groups)

was applied by the researcher. The relationship between the two eras was determined using independent sample t-test. The statistical tool is represented by the following formulae.

$$t = \frac{(x_1 - x_2) - (u_1 - u_2)}{Sx_1 - x_2}$$

Where: x_2 is mean for Pre – adoption era

            x_1 is mean for Post – adoption era

            U_1 and U_2 are the true means and

            S is the standard deviation.

Test of Hypotheses

Hypothesis One

Restatement of hypothesis in null and alternate form

Ho: There is no significant difference on the effect of pre/post electronic banking adoption era on net profit margin of First Bank of Nigeria Plc.

H$_I$:   There is significant difference on the effect of pre/post electronic banking adoption era on net profit margin of First Bank of Nigeria Plc.

Comparison of the Mean of NPM during Pre- and Post Adoption of Electronic Banking

Table 1: Descriptive Statistics of NPM in Pre- and Post-adoption periods Group Statistics

	PERIOD	N	Mean	Std. Deviation	Std. Error Mean
NPM	PRE ADOPTION	10	.1006	.04688	.01211
	POST ADOPTION	10	.2419	.11871	.03065

Source: Researcher's Computation using SPSS, 2022

Table 1 (Group Statistics) shows descriptive statistics for the two groups of NPM (pre- and post-adoption eras) separately. Note that the means for the two groups look somewhat different. This might be due to chance, so we will want to test this with the *t* test in the next table:

Table 2: Comparison of NPM values Pre- and Post-adoption of electronic banking

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EPS	Equal variances assumed	4.790	.040	-3.610	22	.002	-.14132	16.65586	-226.98466	-.22250
	Equal variances			-3.610	14.153	.003	-.14132	16.65586	-227.00057	-.22520

	not assumed									

Source: Researcher's Computation using SPSS, 2022

Table 2 (Independent Samples Test) provides two statistical tests. In the left two columns of numbers, is the Levene's Test for Equality of Variances for the assumption that the variances of the two groups are equal (i.e., assumption of homogeneity of variance). Note that this is not the t test; it only assesses an assumption! If this F test is not significant (as in this case), the assumption is not violated (that is, the assumption is met), and one uses the Equal variances assumed line for the t test and related statistics.

However, if Levene's F is statistically significant (i.e., if Sig., $p<05$), then variances are significantly different and the assumption of equal variances is violated (not met). In that case, the Equal variances not assumed line would be used – for which SPSS adjusts the t, df, and Sig. as appropriate. Also, in the second table we obtain the needed information to test the equality of the means. Also recall that there are two methods in which we can make this determination. Comparing the Sig. (probability) value (p = .000) to the α priori alpha level (α = .05). If p < α – we reject the null hypothesis of no difference. If p > α – we retain the null hypothesis of no significant difference. For this study, p < α, therefore we reject the null hypothesis and conclude that the post-adoption group (M = **0.2419**) NPM is significantly more than the pre-adoption group (M = 0.1006) NPM.

Hypothesis Two

Restatement of hypothesis

Ho: There is no significant difference on the effect of pre/post electronic banking adoption on return on assets of First Bank of Nigeria Plc.

H$_I$: There is a significant difference on the effect of pre/post electronic banking adoption on return on assets of First Bank of Nigeria Plc.

Comparison of the Mean of ROA of Pre- and Post Adoption

Table 3: Descriptive Statistics of ROA in Pre- and Post-Adoption Eras

	PERIOD	N	Mean	Std. Deviation	Std. Error Mean
ROE	PRE-ADOPTION	10	.0884	.03364	.00869
	POST-ADOPTION	10	.0652	.01583	.00409

Source: Researcher's Computation using SPSS, 2022
Table 3 (Group Statistics) shows descriptive statistics for the two groups (ROA pre- and post-electronic banking era) separately. Note that the means for the two groups look somewhat different. While that of pre-adoption period is 0.0884, that of post-adoption is 0.0652.

Table 4: Comparison of ROA values Pre- and Post-adoption of electronic banking

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
									Lower	Upper	
ROA	Equal variances assumed	.732	.400	.982	25	.336	.02325	.02368	-.02552	.07202	
	Equal variances			.996	24.711	.329	.02325	.02334	-.02486	.07136	

	not assumed										

Source: Researcher's Computation using SPSS, 2022

Table 4 (Independent Samples Test) provides two statistical tests. In the left two columns of numbers, is the Levene's Test for Equality of Variances for the assumption that the variances of the two groups are equal (i.e., assumption of homogeneity of variance). Since the F test is non-significant, the assumption is not violated (that is, the assumption is met), and this implies that the variances are non-significantly different. In this case, the Equal variances not assumed line would be used – for which SPSS adjusts the t, df, and Sig. as appropriate. Similarly, comparing the Sig. (probability) value (p = .400) to the α priori alpha level (α = .05) in t-test column, $p < \alpha$, therefore we accept the null hypothesis of no significant difference and conclude that the pre-adoption group (M = 0.0884) ROA is significantly more than the post-adoption group (M = 0.0652) ROA.

Hypothesis Three

Restatement of hypothesis

Ho: There is no significant difference on the effect of pre/post electronic banking adoption on return on equity of First Bank of Nigeria Plc.

H_I: There is a significant difference on the effect of pre/post electronic banking adoption on return on equity of First Bank of Nigeria Plc

Comparison of the Mean of return on equity (ROE) of Pre- and Post Adoption of Electronic Banking System in First Bank of Nigeria Plc

Table 5: Descriptive Statistics of ROE in Pre- and Post-adoption Eras Group Statistics

	PERIOD	N	Mean	Std. Deviation	Std. Error Mean
ROE	PRE-ADOPTION	10	.3034	.20019	.05169
	POST ADOPTION	10	.3422	.17221	.04447

Source: Researcher's Computation using SPSS, 2022

Table 5 shows descriptive statistics for the two groups (pre- and post-electronic banking periods) separately. Note that the means for the two groups look somewhat different. The mean of pre-adoption period is 0.3034, and that of post-adoption is 0.3422.

Table 6: Comparison of return on equity values Pre- and Post-Electronic Banking (Independent Samples Test)

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
									Lower	Upper	
ROE	Equal variances assumed	.386	.539	-.569	28	.574	-.03877	.06818	-.17843	.10090	
	Equal variances not assumed			-.569	27.388	.574	-.03877	.06818	-.17858	.10104	

Source: Researcher's Computation using SPSS, 2022

Table 6 (Independent Samples Test) provides two statistical tests. In the left two columns of numbers, is the Levene's Test for Equality of Variances for the assumption that the variances of the two groups are equal (i.e., assumption of homogeneity of variance). The F test values is greater than 0.05 which is insignificant, the assumption is therefore not violated (that is, the assumption is met), and this implies that the variances are not significantly different. Similarly, comparing the Sig. (probability) value (p = .539) to the α priori alpha level (α = .05) in t-test column, p > α, therefore we accept the null hypothesis of no significant difference and conclude that the post-adoption group (M = 0.3422) ROE is insignificantly more than the pre-adoption group (M = 0.3034) ROE.

Summary of Findings
Sequel to the analysis and interpretations in the preceding chapters, the following core findings were made:
1. There is significant difference in the effect of pre-adoption era and post adoption era of electronic banking on net profit margin (NPM) of First Bank of Nigeria Plc
2. There is insignificant difference in the effect of pre-adoption era and post adoption era of electronic banking on return on assets (ROA) of First Bank of Nigeria Plc
3. There is insignificant difference in the effect of pre-adoption era and post adoption era of electronic banking on return on equity (ROE) of First Bank of Nigeria Plc

Conclusion

This study has done a comparative analysis on the effect of electronic banking system, before and after its adoption, on the performance of First Bank of Nigeria Plc. It was established that the pre/post adoption of this system of banking had significant difference on net profit margin but insignificant difference on returns (assets and equity) of the bank. Consequently, this study concludes that the adoption of electronic banking has made significant impact on mode of operation and strengthened corporate governance mechanism but not significantly so for financial performance indices of this bank.

Recommendations
The following recommendations were made in line with the findings:

Statistical analysis showed electronic banking has a significant effect on net profit margin. This may be partly so because of the capacity of electronic banking to block loopholes and stem sharp practices among staff of these banks. Therefore, commercial banks should sustain their use of electronic banking systems.

Though electronic banking system did not have significant difference on returns on assets, commercial banks should be creative in using electronic banking systems to improve their usage of capital assets which will in turn improve returns on assets.

That shareholders of banks should exercise patience with the banks management in the payment of dividends as perceived future dividends will be fatter after some lag period of cost recovery

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