

**EFFECT OF SAFE-TOKEN ADOPTION ON CUSTOMER SATISFACTION OF
BANKS IN NIGERIA**

BY

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**A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES,
AHMADU BELLO UNIVERSITY IN PARTIAL FULFILLMENT FOR THE AWARD
OF THE DEGREE OF MASTER OF SCIENCE (M.Sc.) IN
BUSINESS ADMINISTRATION**

**DEPARTMENT OF BUSINESS ADMINISTRATION,
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SEPTEMBER, 2018

Declaration

I hereby declare that this dissertation titled “*Effect of Safe-token Adoption on Customer Satisfaction of Banks in Nigeria*” was carried out by me under the supervision of Prof Sani A. Abdullahi and Dr M. I. Aminu in the Department of Business Administration as a partial fulfilment for the award of the degree of Master of Science (M.Sc) in Business Administration. The information derived from literature has been fully acknowledged in the text and a list of references provided. No section was previously presented for the award of another degree in this institution or other institution.

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Certification

This dissertation entitled “*Effect of Safe-token Adoption on Customer Satisfaction of Banks in Nigeria*” by Adeyinka Maryam Shomoye meets the partial regulations governing the award of the degree of Master of Science (M.Sc) in Ahmadu Bello University, Zaria and is approved for its’ contribution to knowledge and literacy presentation.

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Acknowledgements

All praise is due to Allah (SWT) the Lord of the Universe, may His peace and blessings be upon our beloved Prophet Muhammed (SAW) and his family, I would like to extend my sincerest thanks to my dissertation supervision committee chairman, Professor Sani A. Abdullahi, who has generously given his time and expertise to better my work, I thank him for his contribution and good-natured support and Dr Mohammed Ibrahim Aminu whose thorough attention to detail inspired me to pursue a greater level of quality. Thank you for mentoring me to improve and grow in many ways; I especially appreciate your contribution to the direction of the dissertation and for teaching me to employ a higher standard of literature in my research, both in terms of quality and relevance. I thank you for the many ways that you have helped me grow these past months intellectually, personally and professionally.

I am grateful to the head of department, Dr Abdullahi Nasiru as well as the program coordinators in persons of Dr M.I Aminu and Mal Yakasa for the facilitation, suggestions, comments and general guidance during the course of this study. I am equally indebted to Prof Sheik Abdulah, Prof Bello Sabo, Dr K.J Ringim, Dr O.D.Y Malachy, Dr Idris Ahmed, Dr M.S Badara, Dr Salisu Umar, Dr M.Y. Abubakar, Dr Ado Garba and Hajia Memuna Aliyu Shika you all have been remarkable teachers to me. I equally want to appreciate the reviewers and examiners at all levels for their thorough review and constructive feedbacks.

I am equally indebted to the respondents who really shared their precious time to fill the questionnaires and the banks for allowing me to share the questionnaires in their premises. To my cohort group- Ojarikre Eseoghene (my 24/7 tech support), Sariat Aragbada (aka Zee baby),

Mummy Adams, Mummy Kenan, Hadiza Bakari, Agatha Igwe (Mrs Kelechukwu), Isa Nda Isa, Hammed Olalekan, Kemi Amusan, Samuel Ademola, Mama Judith, Mal. Sadeeq, Mr Otori, Mr Boroma, Asuquo Mary, Idris Idayat (my cheerleader), Sia Alliu, Ojeade Peace, Adegoke Taofeek, Lateefat Salau, Saratu Obansa and my friends from the basketball court; Jerry, Stephen, John, Ezekiel, Fidelis, Daniel and Edward, for always being just a phone call away and the laughter they brought to my life and helping me keep a sense of proportion when the going was tough, I simply cannot imagine what this experience would have been without you all. It was a privilege to learn every day from each of you. And as our careers now take us wherever they will, I am forever grateful for the handprints you have left on my heart and mind. I am humbled by the strength that each of you has given me. Moreover, I feel inspired by many of those who are driven by meaningful missions, who work hard and stay focused to make contributions not only to their organizations, but to the world.

Lastly and very importantly, I am grateful to my parents Dr. A. Shomoye and Hajia A. A. Shomoye as well as my siblings, Abiodun-Adedamola, Adenike and Adebola, for being my bedrock, for providing me love and support of whatever variety I needed at whichever particular point in this journey I needed it. Every ounce of enthusiasm and inner resource that I possess comes from you. I thank you for giving me the space to be me, thank you for your understanding each time I told you I wouldn't be able to come home for holidays, for encouraging me to pursue this path, for being mad at this work when I was mad at it, and for being proud of it now that it is done. These firm supports enabled me to continue with this difficult goal, you were all incredibly supportive during this challenging time. I appreciate, most of all, your undying confidence in my ability to succeed and not only have you been my biggest motivators, you have been an inspirational source of limitless light and love. We may not have it all, but together we all have it. I love you guys till the day after forever!

Dedication

This is for you, dad and momwhom seeing there are only four pieces of pie for six of us,
promptly announce you both never did care for pie!

Abstract

Technology has been adopted all over the globe which has brought significant changes in the way of business operations are been carried out. This study investigated the effect of safe-token adoption on customers' satisfaction of banks operating in Nigeria. The objectives of this study are to determine the effect perceived ease of use, perceived usefulness and perceived trust of safe-token technology on customer satisfaction. Questionnaires were distributed using quota and purposive sampling. A total of 427 copies of questionnaire were used for analysis. PLS-SEM path modelling was employed to process the data. Three hypotheses were developed in alternate form and results supported the hypotheses. Findings show that perceived usefulness, perceived ease of use and perceived trust of safe-token positively influence customer satisfaction. It is recommended that banks should provide need to pay attention to design a user-friendly interface allowing consumers to feel free of mental effort when using the safe-token.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Customers are the livewire of any organization because all activities carried out by an organisation are tailored towards meeting the expectations of customers. In fact, business processes are integrated in such a way as to make customers satisfied. Businesses with very high number of satisfied customers tend to perform better than those with very little number of satisfied customers. Many organizations are aiming for high satisfaction because customers who are averagely satisfied still find it easy to switch when a better offer comes along, while those who are highly satisfied are much less ready to switch (David, 2010). High satisfaction or delight creates an emotional attraction with the brand and not just a rational preference. The result is high loyalty which in turn results to high profitability for the organization. Customer satisfaction must be taken so seriously by organizations because profits are tied to it. It is important organisations enjoy higher levels of customer satisfaction as it may lead organisations to higher levels of customer loyalty.

The banking industry believes that by adopting new technology, the banks will be able to improve customer service level and tie their customers closer to the bank (Machogu, n.d). It is evident that Nigerian banks have benefited from global technology innovation like the automated teller machine(ATM), mobile banking, banker automated clearing amongst others and the introduction of such technologies have affected employee performance and customers responses. With the help of technology, Nigerian banks have been able to reduce the waiting time of customers to some extent (Oluwagbemi, Abah&Achimugu, 2011). These improvements in improved service delivery and on-time response to customers have been

well documented (Dauda&Akingbade, 2011). Thus, banks that want to survive, grow and remain relevant must offer efficient services through the aid of technology.

There have been tremendous changes in the banking industry over the years and customers have also rightly demanded world class quality services from the banks. Customers on daily basis always quest for the best services from their banks, and are in most cases not willing to put up with anything less than the best. Therefore, if banks are to obtain the benefits of investing in technology, an identification of how the technology is perceived useful, trustworthy and ease of use by the customer is crucial.

In a report by KPMG (2016), ease of use is seen as a crucial challenge for Nigeria's banks and this influences the willingness of customers to adopt technology, and it was reported that 6% of survey respondents from Nigeria reported an experience of fraud in the cause of conducting internet banking transactions but more than half of those said it took more than two weeks to resolve their case. Pakojwar and Uke (2014) opined that to provide customers with safe, consistent, robust online environment to do online banking the banks should implement best of breed technologies to authenticate customers identities when they log in, to guarantee that their data is transmitted securely and consistently. Bank should have best backup and contingency strategies and should formulate best security plans and practices by using safe-token (Pakojwar&Uke, 2014)

One of the many technologies that have been introduced by banks is the safe-token, which is the major focus of this study. The safe-token is a handheld small device that gives a customer optimal protection against online theft, hackers and fraudsters. It is a key that grant full access to carry out third party transfers and payments online via the internet banking platform

anywhere in the world. E-Secure Token otherwise known as Safe-token provides an additional security feature when logging on to Internet Banking. The Safe-token provides a “One-Time-PIN” (OTP), which should be used to access the internet banking sites, together with username and password (Pakojwar&Uke, 2014). Each OTP is only valid for one session; therefore the Safe-token should be used to generate an OTP with every login. To obtain login OTP user have to switch on his Safe-token using the on and off button.

It generates a random code for every transaction thereby making it impossible for another person to carry out online transactions from the customer’s account. The token is one of the latest in banking security technology which uses a 128bit data encryption to protect their account (retrieved from www.gtbank.com). Thus, this study aims at examining how these technologies have helped in improving the satisfaction level of customers of deposit money banks in Nigeria, considering the fact that deposit money banks play a crucial role in ensuring the development of the economy.

1.2 Statement of the Research Problem

Banking institutions all over the world have recognized the importance of customer satisfaction and developing and maintaining enduring relationships with their customers as crucial to increased business performance. At the same time, several banking institutions are experiencing high level of customer dissatisfaction (KPMG report, 2016). This dissatisfaction could be because of variety of reasons, which technology is one of them (Mandel &Bhattacharya, 2013). According to a KPMG survey in October, 2016, an average of 66% of banking customers in Africa are not satisfied. According to the survey, bank customers in Africa are looking for more secured service from their banks, as they are increasingly willing to switch banks if they feel they can get better service elsewhere. Further results from the

survey show that in October 2016, more than two-thirds of Nigerian bank customers admit to have never used internet banking, that customers still seek enhanced high-quality and more secured service and more innovation. Pakojwar and Uke (2014) similarly opined that to provide customers with safe, consistent, robust online environment to do online banking the banks should implement best of breed technologies to authenticate customers identities when they log in, to guarantee that their data is transmitted securely and consistently.

Going by the report of the survey, on the increase on the part of bank customers is the demand of delivering secured, accurate and timely transactions, 89 percent of customers say that timeliness of transaction processing is important to their satisfaction, while 67% are not satisfied with the speed and accuracy of transactions they do with their respective banks. Various technologies have been adopted by Nigerian banks so as to increase the speed and accuracy of transactions by customers. One of these technologies is the safe-token device; bank should have best backup and contingency strategies and should formulate best security plans and practices by using safe-token (Pakojwar&Uke, 2014). Thus, the safe-token device is invariably adopted by banks so as to increase accuracy and speed of transactions performed by customers, and according to the KPMG survey, customers satisfaction is tied to the speed and accuracy of transactions they perform. It is, therefore, necessary to determine the impact safe-token adoption has on customer satisfaction.

It has been discovered from previous literature that most studies (e.g., Hassan, Mamman&Farouk, 2013; Hossein, 2013; Ogunlowore&Oladele, 2014, Olatoke, Ola, Oyewole, 2014) done in the area of interest of this study have focused more on other technologies such as ATM, mobile banking, internet banking using variables like affordability, convenience, reliability, service quality amongst others as proxy of technology

adoption but the survey conducted by KPMG (2016) and Pakojwar and Uke (2014) necessitated a need to establish the effect of technology adoption using perceived ease of use, perceived usefulness and perceived trust as proxy of technology adoption. These past studies however, focused on technologies other than the safe-token technology adoption and their relationship to growth. To the best of the researcher's knowledge, no study has been done to determine the influence of safe-token adoption on customer satisfaction.

Technology adoption has always been proxied by perceived ease of use and perceived usefulness of the technology adopted. The safe token is designed for only internet transactions. It has been observed that most customers are always skeptical to perform online transactions as they do not sometimes trust the system to perform the transactions they wish to carry out (KPMG report, 2016). Thus, the study considers the effect the perception of bank customers has on safe token to perform the transaction it was actually designed for. For this reason, this study includes perceived trust as a proxy for technology adoption and determine its influence on customer satisfaction in Nigerian banks. On the basis of this research problem, the study addressed the following questions.

1.3 The Research Questions

The specific research questions are:

- i. To what extent does perceived ease of use of safe-token affect satisfaction **among deposit money bank customers?**
- ii. How could the perceived usefulness of safe-token affect satisfaction **among deposit money bank customers?**
- iii. How does the perceived trust of safe-token affect satisfaction **among deposit money bank customers?**

1.4 Objectives of the Study

The main objective of this study is to examine the influence of safe-token adoption on satisfaction of deposit money banks customers, while the specific objectives are:

- i. To determine the effect of perceived ease of use of safe-token on deposit money bank customer satisfaction
- ii. To examine the effect of perceived usefulness of safe-token on deposit money bank customer satisfaction
- iii. To determine the effect of perceived trust of safe-token on deposit bank customer satisfaction.

1.5 Research Hypotheses

The present study tested the following hypotheses which have been stated in alternate form:

H₀₁: Perceived ease of use of safe-token has no significant effect on customer satisfaction of deposit money banks in Nigeria.

H₀₂: Perceived usefulness of safe-token has no significant effect on customer satisfaction of deposit money banks in Nigeria.

H₀₃: Perceived trust of safe-token has no significant effect on customer satisfaction of deposit money banks in Nigeria.

1.6 Significance of the Study

One of the major contributions of this study to the body of knowledge is to examine how the adoption of safe token has affected customer satisfaction. Other studies related to this study focused on other technologies other than the safe token technology. This study therefore fill

this knowledge gap by studying how safe token technology impacts customer satisfaction. This serves as a major contribution to the body of knowledge theoretically.

The findings of this study will be of benefit of the banks considering that customer satisfaction plays an important role in today's global and highly competitive business environment which they operate. The greater the level of customer satisfaction, the more the loyalty of customers to a bank and less probability to switch to other service providers, which indicates banks' profitability as satisfied customers make repeat purchase and become the brand advocates. Thus banks that apply the recommended approach that is derived from results of this study will be able to satisfy customers better. Policy makers will also be guided on what should be emphasized by banks in the cause of procuring and developing new technologies to satisfy customers and serve them better. Bank customers that are yet to adopt the safe-token will become more enlightened about the level of satisfaction other customers have derived from the use of the device and hence will stimulate their adoption.

Generally, customers tend to evaluate the outcome of the encounter of other customers about a particular act before deciding whether to perform the act or not. If they discover that the adopters of safe-token are satisfied, others will want to adopt the safe-token as well in order to enjoy the satisfaction that comes with the adoption. For researchers, the study will help them uncover critical areas in the customer satisfaction process that many researchers were not able to explore. Thus, a new approach and ideas on ensuring customer satisfaction will be arrived at. This research will also add to the existing knowledge.

1.7 Scope of the Study

The study focused on all deposit money banks customers' in Sabon Gari axis of Zaria metropolis, Kaduna State as a result of the fact that the deposit money banks are situated there, and due to the fact that this research is a cross sectional research, the research is carried out in 2017 and data was collected within a period of three weeks. The researcher has decided to obtain data in Zaria metropolis because the adoption of the safe-token device is believed to be pronounced among customers' who are literates, and Zaria has a good number of knowledge and literate people (Dudley, 2012). The geographical coverage of this study is the customers of all Deposit Money Banks in Zaria who are using safe-token within the period which the data was collected.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is concerned with the review of the concepts and empirical studies on the relationship between the predictors and the criterion variable of this study. It starts by examining the concept of customer satisfaction, the importance of customer satisfaction in banking, measurement of customer satisfaction, the conceptual definition of perceived ease of use of technology, perceived usefulness of technology and perceived trust and the review of related empirical studies on technology adoption and customer satisfaction. Finally, the chapter explains the theoretical frame work underpinning the study.

2.2 Concept of Customer Satisfaction

The concept of customer satisfaction has been used in many ways. Customer satisfaction according to Kotler and Armstrong (2001) is a person's feelings of pleasure or

disappointment resulting from comparing a product perceived performance or outcome in relation to his or her expectations. Whether the customer is satisfied after purchase depends on the offers performance in relation to the customers' expectations (Kotler&Turner, 1998). Satisfaction indicates the sense of satisfaction or disappointment obtained by comparing the performance of a product or service to its expected level (Chen, Huang, Hsu, Seng& Lee, 2010). If performance is perceived less than the expectation of customers, customers will be dissatisfied. On the other hand, if the perceived performance exceeds the customers' expectations, customers will be satisfied (Musiime&Ramadhan, 2011). Satisfaction is a function of performance to date (Gustafsson& Johnson, 2005), which means satisfaction must be continuous and should be able to take care of evolving customer needs. The importance of customer satisfaction is visible when you realize that with dissatisfied customers, your business would not grow (Kukoyi&Iwuagwu, 2015). In fact, only those organisations that have tailored their objectives towards delivering value to their customer will survive in the modern business arena (Cockalo, Dordevic&Sajfert, 2011) because satisfied customers provide free advertising for the organization, they share their experiences with other people and as well recommend the products and services of the organization to other people.

According to Khram, Al-Jabaly and Khram (2014), customer satisfaction has become an everyday phrase for organisations that seek to create difference and operational excellence at whatever that it does. Customer satisfaction is a fundamental tool that is used by organisations particularly financial institutions for enhancing customer loyalty which ultimately translates to organizational profitability. Satisfaction is also defined by Khan (2013), as the feature or characteristics that contend the need or want of a consumer in a better way than the competitors. Customers are satisfied when they feel they have received as much from a purchase experience as the effort they have invested in it, and when they reach

conclusion that their purchase experience was as good that they have believed it would be. We should perceived satisfied customer as an organisation's valuable assets that are attached with a strong economic significance in a highly competitive environment (Kobylanski, Pawlowska&Rudzewicz, 2011). Customer satisfaction is the foundation upon which a good business is built. Satisfied customers will make a great profitable return for the business, and they may bring their business associates and friends. It is therefore, necessary to keep the customers satisfied (Kukoyi&Iwuagwu, 2015). In the context of this study, the definition given by Kotler and Armstrong (2001) will be adopted for this study as it explains the scenario of satisfaction obtainable by customer when they already have an expectation of the safe token performance prior to its adoption.

2.3 The Importance of Customer Satisfaction in Banking

Customer satisfaction is believed to be associated with fruitful customer behaviour from the firms' point of view (Soderlund, 1998). Customer satisfaction is the foundation on which a good business is built, and they may also bring their business associates and friends (Kukoyi&Iwuagwu, 2015). According to Saha, Hassan and Uddin (2014), commercial banking is a service industry and it delivers services to the consumer. And it is believed that a customer who is satisfied is the best person to generate positive word of mouth, they serve as evangelists and advocates of the goodness of the service which they had received which in turn leads to new customer generation which is also an indication of increasing profit for the bank (David, 2010).

To survive in a competitive and turbulent business environment, banks should offer customers something new and relatively cheap, because the competitive power of bank is to a huge extent, defined by the degree of its conformance to customer need (Saha, Hassan

&Uddin 2014). In extreme cases of dissatisfaction, customers may resort to negative word of mouth as a means of getting back to the company. Dissatisfied customers may seek for competitors because they believe they might receive better service elsewhere (Rahim, Ignatius & Adeoti, 2012). Satisfied customers will probably talk to others about their good experiences (Mosahab, Mahamad & Ramayah, 2010). Banking institutions across the globe have acknowledged the significance of customer satisfaction and of developing and maintaining long lasting relationship with their customers as two essential parameters leading to increased business profit (Saha *et al.*, 2014). A highly satisfied customer generally stays longer, buys more as the company introduces new products and services and upgrade existing products and services, talks favorably to others about the company, pay less attention to competing brands, offers products or service ideas to the company, and cost less to serve than new customers because transaction can become routine (David, 2010).

2.4 Measurement of Customer Satisfaction

Various measures of customer satisfaction have been used in previous research. Satisfaction was measured in such a way that it is captured on a global level with respect to specific transactions (Soderlund, 1998). Customer satisfaction was measured by Kaura (2012), using a three scale item; the items were, My choice to avail this bank service is a wise one, I did right when I chose this bank for its service, and the services of this bank are exactly what I need. The measure used by Herrmann, Xia, Monreo and Huber (2007), were based on the various interactions that the buyers had with the dealers including the friendliness of the staffs, the impression obtained when purchasing accessories, satisfaction with information provided by the dealer and satisfaction with dealers general commitment. In order attempt to measure customer satisfaction, the researchers (Mandel & Bhattacharya, 2014) found necessary to measure customers' expectation before the purchase and actual use of the product and

reactions of those customers after the purchase and after actual use. A research conducted on internet banking, consumer adoption and customer satisfaction by MusiimeandRamadhan(2011) customer satisfaction was measured in terms of commitment, loyalty, retention and referral or recommendation of service. Customer satisfaction in the opinion of Ibrahim, MohdTaufik, MohdAdzmir and Saharuddin (2015) is measured in terms of the level of product quality, quality of service provided, location where the product or service is purchased, and price of the product or service. Cronin, Brady and Hult (2000) in their study on assessing the effects of quality, value and customer satisfaction on behavioral intentions in service environments measured satisfaction using two set of items, the first set of ‘emotion-based’ measures (SAT1) was adapted from (Westbrook & Oliver, 1991) whereas the second ‘evaluative’ set of satisfaction measures (SAT2) was develop by (Cronin *et al.*,2000) for the study which cumulatively measured satisfaction. Literature shows that there is no universally accepted method or measurement scale that exists for customer satisfaction (Nazari, Hosseini&Kalejahi, 2014), as such this study seeks to adapt the (Cronin *et al.*, 2000)SAT2 customer satisfaction measurement as it measures customer satisfaction from the perception of overall measurement in order to record customers’ response to different attributes of products and services.

2.5 Concept of Perceived Usefulness of Technology

Perceived usefulness according to Davis (1989) is the degree to which an individual believes that using a particular system will enhance his or her job performance. This follows the definition of useful; capable of being used advantageously. Perceived usefulness is the degree to which an individual believes that use of 3G mobile services will improve his or her communicational performance (Suki&Suki, 2011). Perceived usefulness can influence the intention to accept or adopt mobile technology directly or indirectly (Gitau&Nzuki, 2014),

thus it is reasonable to use perceived usefulness as a surrogate variable to measure the value of online customer services (Liang, Chen, Du, Turban & Li, 2012). According to Liao and Landry (2010), perceived usefulness is operationalized by three items that are basically the advantages of using a particular technology such as, perceived increases in efficiency, effectiveness and performance. Perceived usefulness is the additional contribution that can improve performance and efficiency of the work (Raida&Neji, 2013). Perceived usefulness is defined as the extent to which a person believes that using internet banking will create value for them (Nasri&Zarai, 2014). Perceived usefulness according to Juniwati (2014) is defined as individual perception that using internet as shopping media will increase their shopping performance. Perceived usefulness in the opinion of Rose and Fogarty (2006) is the extent to which a person believes self-service banking transactions would enhance his or her performance of handling banking requirements. In the context of this study, perceived usefulness will be defined as the extent by which a customer believes that using a safe token will improve his or her banking transaction.

2.6 Concept of Perceived Ease of Use of Technology

Perceived ease of use refers to the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). Perceived ease of use is defined by Suki and Suki (2011), as an extent to which customers' use of a 3G mobile service is perceived as easy or effortless. Perceived ease of use is also seen as the degree to which the user expects the system to be user friendly. Many users take perceived ease of use as a crucial factor since many of them are common citizens who are not necessarily adept in technology (Gitau&Nzuki, 2014). Perceived ease of use is also seen as the process which can be instrumental to the utilization of technology and contribute to the individual by reducing transfer costs and improving work performance (Nasri&Zarai, 2014). Perceived ease of

using a particular technology is the degree to which people believe that using a particular system would be relatively easy (Beldad, DeJong&Steehouder, 2010). Hence, a technology application which is perceived to be easier to use as compared to others will enhance the user acceptance (Akinyemi, Asani& Adigun, 2013). Perceived ease of use is operationalized by two items that are basically the functional simplicity of the technology; they include reliability and user friendliness (Liao & Landry, 2010). Perceived ease of use is defined as the degree to which self-service banking transactions are regarded as easy to comprehend and operate (Rose & Fogarty, 2006). Perceived ease of use is defined as the as the degree to which the prospective user expects the target system to be free of effort (Surendran, 2012). In the context of this study, perceived ease of use is defined as the extent to which the customer believes that using a safe token will be easy to use and free of effort.

2.7 Concept Perceived Trust of Technology

According to Kim, Ferrin and Rao, (2003), trust concerning the online selling party is an important determinant of his or her willingness to make a transaction through the website. Thus, trust enables the customer to engage in an online transaction in spite of the presence of risk. In business, trust is viewed as one of the most relevant antecedents of stable and collaborative relationship (Akbar & Parvez, 2009). Trust is defined as existing when one party has confidence in an exchange partner's reliability and integrity; in an organizational context, trust leads to higher level of loyalty (Morgan&Hunt, 1994). Trust is a critical factor for consumers' patronage behaviour. Successful e-commerce websites are those which could invoke consumers' trust and lower consumers' perception through marketing activities and technology improvements (Corbitt, Thanankit& Yi, 2003).

Trust has been considered a belief, sentiment, or expectation about an exchange partner's trustworthiness that result from the partner's expertise, reliability and the perception about the past partner's behaviour (Mosavi&Ghaedi, 2012). Trust is seen by Trif (2013) from the customer's cognitive perspective as the willingness to rely on a service provider based on specific evidence of its reliable conduct. According to Utami (2015), trust arise as a result of earned credibility of the banks on the part of the customers that it has the desired expertise to perform a task. Basically, trust plays an important role at e-business (Sarwar, Abbasi&Pervaiz, 2012), this is because privacy and security are the key element to develop trust in e-business. Accordingly, Hidayat, Akhmad and Machmud (2015), are of the opinion that consumer trust can be explained through dimensions of past experiences, information and enthusiasm. Consumers trust will be exhibited by their response to the information delivered by the service provider. Trust is a reflection of being content with a product or service that an organization offers (Mosavi&Ghaedi, 2012). Trust has a very important role in internet and cyber business transactions when compared with traditional trade transactions (Abbasi, Bigham&Sarencheh, 2011), therefore, it can be said that trust is an important phenomenon in the adoption and development of e-commerce. In the context of this study, the definition by Utami (2015) will be adopted, trust will be defined as the belief that the customer has that the safe token device will perform the desired task for which it is expected based on the confidence they have in the bank. This is consistent with the concept of (Utami, 2015).

2.8 Review of Previous Related Empirical Studies

Offeii and Nuamah-Gyambrah (2016) conducted a research on the contribution of electronic banking to customer satisfaction; a case of Ghana commercial bank limited (GCB) Koforidua, the purpose of the research was to assess the contribution of electronic banking to

customer satisfaction at GCB bank-Koforidua, It was also found that the use of internet banking was quite expensive and that though the bank was utilizing the facility, customers were not fully patronizing them. It was concluded that internet banking brings efficiency in the operations of the bank. Another study was conducted on the effects of service quality, customer trust and customer religious commitment on customer satisfaction and loyalty of Islamic banks in East Java, Indonesia by Hidayat, Akhmad and Machmud, (2015) with the purpose of describing the relationships among service quality, customer trust and customer religious commitment on customer satisfaction and loyalty of Islamic banks in East Java, results indicated that service quality and customer trust of Islamic banks jointly had significant effects on customer satisfaction. These studies were conducted in other countries and according to Li and Liu (2014) differences in economies is a significant gap in the literature. Therefore, undergoing a similar research is an important contribution to the body of knowledge.

Adeniran and Janaidu (2014) conducted an empirical study of automated teller machine and user satisfaction in Nigeria, a study of United Bank for Africa within Sokoto metropolis whose purpose was to measure the satisfaction of customers as regards to ATM services. The findings revealed that, the impact of ATM services in terms of their perceived ease of use, transaction cost and service security is positive and significant. Calisir and Calisir (2014), carried out a study on the relation of interface usability characteristics, perceived usefulness and perceived ease of use to end user satisfaction with enterprise resource planning (ERP) system, the results indicated that both perceived usefulness and learnability are determinants of end-user satisfaction with ERP systems. A research on the impact of mobile banking services on customer satisfaction, a study on Sri Lankan state commercial bank conducted by Kahandawa and Wijayanayake (2014), focused primarily on identifying the factors that affect

customer satisfaction in mobile banking services. The findings of the study revealed that mobile banking services customer satisfaction is influenced by usefulness ease of use, relative advantage, perception on risk and user lifestyle and current needs of customers. Accordingly Al Sajjan (2014) conducted a research on Satisfaction-Trust model; developing customer satisfaction and trust indices for mobile service providers in the UK, the model proposed that trust and satisfaction mediate the effect of service quality on loyalty. Structural equation modeling confirms the fit of the model, and it demonstrates significance explaining 65% of student loyalty toward mobile service providers in the UK. At the structural level, the influence of trust and satisfaction on loyalty varies between the two groups. Nasri and Zarai (2014), in their empirical analysis of internet banking adoption in Tunisia, tested the impact of perceived usefulness, perceived ease of use, awareness, social norm, security and privacy, and computer self-efficacy on intention to use Internet banking The findings of the study suggest that customer' intention to use Internet banking can be affected by perceived usefulness and perceived ease of use of Internet banking.

Olatoke, Ola and Oyewole (2014), conducted an empirical investigation on internet banking functionality and outcomes of customer satisfaction in Nigeria, the study aimed at investigating the impact of internet banking on the customer satisfaction level in banking sector of Nigeria. The result showed that internet banking and quality service were significant joint predictors of customer satisfaction. The study on the analysis of determinants of e-commerce adoption by online consumers conducted by Gitau and Nzuki (2014). The authors related that studies have shown that perceived usefulness plays a vital role in influencing the behavioral intention of adopting a technology. Consumer adoption of e-commerce will only increase when they find it useful. The study was however, not empirically tested. Research on impacts of customer's satisfaction, trust, switching barriers and corporate image towards

customer's loyalty conducted by Subroto and Rahaya (2014) in Indonesia, examined a model about the impact of customer satisfaction, trust, switching barriers, and corporate image toward customer loyalty. The result of the research indicated that customers' satisfaction directly affects customers' loyalty through their trust and corporate image, while the switching barrier has no impact towards customer loyalty although the customer loyalty affects the switching barriers. A study on customer trust as relationship mediation between customer satisfaction and loyalty at Bank Rakyat Indonesia (BRI) Southeast Sulawesi by Madjid (2013) and the purpose of the study was to explore and test the influence of customer satisfaction and trust towards customer loyalty. The results showed that customer satisfaction has significant influence toward customer trust and loyalty.

Trif (2013) studied the influence of overall customer satisfaction and trust on loyalty, tried to clarify the concept of loyalty and examined the influence of two concepts, namely overall customer satisfaction and customer trust on customer loyalty in the banking sector in Romania. The results of the empirical study showed that overall customer satisfaction and customer trust are significantly related to both dimensions of loyalty, namely customer's behavioral and attitudinal loyalty. Findings also revealed that overall customer satisfaction and customer trust are positively and strongly associated. A study on investigation of users' acceptance and satisfaction of e-banking system as a panacea towards a cashless economy in Nigeria was carried out by Akinyemi, Asani and Adigun (2013). The study clearly reflects that users find e-banking system useful, convenient and easy to use which facilitates and influences Nigerian transition into cashless economy. The study, however, approached the perceived usefulness of e-banking services at stimulating cashless economy rather than ensuring customer satisfaction. Another research conducted by Ankrah (2013), on customer satisfaction of electronic products and services in Ghanaian bank, was carried out to find out

the level of satisfaction of bank customers using electronic products and services provided by the banks. It came to light from the findings that, most of the bank customers are satisfied with the operations of the banks. Research conducted by Nikhashemi, Paim, Yasmin and Yousefi (2013), on critical factors in determining customer satisfaction toward internet shopping in Malaysia. The result of study shows that ease of use, security, payment processing and customer perceived quality have significant positive effect on enhancing customer satisfaction toward internet shopping. These studies have examined the effect of several technologies other than safe-token on customer satisfaction, and in the opinion of Mandal and Bhattacharya (2013) customer satisfaction should be measured in relation to the changing technology.

The study conducted by Safeena, Date, Kammani and Hundewale (2012) on mobile banking technology adoption and Indian consumers was aimed at examining the impact of perceived usefulness, perceived ease of use among other variables on consumer awareness of mobile banking. The result of the study showed that perceived usefulness, perceived ease of use, consumer awareness, perceived risk are important determinant of mobile banking adoption. A study conducted by Chung Tu, Fang and Yea Lin (2012), on the perceived ease of use, trust, satisfaction as determinants of loyalty in e-auctioning market place was conducted in Taiwan, 800 questionnaires were distributed, 316 users replied with auction experiences. The study revealed lack of significant relationship between perceived ease of use and customer satisfaction. Al Sawalqa (2012), on the study of customers financial needs satisfaction and self-service technology banking; the case of automated teller machines (ATMs) in Jordan. Based on survey responses from 132 users, the results indicate that only privacy and security contributes significantly to the customers' financial needs satisfaction. A study by Mosavi and Ghaedi (2012), on the survey of the relationship between trust, customer loyalty,

commitment and repurchase intention, aimed to examine the effects of customer satisfaction, complaint handling and shared value on trust and test the effects of trust on customer loyalty, commitment and repurchase intention. The results confirm that trust mostly influenced customer satisfaction.

A study was conducted on the effect of customer trust on customer loyalty and commitment; a moderating role of cause related marketing by Sawar, Abbasi and Pervaiz(2012). The study analyzed the effect of customer trust on customer loyalty and customer retention and the moderating role of cause related marketing in cellular service operators. The outcome of the study indicates that the customer trust, customer loyalty and cause related marketing have a positive association but surprisingly the customer trust and customer retention have negative association in Pakistani context. Danesh, Nasab and Ling (2012), in a study of customer satisfaction, customer trust and switching barriers on customer retention in Malaysia hypermarket to examined the direct relationship of customer satisfaction, customer trust and switching barriers on customer retention as well as the relationship between customer satisfaction and trust. The research confirmed the significant positive relationship of customer satisfaction, trust and switching barriers on overall customer retention in Malaysia hypermarkets. It is also confirmed that customer satisfaction has a direct relationship with customer trust in Malaysia hypermarkets.

Suki and Suki (2011) in their study on exploring the relationship between perceived usefulness, perceived ease of use, perceived enjoyment, attitude and subscribers intention towards using 3G mobile service, aimed to examine the relationship between perceived usefulness, perceived ease of use, perceived enjoyment, attitude and subscribers' intention towards using 3G mobile services. Findings show that perceived usefulness, perceived ease of use and attitude are jointly responsible in determining the subscribers' intention to use of

3G mobile service. In the study conducted by Luo and Lee (2011), trust and usefulness on customer perception of e-service quality was studied. 236 international travelers who had purchased airline tickets from 30 different airline service websites in Taiwan were surveyed. The results illustrate that customers' perceptions of both trust and usefulness, which are the factors of the technology acceptance perspective, positively moderate the relationship between e-service quality, perception of service value and service satisfaction. Hayati (2011) studied the effect of customer satisfaction, customer trust on customer loyalty of the card users of PT. IndosatTbk. The purpose of the study was to determine whether there is an effect of customer satisfaction and customer trust on customer loyalty in the PT. IndosatTbk, the results of statistical testing using t test calculations on the model of analysis for the hypothesis suggests that the variable has a significant relationship satisfaction to the customers' trust.

Another study on the relationship between customer satisfaction and mobile banking adoption in Pakistan was conducted by Saleem and Rashid (2011). The findings showed that customer's concerns about security, authenticity and reliability of the technology are of significance. A research on the study of bank customers' perceived usefulness of adopting online banking by Ying Wu, Chun Lin, Lung Li and Hui Lin (2010), was intended to develop a comprehensive conceptual framework from which researchers could empirically examine and explain the relationship between customers' perceived usefulness of online banking and the relative advantages of online banking, its website quality, knowledge & support, information quality and customer trust in Taiwan. The statistical results show that relative advantages, trust and perceived ease of use are more important and critical to customer's intention of online banking adoption.

Akbar and Parvez (2009) in their study examined the impact of service quality, trust and customer satisfaction on customer loyalty. They proposed a conceptual framework to investigate the effects of customers' perceived service quality, trust, and customer satisfaction on customer loyalty. The results of the study indicated that trust and customer satisfaction are significantly and positively related to customer loyalty. Jahangir and Begum (2008) in their research conducted the role of perceived usefulness, perceived ease of use, security and privacy, and customer attitude to engender customer adaptation in the context of electronic banking. The research proposed a conceptual framework that investigated the effects of perceived usefulness, ease of use, and security and privacy on customer adaptation mediated through customer attitude in the context of e-banking. The initial results of the study indicate that perceived usefulness, ease of use, security and privacy, and customer attitude are significantly and positively related to customer adaptation.

Shah and Attiq (n.d) conducted a research on the impact of technology quality on perceived ease of use and perceived usefulness in the formation of customer's satisfaction in the context of e-banking. The results imply that if an e-learning system is useful, then the customer would be satisfied. Consumers have favourable feeling of satisfaction with e-learning when it is perceived to be useful and easy to use. Another research was conducted by Ramayah and Ignatius (n.d) on the impact of perceived usefulness, perceived ease of use and perceived enjoyment on intention to shop online. The findings indicate that perceived ease of use and perceived enjoyment were positively related to intention to shop online whereas perceived usefulness was not significantly related to intention to shop online.

2.9 Theoretical Framework

2.9.1 Expectation Confirmation Theory

The theory underpinning this study is the expectation confirmation theory, the structure of the theory was developed in a paper by Oliver(1980). It is a cognitive theory which seeks to explain post purchase and post adoption satisfaction as a function of expectations, perceived performance and disconfirmation of beliefs. The expectation confirmation theory explains that consumers firstly form an expectation prior to adoption, and then build perceptions about the performance of the adopted technology after a period of initial use. Next consumers will decide on their level of satisfaction based on the extent to which their expectation is confirmed through comparing the actual performance of the technology against their initial expectation of the performance.

The theory assumes that positive confirmation will lead to customer satisfaction. Consequently, satisfied customers will form re-adoption intentions. Similarly, when customers have confirmed their expectation that a technology is useful, easy to use and trustworthy, they will be satisfied with the use. The theory relates the independent construct to the dependent construct in the sense that there is an expectation in the form of trust, ease of use and usefulness of a technology that must be in place prior to adoption. Consequently, if their expectations are met, they will form a re-adoption which indicates that customers are satisfied.

In view of the above, the proposed theoretical framework of the study is depicted as follows:

Safe-token adoption

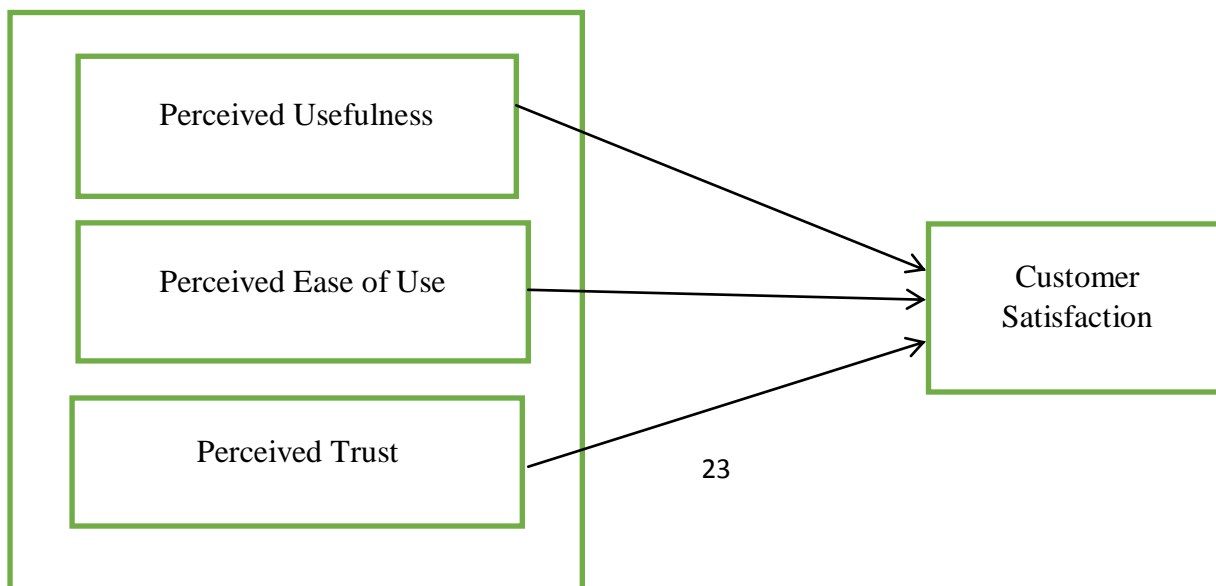


Figure 2.1 Research Model
Source: Field survey, 2017

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter contains the presentation of the most appropriate methods that was employed for conducting the study. After a critical review and relevant considerations, the study used the most suitable design to conduct the research. In this chapter also, the researcher determined the population and sample of the study, as well as the instruments and measures that were adapted from some previous studies. More so, the chapter explains how validity and reliability of the measurements have been assessed, how the pilot test has been conducted, as well as the procedure that is used for data collection and analysis.

3.2 Research Design

This study utilized cross-sectional research design. The choice of using cross-sectional research design is considered the most appropriate for the study because time constraint did not enable the researcher to carry out a longitudinal survey, there are some other constraint such as cost and effort involved in collecting data for a long period of time, which of course necessitate many researchers to prefer cross-sectional survey to longitudinal survey in most cases (Kothari &Garg, 2014). A structured questionnaire was employed for the primary data collection, whereas PLS3 (statistics) was employed for the data analysis.

3.3 Population and Sample Size of the Study

The researcher couldn't determine the actual number of bank customers that use safe-token to perform their online transaction. Therefore, the population of this study is considered to be infinite. The study used Rose, Spinks and Canhoto (2015) sample size formula for an infinite population. The formula is:

$$n_r = \frac{4pq}{d^2}$$

Where:

n_r = required sample size, p = proportion of the population having the characteristic, $q = 1 - p$, and d = degree of precision.

Since it will be difficult to determine the actual number of bank customers that use the safe token device, p was set at 0.5 (Rose, *et al.*, 2015), $q = 1 - 0.5 = 0.5$, $d = 0.05$, which means the present study utilized 5% as the acceptable margin of error. These figures were substituted into the formula below:

$$n_r = \frac{4 * 0.5 * 0.5}{0.05^2} = \frac{1}{0.025} = 400 \text{ respondents are required}$$

The required sample size is 400. However, the researcher increased it to 520 by adding extra 30%, because according to Israel (2013), 30% could be added as addition sample to make up for some that may not be returned valid. Thus, 30% of 400 = 120 + 400 = 520.

3.4 Sampling Technique

There are 15 listed banks on the Nigerian Stock Exchange as at December, 2016 and each of them is operating in Zaria Metropolis. The researcher utilised quota sampling by dividing 520 questionnaires across the 15 banks listed. The study utilized quota sampling in order to have representative samples from the 15 listed banks (Kothari &Garg, 2014). The researcher divided the 520 questionnaires to be distributed equally to the 15 listed banks. As a result, the researcher distributed 35 questionnaires at each of the 15 banks, bringing the number of questionnaires distributed to 525. Questionnaires were distributed purposively at the 15 banks to the customers who use safe-token for their banking transactions alone. At the time of collecting data, the researcher walked up to various customers, asking them if they use the safe-token device to perform online transactions in the banking hall. Customers that do not use the device werent given questionnaire to fill. Questionnaires were given to only customers that use the safe-token device for their online transactions.

3.5 Source and Method of Data Collection

The study employed the use of primary data to determine the effect of perceive usefulness, perceived ease of use and perceived trust on customer satisfaction in Nigerian banks. The questionnaire was self-administered assisted by research assistants to customers who use the safe-token device. The questionnaires were divided into sections A and B. Section A collected

data on demographic distribution of respondents. Section B provided statements on perceived usefulness, perceived ease of use, perceived trust and customer satisfaction.

3.6 Measurement of Variables for the Study

The items measuring each construct of this study were adapted from previous studies. Measures of Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) were adapted from the work of Pavlou (2003). Four items were used to measure PU, while four items were used to measure PEOU. Three items were used to measure Perceived Trust (PT), adapted from Pavlou (2003) also. Finally, three items were used to measure Customer Satisfaction (CS) adapted from Cronin, Brady and Hult (2000). The questionnaire was on a five-point Likert scale, ranging from strongly disagree (SD) to strongly agree (SA). The use of Likert scale has been often necessary because it is an interval scale that enables a researcher to analyse questionnaire responses and give room to respondent to choose among multiple options.

3.7 Validity and Reliability of Instruments

To ensure face content validity, the questionnaire was reviewed by experts in related field of this study. Pilot study was carried out using 30 customers that use the safe-token device. Composite reliability was used to evaluate the questionnaire reliability. PEOU has a composite reliability value of 0.834, PU has 0.875, PT has 0.774, while CS has a value of 0.890. All the constructs meet the minimum benchmark of composite reliability which is 0.7 (Hair, Black, Babin & Anderson, 2014).

3.7.1 Factor Loadings and Construct reliability

It is important for indicators to load well. Indicators should not load below 0.5 (Hair *et al.*, 2014). For the present study, the threshold of 0.5 will be used. Items loading below 0.5 will be

deleted, while items loading above 0.5 will be retained (Hair *et al.*, 2014). Table 3.1 presents the result of factor loadings and construct reliability.

Table 3.1
Factor Loadings and Construct Reliability

Construct	Item	Loadings	CR
Customer Satisfaction	CS1	0.821	0.890
	CS2	0.883	
	CS3	0.859	
Perceived Ease of Use	PEOU1	0.757	0.834
	PEOU2	0.792	
	PEOU3	0.789	
	PEOU4	0.641	
Perceived Trust	PT1	0.759	0.774
	PT2	0.636	
	PT3	0.659	
Perceived Usefulness	PU1	0.835	0.875
	PU2	0.771	
	PU3	0.799	
	PU4	0.786	

Note: CR represents Composite Reliability
Source: Field Survey, 2017

On Table 3.1, it is seen that all indicators loaded above 0.5. It is necessary to carry out construct reliability using composite reliability. As a rule of thumb, composite reliability should be greater than 0.7 (Hair *et al.* 2014). It is seen on Table 3.1, that all construct have a composite reliability coefficient above 0.7. This means the data show internal consistencies.

3.8 Technique of Data Analysis

The study employed partial least square model using the smartPLS2 statistical software. The partial least squares (PLS) is considered the most appropriate method for this study data analysis compared to the conventional SPSS regression analysis modeling of 1st generation techniques. This is because although both techniques are alike and in some cases yield similar results, the former has an advantage of estimating both structural model (i.e., relationship between constructs) and measurement model (i.e., relationship between indicators and construct) concurrently (Hair *et al.*, 2014).

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter concerns with empirical results analysed using PLS-SEM path modelling. Before presenting the main results, the researcher performs and presents preliminary analysis in this chapter, such as data screening and cleaning, checking and treating missing values, treating outliers, as well as descriptive statistics among others. Afterwards, the researcher carried out the main data analysis, starting with measurement model analysis. Hence, the study conducts and presents reliability as well as validity analysis in the chapter. Similarly, the analysis and results of the structural model were also performed and presented in the form of path coefficient and its *t*-value, and equally, the *R*², the effect size, as well as the predictive relevance were all presented in the chapter.

4.2 Response Rate

Table 4.1
Summary of Response Rate

Item	No of copies
No of Questionnaires distributed	525
No of Questionnaires Returned	451
Deleted Questionnaires	24
Usable Questionnaires	427
Response Rate	81.3%

Table 4.1 shows the summary of the number of questionnaires distributed and the number of questionnaires returned. A total number of 525 questionnaires had been distributed to

respondents, while 451 questionnaires were returned. 24 cases of the returned questionnaire were detected as outliers and were deleted. Therefore, only 427 questionnaires were used for further analysis, constituting 81.3% response rate, which is suitable for further analysis (Tabachnick&Fidell, 2013). However, having 451 questionnaires returned, the size is considered adequate comparing the actual sample size of 400 using Rose, Spinks and Canhoto (2015) formula.

4.3 Preliminary Analysis

It is necessary to carry out some preliminary analysis before running structural equation modelling (Hair *et al.*,2014). The data collected were screened for missing values, outlier detection, data normality and multicollinearity. Details are presented below.

4.3.1 Missing Values

Missing data is one of the most pervasive problems in data analysis (Tabachnick&Fidell, 2013). It is always important to check for missing values in the data set. It is advised by Hair *et al.* (2014)that 10% should be used by researchers as a tolerable threshold for missing values. Using descriptive statistics, out of 6,314 data elements only 20 were found to be missing in the data set, which constitutes 0.32% of the data set which is below the 10% benchmark. However, the missing values were replaced using mean substitution. Mean substitution is the most commonly used method for replacing missing values (Hair *et al.*, 2014). In detail, perceived usefulness has seven missing data, while perceived ease of use has five missing data. Perceived trust has five missing data; similarly, customer satisfaction has three missing data. All the missing values occurred at random.

4.3.2 Assessment of Outliers

An outlier is a case with such an extreme value on one variable (a univariate outlier) or such a strange combination of scores on two or more variables (multivariate outlier) that distorts statistics. Detecting outliers for multivariate analysis such as this study is best detected by using Mahalanobis distance (D^2) as recommended by (Tabachnick & Fidell, 2013), since there are more than one independent variables in the study (Hair *et al.*, 2014). The Mahalanobis distance (D^2) is a method that measures each observation's distance in multidimensional space from the mean centre of all observations, providing a single value for each observation no matter how many variables are considered. It is suggested by Hair *et al.* (2014), that conservative levels of significance (.005) be used as the threshold value for designation as an outlier. Thus, this study utilised Mahalanobis distance (D^2) to detect outliers, 24 cases (i.e., case 42, 68, 96, 120, 126, 131, 134, 135, 187, 190, 211, 231, 232, 233, 234, 242, 249, 256, 264, 280, 301, 306, 311 and 315) were detected as outliers and were deleted from the data set; 427 cases of 451 questionnaires returned were used for analysis, as a result of the deletion of 24 cases from the data set.

4.3.3 Multicollinearity Test

Multicollinearity is concerned with the relationship between independent latent variables (Pallant, 2010), the presence of which can significantly affect the quality of the estimation of coefficients and thus the statistical significance (Tabachnick & Fidell, 2007). Multicollinearity occurs when two or more independent variables are highly correlated with each other (Hair *et al.* 2014). This leads to problems with ascertaining the contribution of the explanatory variables on the variance of the criterion variable. The study tested multicollinearity using variance inflation factor (VIF). A VIF figure above ≥ 5 shows serious multicollinearity (Kothari & Garg, 2014). However, there was no problem of multicollinearity as all VIF figures in Table 4.3 are below the threshold.

Table 4.2

Multicollinearity Statistics: VIF Values

Construct	VIF
Perceived Usefulness	1.679
Perceived Ease of Use	1.679
Perceived Trust	1.002

4.4 Demographic Statistics

This section presents demographic characteristics of respondents. These include gender distribution, age distribution, academic qualification, and years in which respondents have been using the safe-token. The results are presented in Table 4.3.

Table 4.3

Demographic Characteristics of Respondents

Characteristics	Frequency	Percentage	Cumulative Percentage
Gender			
Male	255	59.7	59.7
Female	172	40.3	100.00
Age Distribution			
Under 18	6	1.4	1.4
18-25	92	21.5	23.0
26-30	165	38.6	61.6
31-35	103	24.1	85.7
Above 35	61	14.3	100.0

Table 4.3 (continued)

Characteristics	Frequency	Percentage	Cumulative Percentage
Academic Qualifications			
O'level	6	1.4	1.4

ND	95	22.3	23.7
HND/B.Sc	198	46.4	70.0
Post Graduate	122	28.6	98.6
Others	6	1.4	100
Years of Use of Safe Token	Frequency	Percentage	Cumulative Percentage
Under 5months	69	16.2	16.2
5months to 1year	142	33.0	49.2
Over 1year	217	50.8	100

Table 4.3 shows that the majority of the respondents that participated in this study are male constituting 255, which is equivalent to 59.7 percent of the total responses usable for the analysis of this research, whereas 172 participants representing only 40.3 percent of the total respondents are female.

From Table 4.3, it can be deduced that only 1.4% of the sampled respondents are under 18 years of age, most of the sampled respondents of this study, are either between the ages of 18-25 and ages 26-30, with 21.5% and 38.6% respectively. Also, 24.1% of the respondents are between the ages of 31-35. While 14.3% of the total respondents are above 35years. It is observed that most of the respondents are between ages 18 to 35. This is as a result of the number of higher institutions in Zaria. Zaria has a good number of higher institutions. Most of the respondents of this study fall between the age brackets of first degree and second degree students.

Next is the academic qualification distribution of sampled respondents. 1.4% are O'level holders, 22.3% are national diploma holders, 46.4% are respondents that are either first degree holders or are Higher national diploma holders, 28.6% of the respondents either have

a postgraduate certificate or are postgraduate students, while 1.4% hold degrees that are not specified in the study. Most of the respondents of this study are either first degree students or are first degree holders. This is as a result of the presence of universities in Zaria. It is believed that most of the respondents of this study are mostly literates.

It is seen on Table 4.3 that 69 respondents constituting 16.2% of the total response have been using the safe-token within a period of five months, while 141 respondents which constitute 33% of the total response have been using the safe-token within a period of five months to one year. On the other hand, 217 respondents which constitute 50.8% of the total response have been using the safe-token for over one year. It is seen that most of the respondents of this study have been using the safe-token device for more than one year.

4.5 Descriptive Statistics of Variables of the Study

This section provides descriptive statistics of the variables of the study, using mean and standard deviation. The result is presented in Table 4.4.

Table 4.4

Descriptive Statistics of Variables

Variables	Sample	Mean	Std Deviation
Perceived Usefulness	427	3.973	0.979
Perceived Ease of Use	427	3.858	0.981

Perceived Trust	427	2.812	0.945
Customer Satisfaction	427	4.043	0.760

Table 4.4 presents the descriptive statistics for perceived usefulness, perceived ease of use, perceived trust and customer satisfaction. All constructs were measured using a five-point Likert scale. Table 4.4 shows a mean response of 3.97 on perceived usefulness, having a standard deviation of 0.97. This means respondents agreed above average to statements on perceived usefulness. Based on the information on Table 4.4, it can be said that bank customers believe the safe token device is useful when performing their online transactions. Similarly, perceived ease of use has a mean response of 3.858 with standard deviation of 0.98. As in the case of perceived usefulness, bank customers also are of the view that the safe token technology is easy to use. However, perceived trust also show a mean response of 2.81 with a standard deviation of 0.94. This is a little above average, respondents may still be skeptical on the accuracy of the safe token technology. Therefore, it can be said that the trust of bank customers on safe token technology is still not at the desired level. Finally, customer satisfaction has a mean response of 4.04 with a standard deviation of 0.76. This means, bank customers highly agreed to statements on customer satisfaction. It can, therefore, be said that the safe token technology has helped increase the satisfaction levels of bank customers.

4.6 Assessing Model Fit

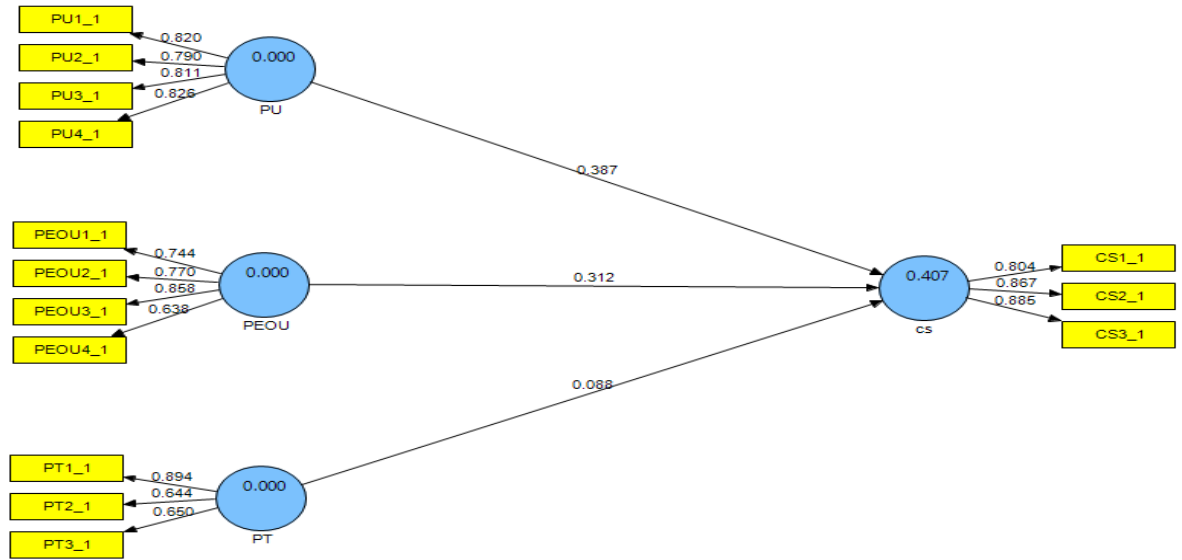


Figure 4.1
Measurement Model

Table 4.5
Construct Reliability and Validity

Construct	Items	Loadings	AVE	CR	CA
Perceived usefulness	PU1	0.820	0.659	0.885	0.829
	PU2	0.790			
	PU3	0.811			
	PU4	0.826			
Perceived ease of use	PEOU1	0.744	0.572	0.841	0.747
	PEOU2	0.770			
	PEOU3	0.858			
	PEOU4	0.638			
Perceived Trust	PT1	0.894	0.546	0.779	0.641
	PT2	0.644			
	PT3	0.650			
Customer Satisfaction	CS1	0.804	0.727	0.889	0.829
	CS2	0.867			
	CS3	0.885			

Note: AVE represents Average Variance Extracted; CR represents Composite Reliability; CA represents Cronbach's Alpha

On Table 4.5, all construct have a Cronbach's Alpha coefficient above .7 except for perceived trust that has a coefficient below .7. A construct having a Cronbach's Alpha coefficient of less than .7 can be ignored, provided other construct in the model has a Cronbach's Alpha coefficient greater than 0.7 (Hair *et al.* 2014). All construct met the minimum benchmark for both composite reliability and AVE, which is 0.7 and 0.5 respectively.

Loadings should not be below 0.5 (Hair *et al.* 2014). On Table 4.5, all items measuring each constructs loaded well, as they loaded above 0.5. As a result, all items in the constructs were retained.

Table 4.6
Fonell-larckerDiscrimant Validity

Construct	CS	PEOU	PT	PU
Customer Satisfaction	0.853			
Perceived Ease of use	0.559	0.756		
Perceived trust	0.085	0.014	0.739	
Perceived usefulness	0.583	0.635	-0.021	0.812

Table 4.6 presents the result of discriminant validity. The figures that are bolded represent the square root of AVE of each latent variable. The square roots of all the AVE are higher than their correlation with other latent variable. Customer satisfaction has an AVE of 0.853. All other correlations below it are lesser than 0.853. Perceived ease of use also has an AVE of 0.756. All other correlations column and row wise are below 0.756. Perceived trust has an AVE coefficient of 0.739, all other correlations column and row wise are below 0.739. Finally, perceived usefulness is with an AVE of 0.812 while the other correlations column and row wise have an AVE of less than 0.812. Judging by the Fornell-larcker discriminant validity criterion, the data shows discriminant validity (Garson, 2016).

4.7 Test of Hypotheses

It is important to carry out a bootstrapping analysis to determine the direct effect of the exogenous variables on the endogenous variable of the study. Bootstrapping was done by using 5000 subsamples using 427 cases. Based on the result, figure 4.2 is presented, which shows the structural model of the relationships between the exogenous variables and endogenous variable of the study.

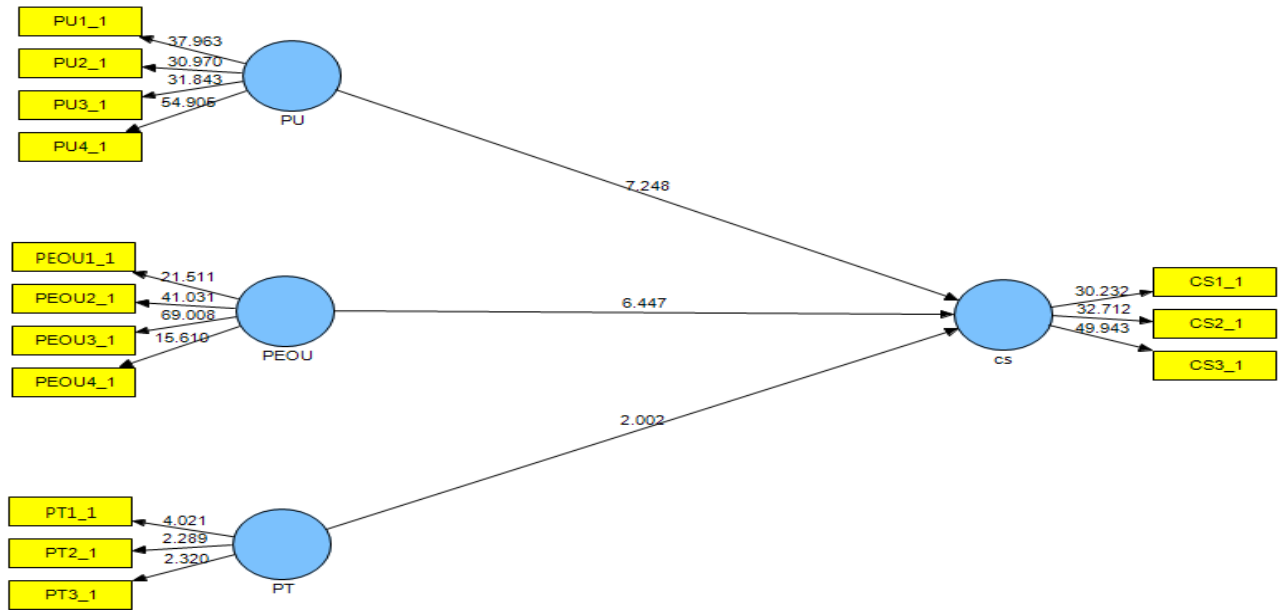


Figure 4.2
Structural Model

Table 4.7
Path Coefficient

Hypotheses	Beta Value	Standard Deviation	T Statistics	Adjusted R ²	Decision
PEOU -> CS	0.312	0.049	6.363***	0.403	Rejected
PU -> CS	0.387	0.054	7.135***		Rejected
PT -> CS	0.088	0.044	2.023**		Rejected

***p< 0.01, **p< 0.05, *p< 0.1

From Table 4.7, it has been shown that perceived ease of use of safe-token has an effect on customer satisfaction, significant at ($\beta=0.31$, $p<0.01$). Similarly, perceived usefulness of safe-token has positive significant effect on customer satisfaction at ($\beta=0.39$, $p<0.01$). Finally, perceived trust of safe-token has a positive significant effect on customer satisfaction at ($\beta=0.09$, $p<0.05$). In summary, the relationships between the latent exogenous and

endogenous constructs are all rejected empirically. Adjusted R square is 40.3%, meaning that 40.3% variance in customer satisfaction is accounted for by perceived ease of use, perceived usefulness and perceived trust of safe-token.

It is important to assess the effect size for the relationships between perceived ease of use, perceived usefulness, perceived trust and customer satisfaction. The result is presented in

Table 4.8

Table 4.8
Effect Size for the Relationship

Construct	f^2	Effect size
Perceived usefulness	0.151	Medium
Perceived ease of use	0.098	Small
Perceived trust	0.013	NA

NA represents not applicable

Table 4.8 shows the effect size of perceived usefulness, perceived ease of use and perceived trust on customer satisfaction. As it is seen on Table 4.8, perceived usefulness, perceived ease of use and perceived trust which are the exogenous variables have medium, small and no effect respectively on customer satisfaction which is the endogenous variable. Perceived usefulness of safe token has the most effect on customer satisfaction, with a medium effect. This means perceived usefulness of safe token is perceived by customers to be the most important construct that affect their satisfaction. Perceived ease of use of safe token is the next important construct that explain the satisfaction of bank customers, with a small effect on customer satisfaction. However, perceived trust has a negligible effect size on customer satisfaction. This means perceived trust of safe token has no effect size on the satisfaction of bank customers.

Table 4.9

Predictive Relevance of Exogenous Variables

Construct	SSO	SSE	Q² = 1- SSE/ SSO
Customer Satisfaction	1,281.000	931.484	0.273

Note: SSO represents Sum of squared of observed omitted values; SSE represents Sum of Squared Error

Table 4.9 presents the result of cross-validated redundancy of the direct relationships between perceived usefulness, perceived ease of use, perceived trust of safe-token and customer satisfaction. Q² is greater than zero which shows the predictive relevance of the direct path model. According to Cohen (1988) standard, the model has medium degree of predictive relevance with regard to the endogenous variable, customer satisfaction.

4.8 Discussion of Findings

Perceived ease of use was discovered to have a positive and significant effect on customer satisfaction. As seen on table 4.7, if the technology is perceived to be simple to operate by customers, it will influence the satisfaction of bank customers in Nigeria. A newly developed technology, will influence customer satisfaction where such technology is easy to use, and most especially enhance their banking transaction in terms of providing more security services to customers. This finding is in line with previous researchers (e.g., Kahandawa&Wijayanayake(2014); Nikhashemi, Paim, Yasmin&Yousefi (2013); Shah&Attiq (n.d) who have observed the effect of technology adoption on customer satisfaction.

Perceived usefulness was also discovered on table 4.7 to have a positive and significant effect on customer satisfaction, having the most effect on customer satisfaction. A technology developed and perceived useful by customers will make customers satisfied. This is so because where customers feel a technology will ease their banking services, such

technologies will enhance their satisfaction. This finding is in line with the outcome of the study conducted by (Gitau&Nzuki, 2014; Esmat&Mohammed n.d).

Perceived trust also was seen to have a positive and a significant effect on customer satisfaction, but with negligible effect size on customer satisfaction. It was deduced from Table 4.7 that customers may still be skeptical on the safety of using the safe token technology, therefore may be the reason why perceived trust does not have considerable effect on customer satisfaction. This is in line with the findings of Hidayat, Akhmad&Machmud (2015), Hayati (2011) and Danesh, Nasab& Ling (2012).

4.9 Implications of the Study

The study examined the effect of safe-token adoption on customer satisfaction and came up with some findings. Thus, it is important to discuss both managerial and theoretical implications of the study.

4.9.1 Theoretical Implication

The major theoretical contribution of this study is the investigation of the safe-token technology on customer satisfaction, studying bank customers in Zaria. Most of the prior related studies have examined the relationship between technology adoption like ATM, electronic banking, tele-banking amongst others. Very few studies have examined the relationship between technology adoption and customer satisfaction, but particularly no study has investigated the effect of safe-token adoption on customer satisfaction. Thus, this study has therefore uncovered new area of research for researchers in relation to safe-token adoption and customer satisfaction.

4.9.2 Managerial Implication

One of the implications of this study is that managers will be able to know the extent at which safe token has increased customer satisfaction. In addition, this study provides management with recommendations on how to ensure higher levels of customer satisfaction using the safe token technology. Banks that employ the recommendations derived from this study will be able to satisfy and serve customers better. Banks operate in a highly competitive business climate with competition at its global curve. When banks satisfy customers better, the result is repeat purchase which results into profitability for the organisation.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The overriding purpose of this study was to determine the relative influence of safe-token technological device adoption to satisfaction when viewed from the deposit money bank customers' perspective. To accomplish that goal, it became necessary to reach some prerequisite objectives. Determining what customer satisfaction means and how the idea is connected with the banking sector, conceptual definition of the proxies for the variables, review of related empirical studies and theoretical underpinning assumed a high degree of importance during literature review conducted for this dissertation. Related to that effort, it became necessary to reach an understanding about the nature of safe-token adoption and

customer satisfaction. To provide for the possibility that perceived usefulness, perceived ease of use, perceived trust and customer satisfaction could be perceived and measured as a viable component of these constructs, it was important to develop a model with the potential for encompassing the totality of the technology adoption/customer satisfaction interaction. Once these fundamental steps were achieved, this research was able to go forward. This chapter reports the conclusion and recommendation that resulted from this study.

Survey instrument was adapted and self-administered to 525 bank customers in Zaria who are using the safe-token device, out of which 427 were returned usable. All respondents were asked to rate how they perceive the safe-token useful, easy to use and how they perceive it trustworthy. They also answered questions about how they feel satisfied with the safe-token device. Through the use of the survey instruments adapted for this study, data were collected which addressed the research problem posed in the first chapter of this dissertation.

5.2 Conclusions

The relative degree of influence of safe-token adoption as rated by the level of customer satisfaction was determined in response to the research questions. The analysis of the data collected showed that perceived usefulness of safe-token, perceived ease of use safe-token and perceived trust has significant and positive relationship with customer satisfaction. The three form the building blocks of customer satisfaction. The more the safe-token is perceived useful and easy to use, the more the deposit money bank customers' feel satisfied. Perceived trust also has a positive significant relationship with customers' satisfaction. So far as the safe-token is useful and easy to use and trustworthy, the more the customers are satisfied.

5.3 Recommendations

In line with the above conclusions, the following recommendations are made:

- i. This research has shown that perceived ease of use and perceived usefulness of safe-token are critical factors affecting customers' satisfaction. Banks should provide need to pay attention to design a user-friendly interface allowing consumers to feel free of mental effort when using the safe-token. Banks should make safe-token more useful and usable. They could achieve this by increasing the customers' awareness of the usefulness of using safe-token device through advertising and long term customer services. Moreover, banks should emphasize the valuability and functionality of the safe-token to respond efficiently to the needs of the customers.
- ii. As shown in the results of the study also, consumers consider trust as one of the important factor that enhances satisfaction when they use the safe-token. Thus increasing trust is also of considerable importance to customers. As criminals will always exist in our society, if customers' smart phone and other devices with which they conduct banking transactions are stolen in a physical place, anyone can abuse the bank information. Hence, it is more important that banks enable consumers to place full trust on the privacy, security, integrity and availability of customer information. Further, banks should build trust with consumers by giving them complete confidence on the product/service that they provide.

5.4 Limitations of the Study

One of the limitations of this study is that this research is conducted as a cross-sectional study due to a number of challenges such as time, cost and other scarce resources, as such a longitudinal study should be conducted to document trend and expand the understanding of the study. In addition, data were only collected from bank customers in the banking halls in

Zaria, customers that were not in the banking hall during the periods of collecting data from the respondents of this study were automatically not part of this survey.

5.5 Suggestions for Further Study

Based on the limitation of the study, this research has suggested the need for further study. Given the changing nature of technology, a series of longitudinal studies based on this model should be conducted. This would document trends and thereby increase the potential that decisions regarding the composition of technology adoption and customer satisfaction would be relatively current. Research related to technologies other than safe-token adoption should be conducted.

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Appendix A Questionnaire

Shomoye, Adeyinka Maryam,
Department of Business

Ahmadu Bello University. Zaria.

Administration,

Dear Respondent,

Questionnaire Design

The above named researcher is currently carrying out a research titled 'influence of technology adoption on customer satisfaction in Nigerian banks'. She humbly request that you partake in her research by filling the questionnaire below by ticking the most appropriate option. Please be informed that all information obtained through this questionnaire is to solve practical problems and to expand the frontier of knowledge and thus, all responses would be kept confidential.

Section A: Biodata

1. Gender. a. Male () b. Female ()
2. Qualification. a. O’level () b. ND () c. HND/B.Sc/B.A/B.ed () d. Postgraduate () e. others ()
3. Number of months/years you have been using safe token.
 - a. under 5months () b. 5months to 1year () c. over 1year ()
4. Age. a. under 18 () b. 18-25 () c. 26-30 () d. 31-35 () e. above 35 ()

Section B. Research Questions

Key to options: strongly disagree (SD); Disagree (D); Undecided (UD); Agree (A); Strongly Agree (SA)

S/N	Statements on perceived usefulness	SD	D	UD	A	SA
1	Overall, I find this safe-token useful					
2	I think this safe-token is valuable to me					
3	The content of this safe-token is useful to me					
4	This safe-token is functional					

S/N	Statements on Perceived Ease of use	SD	D	UD	A	SA
1	My interaction with this safe-token is clear and understandable					
2	Interacting with safe-token does not require a lot of mental effort					
3	I find this safe-token easy to use					
4	I find it easy to locate the information that I need on this safe-token					

S/N	Statements on perceived trust	SD	D	UD	A	SA
1	This safe-token is trustworthy					
2	This safe-token is one that keeps promises and commitments					
3	I trust this safe-token because they keep my best interests in mind					

S/N	Statements on customer satisfaction	SD	D	UD	A	SA
1	My choice to purchase this service was a wise one					
2	I think I did the right thing when I purchased this service					
3	This facility is exactly what I needed for this service					

Appendix B
Construct Cross Loadings

	PEOU	PT	PU	CS
CS1_1	0.39	0.10	0.52	0.80
CS2_1	0.47	0.11	0.39	0.86
CS3_1	0.54	0.00	0.56	0.88
PEOU1_1	0.74	0.04	0.42	0.39
PEOU2_1	0.76	-0.01	0.51	0.35
PEOU3_1	0.85	-0.01	0.50	0.52
PEOU4_1	0.63	0.02	0.48	0.37
PT1_1	0.00	0.89	-0.01	0.08
PT2_1	0.08	0.64	-0.06	0.02
PT3_1	-0.01	0.65	-0.02	0.04
PU1_1	0.43	-0.01	0.81	0.39
PU2_1	0.56	0.08	0.79	0.46
PU3_1	0.36	-0.04	0.81	0.44
PU4_1	0.65	-0.08	0.82	0.55

Appendix C

Latent Variable Correlations

	PEOU	PT	PU	CS
PEOU	1			
PT	0.01	1		
PU	0.64	-0.02	1	
CS	0.56	0.08	0.58	1

**Appendix D
R Square**

	R Square
PEOU	
PT	
PU	
CS	0.40

**Appendix E
Mean, Standard Deviation, T-Values and P-Values**

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Value
PEOU -> CS	0.311623	0.313788	0.048086	6.480513	0.00
PT -> CS	0.088413	0.097194	0.043272	2.043201	0.02
PU -> CS	0.38712	0.382675	0.053219	7.274145	0.00

**Appendix F
Cross Validated Community**

Total	SSO	SSE	1-SSE/SSO
PEOU	1708	731.0477	0.571986
PT	1281	584.8444	0.543447
PU	1708	582.5071	0.658954
CS	1281	1281	

**Appendix G
Indicator Cross Validated Redundancy**

Total	SSO	SSE	1-SSE/SSO
CS1_1	427	311.929753	0.269485

CS2_1	427	328.198968	0.231384
CS3_1	427	276.220626	0.353113
PEOU1_1	427	190.398701	0.554101
PEOU2_1	427	174.001207	0.592503
PEOU3_1	427	113.630238	0.733887
PEOU4_1	427	253.0176	0.407453
PT1_1	427	90.144644	0.788888
PT2_1	427	247.861623	0.419528
PT3_1	427	246.838168	0.421925
PU1_1	427	139.959778	0.672225
PU2_1	427	160.566457	0.623966
PU3_1	427	146.139007	0.657754
PU4_1	427	135.841845	0.681869

Appendix H
Indicator Cross Validated Communality

Total	SSO	SSE	1-SSE/SSO
CS1_1	427	427	0
CS2_1	427	427	
CS3_1	427	427	0
PEOU1_1	427	190.398701	0.554101
PEOU2_1	427	174.001207	0.592503
PEOU3_1	427	113.630238	0.733887
PEOU4_1	427	253.0176	0.407453
PT1_1	427	90.144644	0.788888
PT2_1	427	247.861623	0.419528
PT3_1	427	246.838168	0.421925
PU1_1	427	139.959778	0.672225
PU2_1	427	160.566457	0.623966
PU3_1	427	146.139007	0.657754
PU4_1	427	135.841845	0.681869

Appendix I
Listed Deposit Money Banks as at December, 2016

LIST OF DEPOSIT MONEY BANKS AND FINANCIAL HOLDING COMPANIES OPERATING IN NIGERIA**COMMERCIAL BANKING LICENCE WITH INTERNATIONAL AUTHORIZATION**

NAME OF INSTITUTION	HEAD OFFICE ADDRESS
ACCESS BANK PLC	999c, Danmole Street, Off Idejo Street, Off Adeola Odeku Street, Victoria Island, Lagos
DIAMOND BANK PLC	Plot 1261, Adeola Hopewell Street, Victoria Island, Lagos
FIDELITY BANK PLC	2, Kofu Abayomi Street, Victoria Island, Lagos
FIRST CITY MONUMENT BANK PLC	Primrose Towers, 17a, Tinubu Street, Lagos
FIRST BANK NIGERIA LIMITED	Samuel Asabia House, 35 Marina, Lagos
GUARANTY TRUST BANK PLC	635, Akin Adesola Street, Victoria Island, Lagos
SKYE BANK PLC	3, Akin Adesola Street, Victoria Island, Lagos
UNION BANK OF NIGERIA PLC	Stallion Plaza, 36 Marina, Lagos
UNITED BANK OF AFRICA PLC	57 Marina, Lagos
ZENITH BANK PLC	Plot 84, Ajose Adeogun Street, Victoria Island, Lagos

COMMERCIAL BANKING LICENCE WITH NATIONAL AUTHORIZATION

CITIBANK NIGERIA LIMITED	27, Kofu Abayomi Street, Victoria Island, Lagos
ECOBANK NIGERIA PLC	21, Ahmadu Bello Way, Victoria Island, Lagos
HERITAGE BANK LIMITED	292b, Ajose Adeogun Street, Victoria Island, Lagos
KEYSTONE BANK LIMITED	Keystone House, 1, Keystone Crescent, Victoria Island, Lagos
STANBIC IBTC BANK PLC	IBTC Place, Walter Carrington Crescent, Victoria Island, Lagos
STANDARD CHARTERED BANK LIMITED	142, Ahmadu Bello Way, Victoria Island, Lagos
STERLING BANK PLC	Sterling Towers, 20 Marina, Lagos
UNITY BANK PLC	Plot 497, Central Business District, Abogo Largama Street, Abuja
WEMA BANK PLC	Wema Towers, 54 Marina, Lagos Island, Lagos

COMMERCIAL BANKING LICENCE WITH REGIONAL AUTHORIZATION

SUNTRUST BANK NIGERIA LIMITED	1, Oladele Olashore Street, Victoria Island, Lagos
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NON-INTEREST BANKING LICENCE WITH REGIONAL AUTHORIZATION

JAIZ BANK LIMITED	Kano House, Plot 73, Ralph Shodeinde Street, Central Business District, Abuja
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MERCHANT BANKING LICENCE WITH NATIONAL AUTHORIZATION

CORCORATION MERCHANT BANK	St. Nicholas House, 6th Floor, 26A, Catholic Mission Street, P.M.B 12511, Marina, Lagos
FBN MERCHANT BANK	2, Broad Street, P.O. Box 4238, Lagos
FSDH MERCHANT BANK	UAC House, 5th-8th Floor, 1/5 Odunlami Street, P.M.B 12913, Lagos
RAND MERCHANT BANK	12th Floor, Churchgate Towers, 2 Plot PC 31, Churchgate Street, Victoria Island, Lagos

FINANCIAL HOLDING COMPANIES IN NIGERIA

FBN HOLDINGS PLC	Samuel Asabia House, 35 Marina, P.O. Box 5216, Lagos
FCMB GROUP PLC	First City Plaza, 44 Marina, Lagos
STANBIC IBTC HOLDINGS PLC	I.B.T.C Place, Walter Carrington Crescent, P.O. Box 71707, Victoria Island, Lagos

List of the Listed Deposit Money banks on the Nigerian Stock Exchange as at December 2016 with their addresses in Zaria Metropolis

S/N	BANKS	ADDRESS
1	ACCESS	16, River road, P.Z area Zaria
2	ZENNITH	F3, P.Z by Kaduna Road, Zaria
3	DIAMOND	3/5 Warri street, Kaduna Road, Zaria
4	GTB	13/15 Manchester road, G.R.A ,Zaria
5	FIDELITY	28, Park road, Zaria
6	FCMB	F3, Kaduna road, P.Z, Zaria
7	FIRST	3/5 Warri street, Kaduna Road, Zaria
8	STERLING	River road 1, PZ, Sabon Gari, Zaria
9	STANBIC IBTC	4, Park road, Zaria, Kaduna state
10	SKYE	28, Park road, Zaria, Kaduna state
12	UNION	2, Circular road, Zaria, Kaduna state
13	UBA	F11, Kaduna road, Zaria.
14	KEYSTONE	3/5 Warri street, Kaduna Road, Zaria
15	ECOBANK	P7, Kaduna road, P.Z, Zaria