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**EFFECT OF E-BANKING ON BANK PROFITABILITY: A STUDY OF GUARANTY TRUST BANK PLC ENUGU RANGERS’ AVENUE**

**BY**

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**U14/MSS/BAF/010**

**DEPARTMENT OF ACCOUNTING AND FINANCE**

**FACULTY OF MANAGEMENT AND SOCIAL SCIENCES**

**GODFREY OKOYE UNIVERSITY UGWUOMU-NIKE, ENUGU**

**JULY, 2018**

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**A RESEARCH WORK SUBMITTED TO THE DEPARTMENT OF ACCOUNTING AND FINANCE, FACULTY OF MANAGEMENT AND SOCIAL SCIENCES, GODFREY OKOYE UNIVERSITY, UGWUOMU-NIKE, ENUGU STATE**

**IN PARTIAL FULFUILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE BACHELOR OF SCIENCE (B.Sc.) DEGREE IN BANKING AND FINANCE**

**JULY, 2018**

**DECLARATION**

I Ibekwe, Chimuanya Victoria with the registration number U14/MSS/BAF/010 is a bonafide student in the Department of Accounting and Finance under the Faculty of Management and Social Sciences in Godfrey Okoye University. I would like to declare that the research work entitled Effect of E-banking on Bank Profitability: A Study of Guaranty Trust Bank Plc. Enugu, Rangers’ Ave. submitted by me in partial fulfillment of the requirements for the award of Bachelor of Science (B.Sc.) in Banking and Finance, is my original work and has not been submitted either in part or full for any other degree or diploma either in this or any other tertiary institution.

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Ibekwe, Chimuanya Victoria Date

**CERTIFICATION**

This is to certify that this research entitled Effect of E-Banking on Bank Profitability: A Study of Guaranty Trust Bank Plc. Enugu. Rangers Ave, Branch written by Ibekwe, Chimuanya Victoria with the registration number U14/MSS/BAF/010. Presented to the Department of Accounting and Finance of Godfrey Okoye University, Enugu has been assessed and approved by the oral examination/defense by the Department of Accounting and Finance, Godfrey University Enugu.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Supervisor Date**

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**Head of Department Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Dean, FMSS Date**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**External Examiner Date**

**DEDICATION**

This project is dedicated to Almighty God for His infinite mercy, protection and guidance throughout my stay in Godfrey Okoye University.

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**ABSTRACT**

*This study investigated the Returns on Equity and Returns on Asset of Guaranty Trust Bank following the adoption of E-banking in Nigeria: a study of Guaranty Trust Bank Plc 2014-2017. The main objective of the study is to examine the effect of e-banking on profitability of commercial banks in Nigeria using Guaranty Trust Bank (GTBank) plc as a study. One specific objective is to examine to which extent e-banking influences ROA. Three hypotheses were formulated, three research questions. The research design used was ex post-fact. The data was sourced from the annual report of Guaranty Trust Bank plc. Regression analysis was used to analyze the data. The analysis was carried out using Statistical Package for Social Sciences (SPSS). One of the findings of this work is that e-banking has no significant impact on Return on Asset. In conclusion, this study has provided e-banking has not improved Returns on the Equity and Return on Assets of GT Bank. I recommend that the banking industry should adjust to full and effective deployment of Information Technology (IT) due to its sophistication since the technology is irreversible with relative perceived advantage.*

**CHAPTER ONE**

**INTRODUCTION**

* 1. **Background to the Study**

Internet is a fast spreading service which allows customers to access account-specific information and possibly conduct transactions from a remote location- such as at home or from the work place. ATM cards, debit cards, credit cards etc. have eased up human life to a point that life today would have been hard and stressful.

The increased acceptance and penetration of internet have redefined the ground for retail banks. The retail banks are now offering their services mostly through their internet branches. However, the effect of internet banking on bank profitability has remained an understudied issue.

Daniel, (1999) cited in Al-hajri, (2008) describes internet as the provision of banking services to customers through internet technology. According to Basel Committee on banking, (2008), internet banking is defined as to include the provision of retail and small value banking products and services through electronic channels as well as a large value electronic payment and other wholesale banking services delivered electronically. Though Al-samadi and Al-wabel, (2011) expressed that the definition of internet banking varies among researchers partially because internet banking refers to several types of services through which bank customers can request information and carry out banking services.

However, the change in the banking industry in Nigeria started with the advent of electronic devices to assist in carrying out quality services to the customers. The introduction of these electronic devices, has increased competition in the industry, and has gone a long way to reduce customers’ waiting time for banking transactions. This invention is brought in by the use of computers and other networks. In Nigeria, the networking started with the LAN (Local Area Network), MAN (Metropolitan Area Network) and later, WAN (Wide Area Network).

Generally, the automation of banks makes transactions and data processing very easily reached for quick management decision making. This led to another level of benefit which brought in what is today referred to as internet. Internet Banking helps the banks to speed up their retail and wholesale banking services. The banking industry believes that by making use of the new technology, banks would improve customer service level and tie their customers closer to the Yang and Whitefield, (2005). Simpson, (2002) asserted that what actually motivates the investment in internet banking is largely the prospects of minimizing operating costs and maximizing operating revenue.

Nevertheless, the adoption of Internet Banking has brought challenges to the industry in terms of risk exposure. The volume of deposits has increased as well as fraudulent practices experienced by Nigerian banks since its adoption in the economy. This is why Ovia, (2001) posits that Nigeria’s banking scene has witnessed remarkable changes, especially in the mid-80s and these have been seen in the large volume and complexity in product or service delivery, financial freedom and business process re-engineering. The effectiveness of using Information Technology in banks therefore cannot be put to doubt. The fact remains that the idea of using IT in banks is necessitated by the huge amount of information being handled by banks on a daily basis. On the side of the customer, cash is withdrawn or deposited; cheques are deposited or cleared, statement of accounts are provided, money transfers and so on. At the same time, banks need up-to-date information on accounts, credit facilities and recovery, interest, deposits, charge, income, profitability, indices and other control of financial information.

However, researchers have not given much attention to this change caused by internet banking with regard to profitability performance of banks. The changes in industry in Nigeria occasioned by the idea of internet banking has forced Nigerian banks to invest more on assets to meet up with competitive positioning. Since many earnings have been retained to meet up this obligation, shareholders have been denied dividend with the anticipation of fatter future dividend.

The banking software which is usually improved on a short term basis causes huge financial costs to the banks. To the capital providers, they expect extremely large returns from the project if the internet is adopted. Annual financial reports of Nigerian banks in recent years have shown that dividend returns are dwindling while other performance indicators seem to be weak contrary to the expectation of the shareholders or investors.

Generally, there appears not to be improvement on banks’ return on equity and assets as speculated.

**1.2 Statement of Problem**

A great majority of the recent works on electronic money and banking suffers from a narrow focus. It usually ignores internet banking in every way and equates electronic money with the substitution of currency. For instance, Freedman, (2000) put forward that e-banking and electronic money consists of three devices; access devices, stored value card, and network money. Internet banking is simply the use of new access device and is therefore ignored.

Electronic money is the sum of stored value (smart) cards and network money (value stored on computer hard drives). Within this constricted room for internet banking and electronic money, there are however many research that addresses one or more of the challenges facing it. Santomero and Seater, (1996), Prinz, (1999) and Shy and Tarkka, (2002) and many others have produced models, that ascertain conditions under which different electronic payments substitute for money. Most of these models show that there is at least the possibility for electronic substitutes for currency to emerge and succeed on a large scale, depending on the features of the various technologies as well as the trait of the potential users.

Friedman, (1999) point out that internet banking presents the chance that a totally different payment system, not under the control of the Central Bank may arise. King, (1999) argues, that today computers make it at least possible to avoid the payment system altogether, instead using direct bilateral clearing and settlement.

* 1. **Objectives of the Study**

The main objective of this study is to examine the effect of internet banking on profitability of commercial banks in Nigeria, using Guaranty Trust Bank (GTB) plc. as a case study. The specific objectives of the study are:

1. To examine to which extent internet banking influences bank ROA.
2. To examine the magnitude to which internet banking influences ROE.
3. To determine if ATM transactions has any significant impact on ROE.
   1. **Research Questions**

In order to achieve the stated objectives for the study, the following questions are to be asked:

1. To what extent does internet banking affect ROA in Guaranty Trust Bank?
2. To what extent does internet banking affect ROE in Guaranty Trust Bank?
3. To what extent does an ATM transaction affect ROE?
   1. **Research Hypotheses**
4. H0: Internet Banking has no significant impact on Return on Asset of Guaranty Trust Bank.

H1: Internet Banking has a significant impact on Return on Asset of Guaranty Trust Bank.

1. H0: Internet Banking has no significant effect on Return on Equity of Guaranty Trust Bank.

H1: Internet Banking has a significant effect on Return on Equity of Guaranty Trust Bank.

1. H0: ATM transactions have no significant effect on Return on Equity of Guaranty Trust Bank.

H1: ATM transactions have a significant effect on Return on Equity of Guaranty Trust Bank.

**1.6 Significance of Study**

The study will aid commercial banks tin Nigeria to understand banking in a new dimension. Exposure from the study will highlight the different benefits of cashless banking and how these measures, if properly taken can reduce operation costs and increase profitability. Besides interest from loans and other investments commercial banks participate in, this study will also introduce a model for banks to adopt the customer convenience model. This model as shown in this study will inform managers of commercial banks on how to serve customers better while gaining their loyalty and money.

**1.7 Scope of Study**

The study will cover internet banking investments (POS channels, ATM channels) and profit after tax of Guaranty Trust Bank plc. from 2014-2017. The study could not cover other banks due to inadequate disclosure on internet banking investments from these banks and time factor (limited time).

**1.8 Definition of Terms**

Internet banking: is an electronic payment system that enables customers of a financial institution to conduct financial transactions on a website operated by the institution, such as a retail bank, virtual bank, credit union or building society. Online banking is also referred to as; inter net banking, e-banking, virtual banking, online banking.

CBN: Central Bank of Nigeria.

Profitability: the state or condition of yielding a financial gain. It is often measured by price to earnings ratio.

Return on Asset (ROA): this shows the percentage of how profitability a company’s assets are generating revenue.

Return on Equity (ROE): measures the rate of return for ownership interest (shareholders’ equity) of common stock owners. It measures the efficiency of a firm at generating profits from each unit of shareholder equity, also known as net assets or assets minus liabilities. ROE shows how well a company uses investments to generate earnings growth. ROEs 15-20% are generally considered good.

**CHAPTER TWO**

**Review of Related Literature**

**2.1 Introduction**

This chapter gives a perception into different studies which have been carried out by outstanding researchers, as well as explained terminologies with regards to the effect of terminologies with regards to the effect of internet banking on bank profitability. This chapter also gives a summary of the history and present state of the problem described by a short review of previous studies into closely related problems.

**2.2 Conceptual Review**

In recent times, Internet Banking has spread quickly all over the world. According to Onay et al, (2008), the increased adoption and penetration of internet has recently redefined the playground for retail banks. In Nigeria, all banks are making more use of e banking facilities to provide better services in order to excel in the competitive banking industry. The spread of internet has also hugely benefited the customer in general and the corporate world in particular. As a result, e-banking has been the biggest challenge to the banking industry going by the sophistication and volume of fraudulent practices associated with this type of banking.

In the previous years, banking activities in Nigeria had hugely depended on the use of Information and Communication Technology. Customers’ insatiable want for efficient services has forced financial institutions to fast track to a more radical transformation of their business systems and models for embracing internet (Ovia, 2001).

Internet appeal as well as its product developing is speedily growing, and the universal acceptance has strongly encouraged its penetration. The success of the internet is dependent upon reliable and adequate data communication infrastructure. For this purpose, it is efficient for banks to invest in online transactions by creating networks.

Banking has come a long way from the time of ledger cards and other manual filing systems to the electronic systems which most banks have today to handle their daily bulky tasks of information retrieval, storage and processing. Regardless of whether they are automated or not, banks by their nature are continually involved in all forms of information management on an uninterrupted basis.

The computer is of course a stable tool for achieving a competitive edge and optimal resource allocation. The most obvious application of computers in the banking industry is in the area of computer services, information management and control. Computerized banks respond quickly to requests from customers for statement of accounts, balance and account activity enquires. With signature and image verification systems, the time taken to offer typical cashier services like receiving and paying out of cash is minimized Awe, (2006). Also with the coming of Automated Teller Machines (ATMs), banks are able to serve customers outside the banking hall all round the clock.

**2.3 Empirical Review**

Sullivan, (2000), in his study took sample of banks that are located in tenth Federal Reserve District that have adopted internet banking and those that have not. Comparing their financial performances and risk positions, he observed the profitability and risks of these grouped banks were similar.

Hernando and Nieto, (2006) found that the effect of adopting internet on the performance of banks as a delivery channel of internet takes time to appear. They hold the view that the adoption of a transactional website has a positive impact on profitability which becomes significant in terms of ROA and ROE three years after adoption. This discovery conveys that there is a lag time for positive profitability effect to be evident on adoption of internet banking.

However, their study revealed some weaker evidence of an earlier positive effect on adoption of internet particularly in terms of ROA.

Siam, (2006) citing the works of Shuqair, (2008) on “Practical Internet Banking Services by Jordanian Banks”, pointed out that one of the most important findings in that study is the high cost of internet banking services on the short run due to the training of employees, and the cost of the infrastructure. The implication of this discovery is that internet banking services will have an adverse effect on the bank’s profitability in the short run.

Onay et al, (2008) in their study reveal that adoption of online banking and its investment is a gradual process. They state that internet banking does not seem to have a significant impact on the performance of Turkish banks measured in terms of ROA, ROE or margin in the year of adoption of the technology. In addition, they showed that in the following year, there was a significant reduction in profitability which was also attributed to the increase in IT expenditure following the adoption of the new technology.

Also, in similar study, Malhotra and Singh, (2010) found that profitability and experience in offering of internet banking do not have any impact on banks’ performance in the Indian banking context.

Kharwish and Al-sa’di, (2011) studied the effect of internet on bank profitability with evidence from Jordan. For banks that applied electronic services for less than two years, they found that there was no significant effect of these electronic services on the Return of Assets and the Return on Equity. The study however, showed that such services made significant effect on the profit margin of the banks involved. They also found that there was no significant effect of these services on banks profitability after two years of applying it in Jordan.

Al-samadi and Al-wabel, (2011) while studying the effect of internet banking on the performance of Jordanian banks, found that the use of internet affects bank profitability negatively. In their opinion, they hold that internet may eventually become a very important factor affecting performance for many banks. In Nigeria, the impact of e-banking was analyzed by using data from commercial banks that retained their brand name and adopted e-banking between 1999-2010, estimations were done on the impact of e-banking on bank performance in terms of Return on Asset, Return on Equity. The result of the study shows that e-banking begins to contribute positively to bank performance after two years of adoption in ROA and NIM while a negative impact was observed in the first year. Electronic banking thus offers many benefits to banks as well as to customers. However, in global terms the majority of private bankers are still not using electronic banking channel. There exist multiple reasons for this. Foremost, customers need to have an access to the internet in order to utilize the service. Furthermore, new online users need first to learn how to use the service .Secondly, nonusers often complain that electronic banking has no social dimension, i.e. you are not served in the way you are in a face-to-face situation at branch (Mattila et al., 2003). Finally, customers have been afraid of security issues (Sathye, 1999). However, this situation is changing as the electronic banking channel has proven to be safe to use and no misuse has been reported by the media in Finland. E-banking continues to influence banks activities and their income structure. Among the activities that may be subject to stronger pressures for change are those that, up to today, have remained relatively insulated from ICT developments. This applies mainly to some retail banking activities that are suitable for standardization, and also to developments in remote banking Kariuki, (2005). Kariuki, (2005), in his research paper titled, “Six Puzzles in Electronic Money and Banking”, showed the positive impacts of ICT on their banking performance using bank turnover and profits as measure of performance. He established that banks with high profit growth are more likely to be using greater numbers of advanced ICTs. He concluded that e-banking leads to higher profits though in long-term but not in short-term due to high ICT investment cost. Further he provides evidence that the use of e-banking can contribute to improved bank performance, in terms of increased market share, expanded product range, customized products and better response to client demand. It has been proved that online banking channel is the cheapest delivery channel for banking products once established (Sathye, 1999; Robinson, 2000).

**2.3.1 Types and Delivery Channels of Internet Banking**

Internet banking can be classified into three basic types. These are; internet banking, smart card banking and mobile/telephone banking.

**Internet banking**: this is a category of e-banking service where customers’ instructions are taken and attended to through the internet. Internet baking gives customers the possibility of enjoying banking services from the comfort of their homes and offices. This means that customers can purchase goods by ordering from the net, instruct their bank to pay the vendor the amount, and the products are delivered to the buyer.

**Smartcard banking**: this is the conduct of banking transaction through the use of

E-cards such as; ATM cards, debit cards, credit cards. The smartcard system makes it easy for a customer to have access to cash and carry out inquires, and conduct transfers without visiting the banking hall.

**Mobile/telephone banking**: this involves the use of mobile phones or fixed wireless phones to conduct banking business.

**Benefits of Internet**

Rogers, (1995) states that the rate of adoption of a new innovation is associated 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 a provision for technological change: however, the advantages of internet banking includes a board range of functions, and includes; electronic mail improves communication between individuals and the bank, between banks and external parties, and between banks. Ovia, (2001) is of the view that online banking services have now become a birthright of the customer as the customer demands the flexibility of operating an account in a y branch of a bank irrespective of which branch the account was opened. With internet banking, customers would enjoy sitting in the comfort of their homes and offices and with a personal computer, log onto their bank’s servers and transact banking activities.

**Internet Banking Risks and Control**

Every financial institution should have guidelines based on their scope and level of sophistication in the internet technology.

Characteristically, internet banking increases the exposure of banks, such as transaction, strategic, reputation and compliance risk amongst others. As information systems become more connected and interdependent, the risk of computer intrusion will increase.

Possibly, this is the most challenging aspect of the new electronic delivery system. Banks with weak physical and system security substantially increase their risk, many of which could bring to their collapse. Possible results include direct currency loss, change reputation, improper disclosure, and law suits or regulatory sanction. The consequence of any breakdown even momentarily and for whatever reasons, could be devastating. Okafor, (2006).

**Bank Profitability**

Bank profitability simply implies whether a bank has fared well within its trading period to realize its trading objective. Usually, stock prices and its behavior are deemed to reflect the performance of a firm. This is a market indicator and may not be reliable always. However, the size of the bank, the volume of deposit and its profitability could be considered to be a more accurate performance indicator. For the purpose of this study, Return on Equity capital (ROE) and the Return on Assets (ROA) are used to access bank profitability.

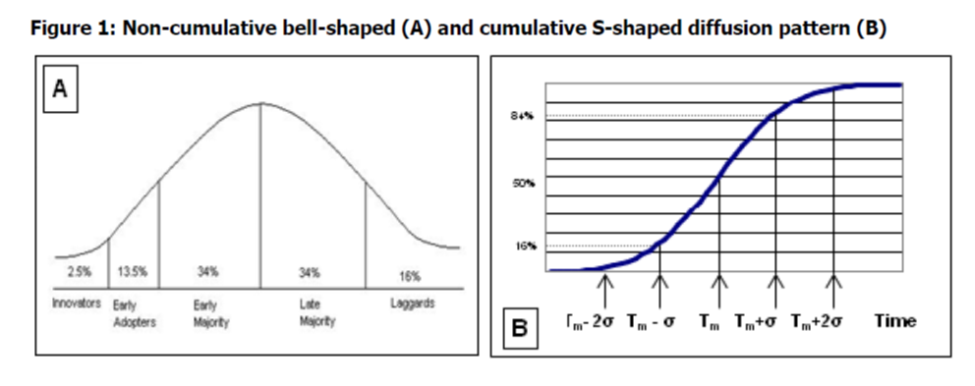
These ratios are signs of management efficiency, and rate returns. Nikolai and Bazley, (1997) state that the amount of net income earned in relation to total assets is an indicator of how efficiently a company uses its economic resources. They further stressed that when the ROE is higher that the ROA, the company has a favourable financial leverage.

Özataç and Nwobodo, (2010) studied the internet banking in Northern Cyprus at a period of time 2004-2009, in a panel data of 22 retail banking. They also used ROE and ROA as dependent variables. In this case, two other ratios were included: the CA- ratio of total credit to total assets and the CD-ratio of total credit to total deposits used to test the link between Internet banking and performance. The model resulted with a low link between the variable and the absence of multi co-linearity among variable. The main conclusion was that the CA and CD ratios both resulted with negative relationship while using the internet. Despite the internet banking increases the performance in different sectors, the authors entail that in case of these two ratios they were not used wisely or properly. Another study by Onay and Ozsoz, (2012) used a panel data in 18 deposit banks in Turkey, in a period of time from 1990-2008 in the emerging market center. They wanted to test that internet adoption had a negative effect on profitability in the beginning of the adoption year, and the positive effect on the deposit and credit branch. In their model they are using some other basic variables as Interest Income, Non-interest income, Branch profit, Branch deposit, and Branch credit, Perno as a log of the number of personnel per branch and Internet as dummy. They suspected for endogeneity thus they used four exogenous variables for Internet dummy as: Large if the banks' asset are in the fourth quartile, State if the bank is government owned, Foreign if the bank is foreign owned, Listed if the bank is listed on the stock exchange. Their test was realized in 2SLS in a Probit model. The conclusion is that performance of banking sector in an emerging market is different as in emerging markets the adoption of Online banking reduces the bank's profitability. Another finding is that the internet adoption has a positive effect on branch profitability, in deposit and loans as that is the second prove that they tested. The main issue is that the market has its own limit or ability, as in emerging market it is more difficult to adopt and increase the performance while in developed markets is easy and more effective. That is why in an emerging market the physical network is still present. According to Hernando and Nieto, (2006) they also used Instrumental Variable for Internet banking adoption dummy. Their study is done in 72 commercial banks of Spain from 1994 till 2000. They aim first to prove that internet banking adoption, reduce the overhead expenses and the cost reduction results the increase of profitability’s bank. The model is using the same variable as other study, but here we have two equation first want to know the effect on performance variables and second they use branch's performance due to online banking adoption. Instrumental Variables for Internet dummy are seven exogenous variables as (HOUSEHOLD, URBAN, FINANCIAL\_GROUP, LARGE, LISTED). The same Instrumental Variable is used for the second model. In the model without Instrumental Variable they see that adoption of Online Banking is having a positive effect in terms of ROA and ROE also there is a lower staff cost significant after a half year of adoption in both estimation. But with the Instrumental Variable there seems to give more complete information as the expenditure is significantly decreasing over a period of 12 months or one year. There is evidence of efficiency improvement in general expenses in the first model, while the second model seems to increase the number of 7 branches due to adoption of online banking in the first six months as it imply that internet adoption is more complementary issue and not fully substitute for physical branches.

**2.4 Theoretical Framework**

**2.4.1 Rogers’ Diffusion Theory**

This ubiquitous innovator and early adopter concepts lie in diffusion theory, of which Everett Rogers is considered to be the founding father. The central assumption of the theory is that the spread of technology innovations follows a normal bell-shaped distribution pattern. In this pattern, the theory differentiates between five adopter segments, for which the theory holds to fix assumptions on their size, profiles and adoption determinants. According to Rogers (2003), innovativeness or the timing of one’s adoption decision is assumed to be determined by the subjective perception of a set of product features (relative advantage, complexity, compatibility, trialability and observability). Innovators and early adopters, for example, are assumed to have a higher perception of relative advantage than the majority segments and a lower complexity perception. The aggregation of adoption decisions for all individuals in a social system is assumed to result in a normal distributed diffusion pattern, in which innovators (2.5%), early adopters (13.5%), early majority (34%), late majority (34%) and laggards (16%) are distinguished. Aggregated cumulatively, diffusion is reflected in an S-shaped penetration pattern (figure 1)

**Source: Rogers (2003)**

For each of the adaptor segments mentioned, diffusion theory also assumes typical demographic profiles. Innovators, for example, are assumed to have a typically male, younger, upscale, more cosmopolitan and less dogmatic profile (Parasuraman and Colby 2001; Green 2002). Laggards, on the other contrary, are assumed to be older, with a lower income, lacking curiosity, and socially more isolated (Weber and Evans 2002). Whether these profiles are now formulated for five (Rogers, 1995; Moore, 2006) three (Veryzer, 2003; De Marez et al., 2008) or two earlier and later adopter segments (Wei, 2001), all authors using diffusion theory as framework stick to the assumption of fixed relationship between the profiling variables and a person’s innovativeness. For the most recurrent profiling variables - socio-demographics- and the five adoption determinants.

According to diffusionism, technological innovation and social progress in a society are mainly determined by technology features, thus, the cashless policy is an indication of the adoption of technological features and innovation. But this approach has been criticized for its pro-innovation bias and ex-post locus (Li, 2004), its linearity in its assumptions on adoption decision processes (Tvede and Ohnemus, 2001), its lack of attention to the user and the innovation’s specific context of use (Robertson, 1984; Van de Wijngaert and Bouwman, 2009) and its lack of attention to non-users (Verdegem and Verhoest, 2009).

As a result of this wave of criticisms, Rogers, (1983) and others felt the pressure to improve their approach (e.g. by integrating post-adoption steps in the five step adoption decision process or by increasing emphasis on concepts as (‘re-invention’). Criticisms also caused the rise of new views such as the Social Shaping of Technology (SST) and domestication. In contrast to difffusionism, SST stresses the importance of the social context in technology change, instead of seeing the latter as an independent force. Domestication ten refers to the integration of technology in the daily patterns, structures and values of users (Silverstone and Haddon, 1996; Haddon 2006). Although some rely on a more social determinism (Bouwman et al, 2002), the domestication view should be seen from a mutual shaping perspective. One of the most compelling movements within SST is the Actor-Network Theory (ANT), which strongly rejects technological as well as social technological development (Callon et al., 1986; Latour, 1993). In addition, the Human-Computer Interaction (HCI) traditionally underwent some necessary changes during the last decade. Originally, focusing on computer engineering and human information processing, increasing emphasis has been put on the influence of culture, emotions and experience on technology design and development (Hasssenzhal and Tractinsky, 2006). This critical approach suggests that the adoption and use of technology are part of a more active process and they are context-dependent.

Despite the criticisms, and convergence of alternative research views, Rogers’ diffusion theory remains a central basis for much research effort in ICT innovation and adoption as its terminology (innovators, early adopters, laggards etc.) and assumptions (segment sizes, segment profiles, adoption determinants) still provide a popular framework in media and communication studies as well as in the domain of business, management and marketing. However, as the theory is a starting point for many works in various disciplines, a scattered use of the approach is observed. Demographic profile assumptions are used for marketing purposes to select and target different types of adopter segments (Daghfous et al. 1999; De Marez et al. 2008), econometric diffusion models have the normal diffusion pattern as underlying premise for forecasting purposes (Bass, 1969), whereas, social psychologists have used the determinant assumptions to develop innovativeness and personality scales (Assael, 2005; Goldsmith and Hofacker 1991).

**CHAPTER THREE**

**RESEARCH METHODOLOGY**

**3.1 Introduction**

The term methodology is used to describe the activities involved in collecting the required information for this research work. This chapter describes how the study was carried out by showing the methods and procedures used for the research and collection of data for the study. It includes the description of the research design, sources of data, instrument for data collection and data analysis and techniques.

**3.2 Research Design**

The research design employed by the researcher is ex post-facto research which aims at determining or establishing or measuring the relationship between one variable and another or the impact of one variable on another (Onwumere, 2009).

**3.3 Nature and Sources of Data**

The nature of data for the analysis of this study is secondary and data for this study was accessed from Guarantee Trust Bank Annual Report from 2014 to 2017.

**3.4 Model Specification**

A regression model has been employed, the essence of regression is to use a mathematical equation to express the nature of the relationship existing between variables and ultimately to use this equation to predict the value of one variable given a specific value of the other variable (Ugbam, 2001). This research work uses a three-model regression to capture the interaction between: internet banking and ROA; internet banking and ROE; and ATM transactions and ROE. The basic aim of the regression model in this study is to investigate empirically the extent to which the predictor variable explains the variation in dependent. The model will be estimated using the coefficients of the independent variable and its level of significance. This test provides an empirical platform in drawing generalization for this study. The variable to be predicted is called the dependent variable while the variable whose value will be used in the prediction is called the independent variable (Ugbam, 2001).

In analyzing data, the simple regression model will be employed which is:

Y = bo+ b1X + µ.

Where:

Y = the variable we are trying to predict

b0 = the intercept

b1 = the slope

X = the variable we are using to predict Y

µ = the error term

The *intercept* (b0) is the value of the dependent variable when the independent variable is equal to zero while the *slope* of the regression line (b1) represents the rate of change in Y as X changes. Because Y is dependent on X, the *slope* describes the predicted values of Y given X.

*The above model can thus be applied in this study as:*

ROA = b0 + b1Web + µ.……………………………………………….…Eqn. (I)

*Where*

ROA – Return on Assets {Dependent Variable}

Calculated by

Web – Total value of Web Transactions (Independent Variable)

ROE = b0 + b1Web + µ...…………………………………………....... Eqn. (II)

*Where*

ROE – Return on Equity {Dependent Variable}

Calculated by

Web – Total value of Web Transactions (Independent Variable)

ROE = b0 + b1ATM + µ...………………………………………….... Eqn. (III)

*Where*

ROE – Return on Equity {Dependent Variable}

Calculated by

ATM – Total value of ATM transactions of GT Bank (Independent Variable)

**3.5 Techniques of Data Analysis**

Techniques of data analysis employed by the researcher are the ordinary least square (OLS) method and Granger Causality Test with the aid of Statistical Package for Social Sciences (SPSS) Version 25. The researcher chose OLS because it minimizes the squares of the residuals. The formulas for obtaining the estimates of the beta coefficients, standard errors, etc. are all based on this principle. The aim of using this method is to minimize the error in our prediction of the dependent variable, and by minimizing the residuals, error will be minimized. By using the "squares" the researcher is precluding the problem of signs thereby giving positive and negative prediction errors the same importance.

**CHAPTER FOUR**

**DATA PRESENNTATION AND ANALYSIS**

**4.1 Data Presentation**

**4.1.1 Necessary Data for Analyses**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **ROE** | **ROA** | **WEB** | **ATM** |
| 2014 | 25.28400942 | 4.393475 | 348331 | 133058 |
| 2015 | 23.25102069 | 4.140622 | 1894566 | 1621722 |
| 2016 | 26.59513795 | 4.853444 | 1983266 | 1617498 |
| 2017 | 27.60103638 | 5.709347 | 2214485 | 1662443 |

***Sources:*** *Computed by the Researcher from GT Bank Annual Report (2014-2017)*

*Chart 4.1.1 Return on Earnings of GT Bank from 2014 to 2017*

The trend in the above chart shows that Return on Equity of GT Bank has been increasing significantly from 2014 to 2017.

*Chart 4.1.2 Return on Assets of GT Bank from 2014 to 2017*

Chart 4.1.2 shows that the return of asset has been increasing marginally within the period under review

*Chart 4.1.3 Web Transactions of GT Bank from 2014 to 2017*

Total value of web transactions has been increasing progressively as shown by the upward movement of the trend from left to right.

*Chart 4.1.4 Total value of GT Banks’ ATM Transactions from 2014 to 2017*

The trend in chart 4.1.4 shows that ATM transaction in GT Bank has been increasing significantly within the period under review

**4.2 Data Analyses**

*Decision Rule: Reject H0 if P-value ≤ .05, otherwise Do not reject.*

MODEL I: ROA = b0 + b1Web + µ

|  |  |  |
| --- | --- | --- |
| **Table 4.2.1 Model Summary** | | |
| Equation 1 | Multiple R | .508 |
| R Square | .258 |
| Adjusted R Square | -.113 |
| Std. Error of the Estimate | .728 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 4.2.2 ANOVA** | | | | | | |
|  | | Sum of Squares | Df | Mean Square | F | Sig. |
| Equation 1 | Regression | .368 | 1 | .368 | .694 | .492 |
| Residual | 1.059 | 2 | .530 |  |  |
| Total | 1.427 | 3 |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 4.2.3 Coefficients** | | | | | | |
|  | | Unstandardized Coefficients | | Beta | t | Sig. |
| B | Std. Error |
| Equation 1 | (Constant) | 4.112 | .874 |  | 4.708 | .042 |
| Web | 0.000000411 | .000 | .508 | .833 | .492 |

The R of .508 shows that there is a fairly positive relationship between ROA and Internet banking. The R-square of .258 shows that about 25.8% of the variation in ROA can be explained by internet banking at a statistical non-significance of .492. The intercept of 4.112 shows the value of ROA when Internet banking is constant or equal to zero. The slope of .00000041 shows that at every percentage increase in internet banking, return on assets increase by .000041%. After substituting the values of the model from above analysis, we will have

ROA = 4.112 + .00000041Web + .728

**Decision**

***Hypothesis testing I***

*H0: Internet banking has no significant impact on Return on Asset*

The P-value on which basis we can reject the null hypothesis that Internet banking has no significant impact on Return on Asset is .492. Since the P-value > .05, we conclude concurrently Internet banking has no significant impact on Return on Asset.

MODEL II: ROE = b0 + b1Web + µ

|  |  |  |
| --- | --- | --- |
| **Table 4.2.4 Model Summary** | | |
| Equation 1 | Multiple R | .273 |
| R Square | .075 |
| Adjusted R Square | -.388 |
| Std. Error of the Estimate | 2.213 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 4.2.5 ANOVA** | | | | | | |
|  | | Sum of Squares | Df | Mean Square | F | Sig. |
| Equation 1 | Regression | .790 | 1 | .790 | .161 | .727 |
| Residual | 9.795 | 2 | 4.897 |  |  |
| Total | 10.585 | 3 |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 4.2.6 Coefficients** | | | | | | |
|  | | Unstandardized Coefficients | | Beta | t | Sig. |
| B | Std. Error |
| Equation 1 | (Constant) | 24.713 | 2.656 |  | 9.304 | .011 |
| Web | 0.0000006022 | .000 | .273 | .402 | .727 |

The R of .273 shows that there is a weak positive relationship between ROE and Internet banking. The R-square of .075 shows that about 7.5% of the variation in ROE can be explained by internet banking at a statistical non-significance of .727. The intercept of 24.713 shows the value of ROE when Internet banking is constant or equal to zero. The slope of .00000062 shows that at every percentage increase in internet banking, return on assets increase by .000062%. After substituting the values of the model from above analysis, we will have

ROE = 24.713 + .000000006022Web + 2.213

**Decision**

***Hypothesis Testing II***

*H0: Internet banking has no significant impact on Return on Equity*

The P-value on which basis we can reject the null hypothesis that Internet banking has no significant impact on Return on Equity is .727. Since the P-value > .05, we conclude adamantly Internet banking has no significant impact on Return on Equity.

MODEL III: ROE = b0 + b1ATMch+ µ

|  |  |  |
| --- | --- | --- |
| **Table 4.2.7 Model Summary** | | |
| Equation 1 | Multiple R | .158 |
| R Square | .025 |
| Adjusted R Square | -.463 |
| Std. Error of the Estimate | 2.272 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 4.2.8 ANOVA** | | | | | | |
|  | | Sum of Squares | Df | Mean Square | F | Sig. |
| Equation 1 | Regression | .264 | 1 | .264 | .051 | .842 |
| Residual | 10.321 | 2 | 5.160 |  |  |
| Total | 10.585 | 3 |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 4.2.9 Coefficients** | | | | | | |
|  | | Unstandardized Coefficients | | Beta | t | Sig. |
| B | Std. Error |
| Equation 1 | (Constant) | 25.186 | 2.475 |  | 10.176 | .010 |
| ATM | 0.0000003951 | .000 | .158 | .226 | .842 |

The R of .158 shows a weak positive relationship between ROE and ATM Transactions. The R-square of .025 shows that only about 2.5% of the variation in ROE can be explained by ATM Transactions at a statistical non-significance of .842. The intercept of 25.86 shows the value of ROE when ATM Transactions is constant or equal to zero. The slope of .0000003951 shows that at every percentage increase in ATM Transactions, return on assets will increase by .000040%. After substituting the values of the model from above analysis, we will have

ROE = 25.186 + .0000003951Web + 2.272

**Decision**

***Hypothesis Testing III***

*H0: ATM transactions has no significant effect on return on equity*

The P-value on which basis we can reject the null hypothesis that ATM transactions has no significant effect on return on equity is .842. Since the P-value > .05, we conclude that ATM transactions have no significant effect on return on equity.

**CHAPTER FIVE**

**SUMMARY OF FINDING, CONCLUSION AND RECOMMENDATION**

**5.1 Summary of Findings**

1. Internet banking has no significant impact on Return on Asset
2. Internet banking has no significant impact on Return on Equity
3. ATM transactions has no significant effect on Return on Equity

**5.2 Conclusion**

This study investigated the returns on equity and returns on assets of Guarantee Trust bank following the adoption of electronic banking in Nigeria. Nigeria is a developing country advancing in the use of electronic banking for its banking operations in comparison with other African countries. With high level of e-banking fraud, some customers feel discouraged with the use of Automated Teller Machines (ATM), an electronic banking product.

This study has provided evidence that electronic banking has not improved returns on the equity and return on assets (ROA) of GT bank. As revealed by the empirical results, this study does not suggest that the adoption of e-banking is an investment in futility; rather it helps to satisfy customers’ appetite for improved service delivery and convenience. The unimproved returns may have arisen from the high cost of maintenance of equipment, software and training of personnel.

Electronic banking is cost intensive and will improve on total profitability performance in future as incidence of banking fraud caused by electronic facilities reduces and as well as the assets get older. The study encourages the use of electronic banking system based on its enormous benefits to the bank management, customers and the regulatory authorities.

**5.3 Recommendation**

This study therefore recommends the following given above findings.

1. The banking industry should adjust to full and effective deployment of information technology due to its sophistication since the technology is irreversible with relative perceived advantage.
2. The Nigerian banks should be able to accept the level of risk that they can cope with in electronic banking system, measurable to the bank’s overall strategic business plans. Though there is inherent risk for not adopting e-banking.
3. Banks should be able to provide adequate security both physically and electronically to check the incidence of hacking by fraudsters. Network hackers successfully dupe banks of billions of naira at a strike and can send banks into liquidation.
4. Holders of banking transaction cards should be able to secure them by providing passwords that meet international encryption standards
5. Shareholders of banks should exercise patience with the banks’ management in the payment of dividend as perceived future dividends will be fatter after some lag period of cost recovery.
6. The banks management should from time to time train customers with regard to electronic banking, its benefits, and risk exposure, physical and electronic security to avoid financial loss in the hands of hackers.
7. Also, trainings should be held for bank staff in short periods to acquaint them with modern developments of the sophisticated technology in changing times.

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