

**E-BANKING AND ITS RELATIONSHIP TO CUSTOMER'S  
PERCEIVED USEFULNESS:**

**A CASE OF COMMERCIAL BANKS MOROGORO  
MUNICIPALITY**

**E-BANKING AND ITS RELATIONSHIP TO CUSTOMER'S  
PERCEIVED USEFULNESS**

**A Case of Commercial banks in Morogoro Municipality**

**BY**

**SAMWEL JOHN SANGALI**

**A Dissertation Submitted in Partial/Fulfillment of the Requirements for Award  
of the Degree of Master of Science in Accounting and Finance (MSc Accounting  
& Finance) of Mzumbe University**

**2018**

## CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled **e-banking and its relationship to customer's perceived usefulness, A Case of Commercial Banks, Morogoro Municipality**, in partial/fulfillment of the requirements for award of degree of Master of Science in Accounting and Finance of Mzumbe University.

*Signature*

---

Major Supervisor

*Signature*

---

Internal Examiner

Accepted for the Faculty Board

---

*Signature*

---

DEAN/DIRECTOR,  
FACULTY/DIRECTORATE/SCHOOL/BOARD

### **DECLARATION AND COPYRIGHT**

I, **Samwel John Sangali**, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other University for similar or any other degree award.

Signature \_\_\_\_\_

Date \_\_\_\_\_

©

This dissertation is a copyright material protected under the Berne Convention, the Copyright Act 1999 and other international and national enactments, in that behalf, on intellectual property. It may not be reproduced by any means in full or in part, except for short extracts in fair dealings, for research or private study, critical scholarly review or discourse with an acknowledgement, without the written permission of Mzumbe University, on behalf of the author.

## **ACKNOWLEDGEMENTS**

The process of this dissertation writing is a great learning experience in our academic life which is filled with challenges and rewards. The completion of the present study leads to a new beginning and a step towards our future.

First and foremost, I would like to thank Almighty God for giving me health and guidance throughout my studies. Also, I acknowledge the inspirational support from all the respondents who participated in this study especially those who responded to the questionnaires. Special thanks also go to my supervisor, Dr Daud P Ndaki for his tireless effort and guidance which helped me a lot in accomplishing this dissertation work

Secondly, I am profoundly grateful to my family especially my lovely wife Consolata P Munishi, and my dearest son Prince for their moral support during the whole time of my study, thank you for the incredible inspiration, support, commitment and affection you showed me.

Special thanks and appreciation is extended to my fellow workers, and my employer Morogoro Municipal Council for their assistance, guidance and counsel, as well as my fellow Masters of Science Accounting and Finance (MSc A&F) students such Makundi, Ntania, Cheyo, Josephine, Nzogela, Leticia, Ruth, Andendekisye, Makoye to mention a few for their insightful collaboration and advice throughout my studies.

Finally, I am grateful to my lovely mother Elizabeth Sangali for her financial support and prayer for me so that I can be victorious in whatever I do in my life.

## **DEDICATION**

This dissertation is dedicated to my mother Elizabeth Sangali for her financial and moral support, my lovely wife Consolata P Munishi and my son Prince S Sangali for their tireless support and love throughout my studies.

## **ABBREVIATIONS**

|           |                                          |
|-----------|------------------------------------------|
| ATM       | Automated Teller Machine                 |
| BOT       | Bank of Tanzania                         |
| ICT       | Information and Communication Technology |
| EFT       | Electronic Fund Transfer                 |
| TAM       | Technology Acceptance Model              |
| SPSS      | Statistical Package for Social Sciences  |
| TPB       | Theory of Planned Behavior               |
| E-Banking | Electronic Banking                       |

## **ABSTRACT**

The study was about e-banking and its relationship customers perceived usefulness in Tanzania taking commercial banks at Morogoro Municipality as the case study. It was aimed at assessing the impact of e-banking adoption by commercial banks and customer's perceived usefulness while addressing factors determining customer's adoption of e-banking and challenges of using e-banking by customers.

One twenty-one respondents were sampled using non-probability sampling technique. The study employed a survey research design to reveal the necessary and required data to answer the research questions. Questionnaires were used to collect data from different respondents which were then analyzed through factor analysis. Using factor analysis, the variables were reduced from 36 variables only to 16 variables

The results of the findings from factor analysis showed that; reasonable fees and charges, convenience (time and location), social influence and transaction speed were the factors which determine customer's adoption of e-banking. Perceived ease of use and expected user involvement were the factors for customer's perception of e-banking adoption by commercial banks. Also, transparency in fees and charges, system security and network availability were the challenges facing customers when using e-banking.

The results obtained from the study have implications for the management of the commercial banks and their customers as well. The researcher therefore recommends that commercial banks should improve awareness to customers on some of the e-banking product like internet banking, likewise commercial banks should increase the number of e-banking product in order to reduce congestion on banking premises, also commercial banks should improve technical assistance for e-banking users and lastly e-banking facilities should be placed at many locations as much as possible.

## TABLE OF CONTENTS

|                                                                                           |      |
|-------------------------------------------------------------------------------------------|------|
| CERTIFICATION.....                                                                        | i    |
| DECLARATION AND COPYRIGHT .....                                                           | ii   |
| ACKNOWLEDGEMENTS .....                                                                    | iii  |
| DEDICATION .....                                                                          | iv   |
| ABBREVIATIONS.....                                                                        | v    |
| ABSTRACT .....                                                                            | vi   |
| LIST OF TABLES .....                                                                      | xi   |
| LIST OF FIGURES.....                                                                      | xiii |
| CHAPTER ONE .....                                                                         | 1    |
| INTRODUCTION.....                                                                         | 1    |
| 1.0 Introduction .....                                                                    | 1    |
| 1.1 Background of the study.....                                                          | 1    |
| 1.1.1 ICT in the banking industry.....                                                    | 6    |
| 1.1.2 Commercial banks in Tanzania .....                                                  | 8    |
| 1.2 Statement of the problem .....                                                        | 9    |
| 1.3 Research Questions .....                                                              | 11   |
| 1.3.1 General Research Question .....                                                     | 11   |
| 1.3.2 Specific Research Questions .....                                                   | 11   |
| 1.4 Research Objectives .....                                                             | 12   |
| 1.4.1 The General Objective.....                                                          | 12   |
| 1.4.2 Specific Objectives.....                                                            | 12   |
| ii. To assess the customer's perception of e-banking adoption by commercial banks.....    | 12   |
| iii. To find out the challenges of using e-banking to customers of commercial banks. .... | 12   |
| 1.5 Significance of the Study .....                                                       | 12   |
| 1.6 Scope of the study .....                                                              | 12   |
| CHAPTER TWO.....                                                                          | 14   |
| LITERATURE REVIEW.....                                                                    | 14   |
| 2.0 Introduction .....                                                                    | 14   |
| 2.1 Theoretical Literature Review.....                                                    | 14   |
| 2.1.1 Information and Communication Technology .....                                      | 14   |
| 2.1.2 E-banking .....                                                                     | 15   |
| 2.1.3 Customer's perceived the usefulness.....                                            | 15   |
| 2.2 Components of E-banking.....                                                          | 16   |
| 2.2.1 Internet banking.....                                                               | 16   |
| 2.2.2 Automated Teller Machine (ATM) .....                                                | 16   |
| 2.2.3 Mobile banking.....                                                                 | 17   |
| 2.2.4 Electronic fund transfer .....                                                      | 17   |
| 2.2.5 Point of sales .....                                                                | 17   |
| 2.3 Theories used in the study .....                                                      | 18   |
| 2.3.1 Technology Acceptance Model (TAM) .....                                             | 18   |
| 2.3.2 Theory of planned behaviour (TPB).....                                              | 18   |

|                                |                                                                    |    |
|--------------------------------|--------------------------------------------------------------------|----|
| 2.3.3                          | Diffusion of innovation theory .....                               | 20 |
| 2.3.4                          | Unified theory of acceptance and use of technology (UTAUT) .....   | 21 |
| 2.4                            | Empirical Literature Review .....                                  | 22 |
| 2.5                            | Research gap .....                                                 | 27 |
| 2.6                            | CONCEPTUAL FRAMEWORK.....                                          | 28 |
| 2.6.1                          | Introduction .....                                                 | 28 |
| 2.6.2                          | Variables.....                                                     | 28 |
| 2.6.2.1                        | Independent variable .....                                         | 29 |
| 2.6.2.2                        | Dependent variable.....                                            | 29 |
| CHAPTER THREE.....             |                                                                    | 31 |
| RESEARCH METHODOLOGY .....     |                                                                    | 31 |
| 3.0                            | Introduction .....                                                 | 31 |
| 3.1                            | The Study Area.....                                                | 31 |
| 3.2                            | Research Design.....                                               | 32 |
| 3.2.1                          | Types of Research Design.....                                      | 33 |
| 3.2.1.1                        | Exploratory Research Design.....                                   | 33 |
| 3.2.1.2                        | Descriptive/Diagnostic Research Design .....                       | 33 |
| 3.2.1.3                        | Hypothesis-Testing Research Design.....                            | 34 |
| 3.3                            | Research Approach.....                                             | 34 |
| 3.4                            | Data types.....                                                    | 34 |
| 3.5                            | Population of the Study .....                                      | 35 |
| 3.6                            | Sampling Procedures.....                                           | 35 |
| 3.6.1                          | Sampling Frame .....                                               | 35 |
| 3.6.2                          | Sampling Techniques .....                                          | 35 |
| 3.6.3                          | Sample Size .....                                                  | 36 |
| 3.7                            | <b>Variables and their measurements</b> .....                      | 36 |
| 3.7.1                          | <b>Factors for e-banking adoption and their measurements</b> ..... | 36 |
| 3.7.2                          | Customer's perceived usefulness of e-banking.....                  | 38 |
| 3.7.3                          | <b>Challenges of using e-banking by customers</b> .....            | 39 |
| 3.8                            | <b>Unit of analysis</b> .....                                      | 40 |
| 3.9                            | Data Collection.....                                               | 40 |
| 3.9.1                          | Primary data .....                                                 | 41 |
| 3.9.2                          | Secondary data .....                                               | 41 |
| 3.9.3                          | Data Collection Methods.....                                       | 41 |
| 3.9.3.1                        | Questionnaire.....                                                 | 41 |
| 3.9.3.2                        | Documentary Review .....                                           | 41 |
| 3.10                           | Validity and Reliability .....                                     | 42 |
| 3.10.1                         | Reliability .....                                                  | 42 |
| 3.10.2                         | Validity.....                                                      | 44 |
| 3.11                           | Data Processing and Analysis .....                                 | 45 |
| CHAPTER FOUR.....              |                                                                    | 46 |
| PRESENTATION OF FINDINGS ..... |                                                                    | 46 |
| 4.0                            | Introduction .....                                                 | 46 |
| 4.1                            | Demographic Profile of Respondents.....                            | 46 |

|         |                                                                                                                                |    |
|---------|--------------------------------------------------------------------------------------------------------------------------------|----|
| 4.1.1   | Gender .....                                                                                                                   | 46 |
| 4.1.2   | Respondent's age.....                                                                                                          | 47 |
| 4.1.3   | Transacting bank .....                                                                                                         | 48 |
| 4.1.4   | Customer experience .....                                                                                                      | 49 |
| 4.1.5   | Occupation .....                                                                                                               | 50 |
| 4.1.6   | Education level of respondents.....                                                                                            | 50 |
| 4.1.7   | Income level of respondents.....                                                                                               | 51 |
| 4.2     | Factors determining customer's adoption of e-banking .....                                                                     | 52 |
| 4.3     | Customer's perceived usefulness of e-banking .....                                                                             | 55 |
| 4.4     | Challenges of using e-banking to customers .....                                                                               | 57 |
| 4.4.1   | The benefits of using e-banking exceeds its challenges .....                                                                   | 57 |
| 4.4.2   | The frequency of using e-banking.....                                                                                          | 58 |
| 4.5     | Factor analysis.....                                                                                                           | 61 |
| 4.5.1   | Evaluating the appropriateness of factor analysis .....                                                                        | 61 |
| 4.5.2   | Correlations among variables .....                                                                                             | 61 |
| 4.5.2   | Measures of sampling adequacy and partial correlations .....                                                                   | 65 |
|         | of variable customers perceived the usefulness of e-banking .....                                                              | 67 |
| 4.5.3   | Revised correlation among variables.....                                                                                       | 69 |
| 4.5.3.1 | Revised correlations among variables after deleting FE1 for factors<br>determining customer's adoption of e-banking.....       | 69 |
| 4.5.3.2 | Revised correlations among variables after deleting PU6 for customers<br>perceived the usefulness of e-banking .....           | 70 |
| 4.5.4   | Revised Measures of Sampling Adequacy and Partial Correlations .....                                                           | 71 |
| 4.5.4.1 | Revised sampling adequacy after deleting FE1 .....                                                                             | 71 |
| 4.5.4.2 | Revised sampling adequacy after deleting PU6.....                                                                              | 72 |
| 4.5.4.3 | Second revised correlation among variables after deleting FE2 for factors<br>determining customer's adoption of e-banking..... | 73 |
| 4.5.4.4 | Second revision of measure of sampling adequacy for factors determining<br>customer's adoption of e-banking.....               | 74 |
| 4.6     | Deriving Factors and Assessing Overall Fit.....                                                                                | 74 |
| 4.7.2   | Unrotated factor matrices for customers perceived the usefulness of e-<br>banking                                              | 82 |
| 4.7.3   | Unrotated factor matrix for challenges facing customers when using e-<br>banking                                               | 83 |
| 4.8     | Applying Oblique Rotation .....                                                                                                | 84 |
| 4.8.1   | Oblique rotation of factor analysis for factors determining customer's<br>adoption of e-banking .....                          | 84 |
| 4.8.2   | Oblique rotation of factor analysis for customers perceived the usefulness of<br>e-banking.....                                | 86 |
| 4.8.3   | Oblique rotation of factor analysis for challenges facing customers when<br>using e-banking .....                              | 87 |
|         | DISCUSSION OF THE FINDINGS .....                                                                                               | 88 |
| 5.0     | Introduction .....                                                                                                             | 88 |
| 5.1     | Demographic profile of respondents .....                                                                                       | 88 |

|                                                 |                                                                     |     |
|-------------------------------------------------|---------------------------------------------------------------------|-----|
| 5.1.1                                           | Gender .....                                                        | 88  |
| 5.1.2                                           | Age .....                                                           | 89  |
| 5.1.3                                           | Transacting bank .....                                              | 89  |
| 5.1.4                                           | Customer experience .....                                           | 90  |
| 5.1.5                                           | Occupation .....                                                    | 90  |
| 5.1.6                                           | Educational level .....                                             | 90  |
| 5.1.7                                           | Income level .....                                                  | 91  |
| 5.2                                             | Factors determining customer's adoption of e-banking .....          | 91  |
| 5.3                                             | Customers perceived the usefulness of e-banking.....                | 93  |
| 5.4                                             | Challenges of using e-banking by customers of commercial banks..... | 93  |
| CHAPTER SIX .....                               |                                                                     | 95  |
| SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS ..... |                                                                     | 95  |
| 6.0                                             | Introduction .....                                                  | 95  |
| 6.1                                             | Summary of the findings .....                                       | 95  |
| 6.2                                             | Conclusion.....                                                     | 96  |
| 6.3                                             | Recommendations .....                                               | 97  |
| 6.4                                             | Areas for further studies .....                                     | 98  |
| REFERENCES.....                                 |                                                                     | 99  |
| APPENDICES.....                                 |                                                                     | 102 |

## LIST OF TABLES

|            |                                                                                                                      |    |
|------------|----------------------------------------------------------------------------------------------------------------------|----|
| Table 3.1  | Factors for adoption determinants variables and their measurements .....                                             | 37 |
| Table 3.2  | Customers perception variables and their measurements .....                                                          | 38 |
| Table 3.3  | Challenges variable questions and their measurements.....                                                            | 40 |
| Table 3.4  | Reliability test for factors determining customer's adoption of e-banking.....                                       | 43 |
| Table 3.5  | Reliability test for customer's perception on e-banking adoption by commercial banks                                 | 43 |
| Table 3.6  | Reliability test for challenges facing customers when using e-banking.....                                           | 44 |
| Table 4.1: | Respondent's age .....                                                                                               | 47 |
| Table 4.2: | Transacting bank .....                                                                                               | 48 |
| Table 4.3: | Customer experience .....                                                                                            | 49 |
| Table 4.4: | Occupation .....                                                                                                     | 50 |
| Table 4.6: | Income level of respondents.....                                                                                     | 52 |
| Table 4.7  | Customers percentage response of each question .....                                                                 | 53 |
| Table 4.8  | Customers percentage response of each question .....                                                                 | 55 |
| Table 4.9  | Benefits outweigh challenges.....                                                                                    | 58 |
| Table 4.10 | Transaction frequency .....                                                                                          | 58 |
| Table 4.11 | Customers percentage response of each question.....                                                                  | 59 |
| Table 4.12 | Correlations among variables for factors determining e-banking adoption by customers                                 | 62 |
| Table 4.13 | Correlation among variables for customer perception on e-banking adoption by commercial banks                        | 63 |
| Table 4.14 | Correlation among variables for challenges faces customers when using e-banking                                      | 64 |
| Table 4.15 | Measure of Sampling Adequacy and Partial correlations for factors determining customer's adoption of e-banking ..... | 66 |
| Table 4.16 | Measure of Sampling Adequacy and Partial correlation for each .....                                                  | 67 |

|                                                                                                                                          |    |
|------------------------------------------------------------------------------------------------------------------------------------------|----|
| Table 4.17 Measure of Sampling Adequacy and Partial correlation for each variable of challenges customers face when using e-banking..... | 68 |
| Table 4.18 Revised correlations.....                                                                                                     | 69 |
| Table 4.19 Revised correlations.....                                                                                                     | 70 |
| Table 4.20 Revised MSA .....                                                                                                             | 71 |
| Table 4.21 Revised MSA.....                                                                                                              | 72 |
| Table 4.22 Second revised correlations among variables .....                                                                             | 73 |
| Table 4.23 Second revised MSA.....                                                                                                       | 74 |
| Table 4.24 Factors for extraction of factors matrix.....                                                                                 | 75 |
| Table 4.25 Factors for extraction matrix .....                                                                                           | 77 |
| Table 4.26 Factors for extraction matrix .....                                                                                           | 79 |
| Table 4.27 Unrotated factor matrix .....                                                                                                 | 81 |
| Table 4.28 Unrotated factor matrix .....                                                                                                 | 82 |
| Table 4.29 Unrotated factor matrix.....                                                                                                  | 83 |
| Table 4.30.. Oblique rotation of factor analysis for factors determining customer's adoption of e-banking.....                           | 85 |
| Table 4.31 Oblique rotation of factor analysis for customers perceived the usefulness of e-banking.....                                  | 86 |
| Table 4.32 Oblique rotation of factor analysis for challenges facing customers when using e-banking.....                                 | 87 |

## **LIST OF FIGURES**

- Figure 2.1      Technology Acceptance Model (TAM)
- Figure 2.2      Unified Theory of Acceptance and Use of Technology (UTAUT)
- Figure 4.1:      Gender of respondents
- Figure 4.2      Scree Test for Factor Analysis for factors determining e-banking adoption
- Figure 4.3      Scree Test for Factor Analysis for customers perceived the usefulness of e-banking
- Figure 4.4      Scree Test for Factor Analysis for challenges facing customers when using e-banking

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0 Introduction**

E-banking involves the provision of banking services to customers through the use of electronic way. Nowadays commercial banks provide banking products and services by electronic channels like balance inquiry, bills payment, transferring of funds from one account to another or from bank accounts to phone in an effective and efficient way such that customers have convenient and easy the way of conducting transactions with their banks. This study assesses the impact of e-banking and its relationship to customer's perceived usefulness. This chapter, therefore, will comprise of the introduction of the study, the background of the study, the statement of the problem, study questions and objectives and significance of the study

#### **1.1 Background of the study**

The present business condition is extremely unique and experiences fast changes because of mechanical development, expanded mindfulness and requests from clients. Commercial banks are experiencing quick change, as the universal economy extends and progresses towards institutional and showcase fulfilment. A major power behind these advancements is innovation, which is breaching geographical, industrial and regulatory boundaries, making new products, services and market openings, and growing more data and frameworks arranged business and administration forms (Liao and Cheung, 2001)

Technological developments, especially in the area of information technology, have revolutionized banking industry. With this development, e-banking seems to lead a new revolution. It is largely believed that the impact of e-banking enables banks to provide services at low cost. E-banking is also seen by the banks as the direct way of exchanging information and to sell or buy products and services.

Assisted by technological advancement, banks have responded to the challenge of adopting new technology, which it mainly focuses is to build customers satisfaction through provision of better products and services and at the same time reducing operating costs. Provision of e-banking services has spread widely, and an understanding of customer perceptions will have important implications for the banking industry

The Tanzanian banking industry is undergoing rapid change and becoming highly competitive. Traditional and new entrants both are trying to protect their customer base, and they also compete for new business. The advances in information technology are becoming an important factor in the future development of financial services industry especially the banking industry (Kannabiran and Narayan, 2005). Although technology adoption by the banking industry in many countries has been at a very high level; the process has been slow in Tanzania over the years. However, the emergence of new private sector banks in the country in the mid-1990s has changed the scenario drastically, as the business model of these new banks revolved around a strong IT base.

According to Hughes (2003), the most important areas of bank marketing where technology has been used by banks in recent years has been in creating new channels through which customers can transact their accounts and interact with their bank

Before the introduction of e-banking, the banking industry was operated manually whereby banks have several branches. This system was much cost fully to the customer as well as to the bank. Customers in this system lost a lot of time in the queue waiting for the service, in turn, causes congestion in the bank. Because of these commercial banks has made greater effort to improve the provision of their service by adopting the electronic channel

E-banking is very important in the evolution of the banks in the areas such as products and services and how they reach to the customers.

Therefore-banking is seen as a valuable and powerful tool in the development, growth, promotion of innovation and contributing to the competitiveness of banks (Kamel, 2005). Given the important role of e-banking in the evolution of banks, information technology has been found to lead to improvement in business efficiency and effectiveness, the quality of the service provided which in turn attract new customers and retain the existing ones

Whitten et al (2004) say that amid a decade ago, a high level of financial institutions as often as possible use PC innovation to improve the provision of services; and that the speed of selection is relied upon to become further as the innovation extends. The insurgency of data innovation has affected relatively every feature of life, among them, is the banking industry. The emergence of electronic means of the transaction has reformed and re-imagined the way banks were working. In that capacity technology innovation is currently considered as the fundamental commitment to the organization's prosperity and as their centre abilities. So the banks, be it local or remote are contributing more on furnishing to the clients with the new innovations through electronic banking.

Banking services innovation is distinguished as the data and correspondence advances utilized by banks to convey diverse services to its client in a protected and dependable route in an electronic stage (Palpand et al., 2015). All of them, clients and banks have been progressively benefited from the selection of cutting-edge data innovation amid the most recent two decades to convey its general work. Client benefit, branch profitability, development in service conveyance, quick and solid services, consistent reserve exchange, hazard administration and ongoing data framework are a portion of the advantage determined through the data innovation. The development of data innovation has opened up new markets, new items, new administrations and effective conveyance channels for the banking industry. The advance of innovation and the improvement of overall managing account systems have altogether expanded the transfer of money from one place then onto the next place and arrangement of main bank services to its clients.

Data innovation gives the selected answers for banks to deal with their front office and back office commitments. Execution of data innovation in banks was begun in the mid-2000s with an accentuation on the appropriation of main banking services, centralization of activities and finish computerization of banks. Data innovation offers a shot for banks to construct new frameworks that address an extensive variety of client needs including numerous that may not be conceivable today. Innovation advancements are following a major effect in the reshaping of the banking sector, by prompting the improvement of new monetary items and of new methods for conveying to its clients.

Barnes *et al* (2003) suggested that modern innovations in telecommunications have facilitated the instigate of new access methods for banking services, one of these is mobile banking; whereby a customer interacts through a mobile phone with the bank. Morufu et al (2012) looked into on banker's view of electronic banking in Nigeria intentionally to discover how bankers see the advantages and risks related with electronic managing an account by exploring banks workers' discernment on electronic banking services and its suggestions on bank service conveyance. Agboola (2006) notice that payments are the computerized and supreme volume of money exchanges have declined under the effect of electronic exchange realized by the reception of ICT to the instalment framework, especially in the created economies.

Laudon and Laudon (1991) battle that managers can't overlook Information Systems since they assume a basic part in the contemporary organization. They call attention to that the whole income of most fortune 500 organizations are connected to Information System. The utilization of data and correspondence innovation idea, methods, arrangements and usage methodologies to banking services has turned into a subject of key significance and worries everything being equal and an essential for nearby and worldwide intensity. ICT specifically influences the different administration elements of arranging, sorting out and the idea of services offered in the banking sector.

It has ceaselessly changed the way banks composed their corporate connection worldwide with the assortment of imaginative gadgets accessible to upgrade the speed and nature of services conveyance. Specialists battle that monetary specialist organizations ought to adjust their customary working practice to stay reasonable in the 1990's and the decade past. In this way, ICT has risen as an impetus in the different ventures of the world to help the procedure and method required to guarantee the acknowledgement of different authoritative objectives

Harold and Jeff (1995) battle that money-related specialist organizations ought to alter their conventional working practices to stay suitable in the 1990s and the decades that take after. They guarantee that the most noteworthy inadequacy in the banking sector today is an across the board disappointment with respect to senior administration in banks to get a handle on the significance of innovation and consolidate it into their key plans appropriately.

Woherem (2000) asserted that lone banks that redesign the entire of their payment and conveyance frameworks and apply ICT to their tasks are probably going to survive and succeed in the new thousand years. The analyst exhorted banks to reconsider their services and conveyance frameworks keeping in mind the end goal to legitimately position them inside the system of the manages of the dynamism of data and correspondence innovation.

As indicated by Chang (2003) e-banking contributes essentially to the circulation stations of banks, for example, computerized teller machine(ATM), telephone managing an account, telebanking, pc-keeping money and now web banking. These monetary electronic advancements are in various phases of improvement. ATMs a develop e-banking item, have existed for roughly 30 years and have been broadly acknowledged among buyers. Then again, phone managing an account, electronic bill instalment, web-based banking services and portable saving money speak to later augmentations to e-banking services (Chang,2003). E-banking is the most recent channel whose potential is being investigated by both conventional monetary services players and new participants alike (Boyes and Stone,2003)

Surplus to transfer of money, seeing and checking investment account adjusts, paying home loans, paying bills and buying monetary instruments and declarations of deposits forms have enhanced altogether because of web-based banking (Mohammed et al., 2009). This infers electronic managing an account has brought about effectiveness in service conveyance in the banking part since clients can execute business starting with one side of the nation then onto the next and from both long and short distances. Henceforth this examination goes for looking at the effect of electronic managing an account reception by commercial banks and customers perceived usefulness.

#### **1.1.1 ICT in the banking industry**

PCs have been utilized as a part of the banking sector since the International Business Machine (IBM) PCs were presented in the 1980s. Nonetheless, their effect was constrained in light of the fact that there were insufficient of them. As innovation has officially propelled, it has turned into a noteworthy impact on the banking sector (Curtain, 1998). With the driven headway in IT, various banks have been found in their most recent move in a time of banking sector change, achieved by tremendous progress in ICT. This improvement has influenced all parts of the banking sector (International Society for Technological Advancement in Banking - 1998).

The change in e-managing an account has upgraded the formation of new plans of action and has altered the conveyance channels of the money related framework bringing about a decrease in the exchange costs as well as has enhanced the easiness and openness for the client.

Banks have made broad utilization of ICT for a long time in tasks. The accompanying (ICT) Systems have had an incredible effect on the banking operations; Banker's Automated Clearing Services (BACS) utilize PCs to do most monetary exchanges between banks. These comprise of, clearing checks, paying pay rates, instalment of standing requests or direct charges.

The BACS does its preparing by bunch handling in which all exchanges from the earlier day are prepared at one time. The prepared information is passed between banks on magnetic tapes. Logs are kept of all the exchange (Abernathy, 2005).

Rose (1999) portrays Automated teller machines (ATMs) as; " it consolidates a computer workstation recordkeeping framework and trade vault out one unit, allowing clients to enter the bank's accounting framework with a plastic card containing a Personal Identification Number (PIN) or by punching an extraordinary code number into the workstation connected to the bank's modernizes records 24 hours every day" once get to is picked up, it offers a few retail banking services to clients. They are for the most part situated outside of banks, enabling clients to approach whenever of the day. ATMs can give an extensive variety of services, for example, influencing deposits, to allow money exchange between two accounts and bill settlements.

Mobile Banking additionally called "Simbanking" can be considered as a type of remote or virtual managing an account, which is basically the conveyance of branch money-related services through media transmission gadgets where the bank clients can perform retail banking exchanges by dialing a touch-tone phone or portable correspondence unit, which is associated with a robotized arrangement of the bank by using Automated Voice Response (AVR) innovation" (Balachandher et al., 2001).

Electronic Funds Transfer at Point of Sale (EFTPOS) is an online framework that enables clients to shift money momentarily from their bank accounts to shipper accounts when making buys (at buy focuses). A POS utilizes a check card to actuate an Electronic Funds Transfer Process (Chorafas, 2000). Expanded managing account efficiency comes about because of the utilization of EFTPOS to benefit clients shopping settlements necessities rather than administrative obligations in taking care of checks and money withdrawals for shopping.

The suggestion of Internet keeping money as per Essinger (1999) is; "to give clients access to their bank account by means of a website and to empower them to institute certain exchanges for them, given consistency with stringent security checks" Internet managing an account by its tendency offers more comfortability and adaptability to clients combined with a practically total control over their saving money. Service conveyance is educational (informing clients on bank's product, and so on) and value-based (leading retail managing account services). As an elective conveyance lead for retail saving money, it has all the effect on profitability credited to Telephone Banking and PC Banking.

It is most cost-efficient innovative methods for yielding higher efficiency. It wipes out the boundaries of separation, time and gives persistent profitability to the bank to beyond belief far-off clients.

#### **1.1.2 Commercial banks in Tanzania**

Banking is the business movement of tolerating and defending cash claimed by different people and substances and after that loaning out this cash keeping in mind the end goal to win a benefit. The banking act in Tanzania characterizes banking to mean getting deposits from the overall population through the acknowledgment of deposits payable upon request or after a settled period or after notice, or any comparative operation through the continuous sale or position of securities, authentications, notes or different securities, and to utilize such finances, in entire, or to some extent, for credits or ventures for the record of and at the risk of the individual doing such business.

In Tanzania, the banking industry is made out of the Bank of Tanzania (BOT), as the administrative expert and the directed, business banks, non-bank money related foundations and forex departments. As at 30th June 2017, the banking industry involved 65 organizations, 40 of which are business banks and home loan back organizations (BOT 2016). Business banks and fund organizations are authorized and controlled under the banking and financial institutions Act 2006 top 212

directed under the BOT. Out of the 41 business bank organizations, 21 are privately possessed and 20 are owned by foreigners.

The privately bank related establishments included 3 banks with which government is an investor, 18 exclusive business banks and 1 mortgage financial institution. Execution of the banking sector is appraised solid as organizations accomplished palatable monetary conditions and enhanced tasks come about regardless of high market rivalry as every one of these foundations scrambles for a noteworthy piece of the market share. New products have been acquainted with the market because of rising rivalry. The case of new developments in Tanzania banks incorporates the appropriation of ATMs, internet banking and mobile banking. The framework stayed all around promoted. Investor's assets, deposits and assets expanded by 39.08%, 17.68% and 29.87% individually (BOT 2015).

## **1.2 Statement of the problem**

The banking industry has turned out to be exceptionally aggressive today. To have the capacity to survive and develop in the changing business sector condition banks are going for the most recent advancements, which is being seen as an empowering asset that can help in creating leaner and more adaptable structure that can react rapidly to the progression of a quickly changing business sector situation. Today, clients of banks have productive, quick and helpful banking services. In accordance with the arrangement of characteristics and satisfactory services, most banks in Tanzania are putting a lot of money in data and technology innovation. While the fast advancement of data innovation has made banking sector errands more proficient and less expensive, technological investments are taking a bigger offer of banks assets. Right now, aside from workforce costs, innovation is generally the greatest thing in the financial plan of a bank and the quickest developing one. Another issue related with this money related development plastic card misrepresentation, especially on lost and stolen cards and fake card extortion, Banks need to oversee expenses and risks related to electronic banking.

It is accordingly essential that ICT advancements are made by sound investigation of risks and expenses related so that to stay away from hurts on the bank performance.

On one hand, the bank execution is straightforwardly identified with proficiency and viability of electronic saving money, however, on the other tight controls and measures are expected to counteract misfortunes related with electronic banking. The banks need to adjust the two choices altogether not to impair its general success. This is just conceivable if general impacts of electronic banking on the banks and its clients are comprehended.

Banking activities have experienced noteworthy changes since the appearance of the internet (Black et al, 2001). Banks give numerous services on the web, which are to a great degree advantageous for banking clients. Electronic keeping money (e-banking) has existed for quite a long time, beginning with programmed teller machine (ATM) in the late 1960s (Broerick and Vachirapornpuk 2002). Internet banking makes it feasible for banks and their clients to work together from anyplace on the planet. This significantly builds the bank's potential customer base. All things considered, the worldwide way to deal with banking that e-banking allow makes it to a great degree troublesome for regulatory authorities to implement finance laws (Dong-Her et al., 2004)

Furthermore, directions contrast from country to country and banks are not generally capable in the finance-related laws of each country in which they have a business (Flavian et al, 2006). After some time, an ever-increasing number of concerns are related to electronic managing an account, as the business spread out to telephone and internet banking. Be that as it may, paying little heed to the advantages acquired by e-banking, e-banking in business banks is going into various difficulties. E-banking represents a few risks to the banks and banking clients who utilize it. Clients need to measure these risks against the potential advantages previously they choose whether internet banking is a decent choice. Electronic banking needs one thing most banks flourish with client's services.

Electronic banking is used by the client rather than a bank employee, so there is no up close and personal communication. The clients do not look for any extra services or help on by ace currently reaching the bank. A few clients decline to utilize these services since they believe they are qualified for face to face client benefit.

Then again, there are clients who gripe about the issues with security and exactness. These grievances have made a portion of the clients not every now and again utilize e-bank and thus prompt an expansion of line inside a bank. Line inside a bank has prompt superfluous congestion of clients inside a bank which influences the execution of the bank. Commercial banks customers in Tanzania use e-banking in their transactions but faces several challenges as explained above. Customers also have been influenced by several factors to use e-banking. Commercial banks have tried to introduce e-banking services to their customers as much as they can but not sufficient enough. The usage of e-banking services has been a little bit sluggish to commercial banks customer's despite of banks investing a lot on this new technology. Accordingly, this investigation expected to look at the impact of e-banking and its relationship customer's perceived usefulness.

### **1.3 Research Questions**

#### **1.3.1 General Research Question**

The general research question of the study was; what are the relationship between e-banking and customer's perceived usefulness?

#### **1.3.2 Specific Research Questions**

- i. Assessment of the factors determining e-banking adoption by customers of commercial banks
- ii. What are the customer's perceptions of e-banking adoption by commercial banks?
- iii. What are the challenges of using e-banking to customers of commercial banks?

## **1.4 Research Objectives**

### **1.4.1 The General Objective**

The general objective of the study was to establish the relationship between e-banking and customer's perceived usefulness.

### **1.4.2 Specific Objectives**

- i. To determine the factors for e-banking adoption by customers of commercial banks.
- ii. To assess the customer's perception of e-banking adoption by commercial banks.
- iii. To find out the challenges of using e-banking to customers of commercial banks.

## **1.5 Significance of the Study**

The findings of the examination will be utilized by banks and clients to settle on suitable choices towards the reception of e-banking. They will comprehend the elements for selection of e-banking, the view of clients on e-banking services and difficulties confronting e-banking services. It will likewise empower the supervision body, the Central bank of Tanzania to comprehend the rising issue on e-banking. The investigation will likewise be gainful to the scientists and researchers may utilize the examination as a wellspring of reference for additionally looks into on a similar area. E-banking innovation advancements and developments rely upon the investigation completed in such area. It is critical to report the examination discoveries for future reference. Researchers will be quick to comprehend the effect of e-banking and customer's perception.

The examination additionally will assist policymakers with reviewing strategies, guidelines and controls concerning e-banking services and products.

## **1.6 Scope of the study**

This study investigates the impact of e-banking adoption by commercial banks and customers perceived usefulness by looking at the factors for e-banking adoption by

customers, customer's perception on e-banking adoption by commercial banks and challenges of using e-banking to customers.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter covers both theoretical and empirical literature review. The theoretical literature review describes the theory of intermediation, information and communication technology and its components. Furthermore, the empirical literature review is specifically used to address the research objectives and questions through the studies carried out by others.

#### **2.1 Theoretical Literature Review**

##### **2.1.1 Information and Communication Technology**

Information Technology (IT) is the computerization of procedures, controls, and data generation utilizing PCs, media communications, programming and auxiliary gear, for example, automated teller machine and platinum cards (Khalifa, 2000). It is a term that for the most part covers the bridling of electronic innovation for the data needs of a business at all levels.

Irechukwu (2000) records some banking benefits that have been altered using ICT as including account opening, client account order, and exchange preparing and recording. Data and Communication Technology has given self-benefit offices (robotized client benefit machines) from where imminent clients can finish their record opening archives straightforwardly on the web. It helps clients to approve their record numbers and get a guideline on when and how to get their chequebooks, credit and charge cards. Correspondence Technology manages the Physical gadgets and programming that connect different PC equipment parts and exchange information starting with one physical area then onto the next (Laudon and Laudon; 2001).

ICT products being used in the banking industry incorporate Automated Teller Machine, Smart Cards, Telephone Banking, MICR, Electronic Funds Transfer, Electronic Data Interchange, Electronic Home and Office Banking

### **2.1.2 E-banking**

Electronic banking is the cutting edge route utilized by banks in the arrangement of services and products to its clients. Electronic banking utilizes web and cell phone energize as the channel of achieving clients. The idea of e-banking is depicted from various perspectives; Chang and Hamid (2010) characterized e-banking as the procedure through which clients finish money exchanges electronically without going to the banks physically or without going by banks premises. Alsajja and Dennis (2010) characterized e-banking as the way toward giving banking services through innovation without utilizing physical assets of banks and additionally clients

By utilizing e-banking, banks can convey services to clients and other e-products through the web instead of going to the bank premises physically (Cheung and Lee, 2006)

### **2.1.3 Customer's perceived usefulness**

Perceived usefulness is how much people trust that utilizing a specific framework would upgrade his or her activity execution. Davis et al (1992) characterized perceived usefulness to customer's discernment with respect to the result of the experience. Davis (1993) characterized perceived usefulness as the person's discernment that utilizing the new innovation will upgrade or enhance his/her execution. Additionally, Mathwick et al., (2001) characterized perceived usefulness as the degree to which a man esteems a specific framework to help his or her activity execution. Accordingly perceived usefulness with regards to e-banking is the way clients see a specific administration or product given by the banks through web and phone.

## **2.2 Components of E-banking**

### **2.2.1 Internet banking**

E-banking signifies; "to give clients access to their financial balances by means of a site and to empower them to institute certain exchanges for them, given consistency with stringent security checks" Essinger (1999). Internet banking by its temperament offers more comfort and adaptability to clients combined with a for all intents and purposes total control over their banking. Service conveyance is enlightening (educating clients on bank's products, and so on) and value-based (leading retail banking services). As an elective conveyance lead for retail banking, it has all the effect on profitability credited to Telephone Banking and PC Banking.

It is most cost-effective mechanical methods for yielding higher profitability. It wipes out the boundaries of distance, time and gives consistent profitability to the bank to beyond far-off clients.

### **2.2.2 Automated Teller Machine (ATM)**

Automated teller machines (ATMs) consolidates a workstation recordkeeping framework and trade vault out one unit, allowing clients to enter the bank's accounting framework with a plastic card containing a Personal Identification Number (PIN) or by punching an exceptional code number into the workstation connected to the bank's modernizes records 24 hours every day" Rose (1999), once get to is picked up, it offers a few retail banking services to clients. They are for the most part situated outside of banks, enabling clients to approach whenever of the day. ATMs can give an extensive variety of services, for example, influencing deposits, to finance exchange between two records and bill settlements.

### **2.2.3 Mobile banking**

Mobile Banking likewise called "Sim-banking" can be considered as a type of remote or virtual managing an account, which is basically the conveyance of branch monetary services through media transmission gadgets where the bank clients can perform retail banking exchanges by dialing a touch-tone phone or mobile correspondence unit, which is associated with a computerized arrangement of the bank by using Automated Voice Response (AVR) innovation" (Balachandher et al., 2001).

### **2.2.4 Electronic fund transfer**

Electronic Funds Transfer (EFT) is an online framework that enables clients to exchange finances quickly from their bank accounts to dealer accounts when making buys (at buy focuses). If there should be an occurrence of a POS, it utilizes a check card to activate an Electronic Funds Transfer Process (Chorafas, 2000). Expanded banking profitability comes about because of the utilization of EFTPOS to benefit clients shopping settlements prerequisites rather than administrative obligations in taking care of checks and money withdrawals for shopping.

### **2.2.5 Point of sales**

The term Point of Sale (POS) is used to depict the innovation utilized by a customer to give their settlements information in return for goods or services. POS innovation has really been around for a long time with the main money enlists going back to 1879 (Abell, 2009). Be that as it may, it wasn't until the mid-70s that this innovation was changed over from a mechanical to an electrical frame. In the 1980s, the innovation was progressed again to use cutting-edge individualized computing (PC) innovation. After quite a while, bolster for standardized identification checks and instalment card perusing was included. Today, the most recognizable case of a POS framework would be the check-out counter at a retail or market. Be that as it may, there are numerous more types of the purpose of offer frameworks utilized as a part of numerous businesses composes.

## **2.3 Theories used in the study**

### **2.3.1 Technology Acceptance Model (TAM)**

Technology acceptance model examines the mediating role of perceived ease of use and perceived usefulness in their relation between systems characteristics (external variables) and the probability of system use (an indicator of system success) (Davis 1985). The TAM suggests that when users are presented with new technology there are several factors which determine their decision to adopt it. This model comprises of two beliefs, the perceived usefulness and the perceived ease of use, which determine attitude to adopt new technologies. According to Davis (1989), Perceived usefulness is defined as “the degree to which individuals believes that using a particular system would enhance his or her job performance”. Perceived ease of use is defined as “the degree to which an individual believes that using a particular system would be free of physical and mental effort” The attitude toward adoption will decide about the adopter’s positive or negative behaviour in the future concerning new technology. This theory is relevant to this study because it tries to tell about the attitude of the users of new technology towards adopting or rejecting it. In this case the theory tries to link between e-banking and its relationship to customers perceived usefulness.

### **2.3.2 Theory of planned behaviour (TPB)**

The theory of planned behaviour helps to understand how we can change the behaviour of people (Ajzen, 1991). The TPB is a theory which predicts deliberate behaviour because behaviour can be deliberative and planned

TPB is the successor of the similar Theory of Reasoned Action of Ajzen and Fishbein (1975, 1980). Both models have based on the premise that individuals make logical, reasoned decisions to engage in specific behaviours by evaluating the information available to them (Sara, 2010). TPB is more applicable when the probability of success and actual control over the performance of a behaviour are suboptimal (Mimiaga et al., 2009)

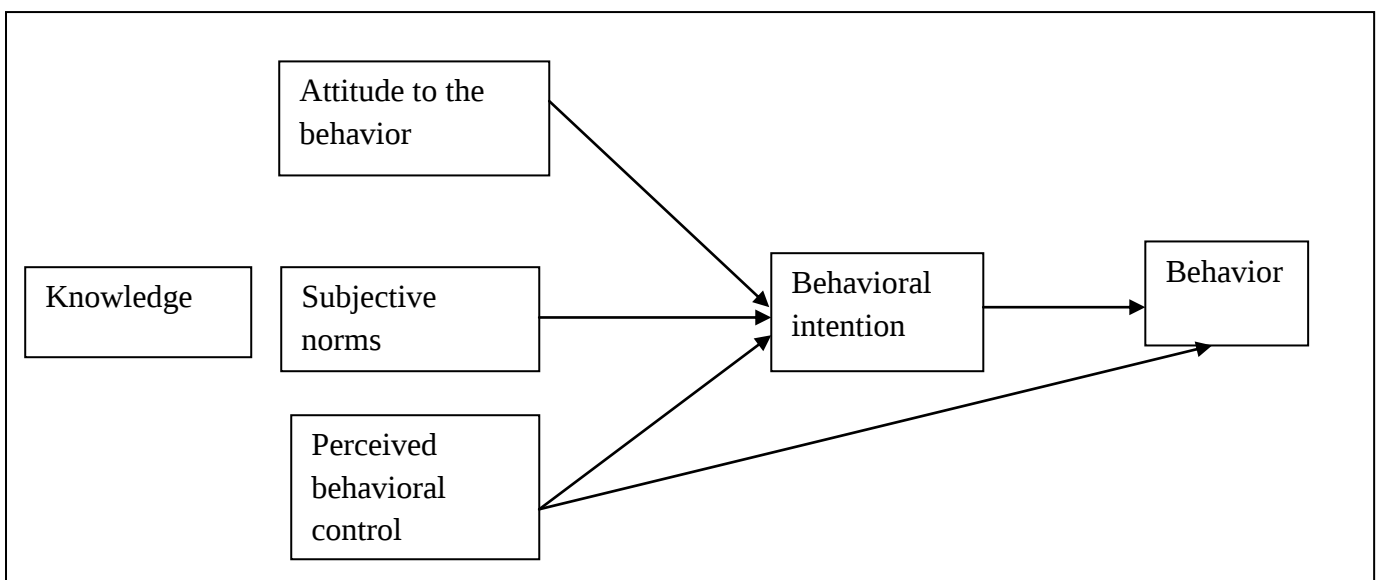
According to TPB, human action is guided by three kinds of considerations

- i. Behavioural beliefs (beliefs about the likely consequences of the behaviour)
- ii. Normative beliefs (beliefs about the normative expectations of others)
- iii. Control beliefs (beliefs about the presence of factors that may facilitate the behaviour)

Ajzens three considerations are crucial in circumstances when changing the behaviour of people

In their respective aggregates, behavioural beliefs produce a favourable or unfavourable attitude toward the behaviour, normative beliefs result in perceived social pressure or subjective norm, and control beliefs give rise to perceived behavioural control. The combination, attitude toward the behaviour, subjective norm, and perception of behavioural control lead to the formation of a behavioural intention. As a general rule, the more favourable the attitude and subjective norm and the greater the perceived control, the stronger should be the person's intending to perform the behaviour in question. This theory is relevant to the study because it explains how we can change the behavior of the people and accepting new things which affect their past behavior.

#### **Diagram of Theory of Planned Behavior (TPB)**



### **2.3.3 Diffusion of innovation theory**

Diffusion of advancement hypothesis predicts the media, and in addition contacts between individuals or organizations, give data and impact supposition and judgment. Diffusion is the "procedure by which a development is imparted through specific channels over some stretch of time among the individuals from a social framework". Diffusion is "a thought, practice, or protest that is seen to be new by an individual or another unit of adoption". "Communication is a procedure in which members make and offer information with each other to achieve a shared comprehension" (Rogers, 1995)

As indicated by Rogers (1995) developments shows up in four phases; creation, dispersion through the social framework, time and results. All data goes through the systems. The idea of the systems and the parts feeling of leaders play in them decide the probability that the advancement will be received. Advancement ought to be generally acknowledged keeping in mind the end goal to accomplish improvement and sustainability.

In adopting new technology there are five categories:

- 1) Innovators
- 2) Early adopters
- 3) Early majority
- 4) Late majority and
- 5) Laggards

The diffusion of innovation theory is also relevant to this study because it explains the stages of accepting new technology. In this case this theory shows the stages of adopting e-banking to customers of commercial banks from early adopters to those who are laggards.

#### **2.3.4 Unified theory of acceptance and use of technology (UTAUT)**

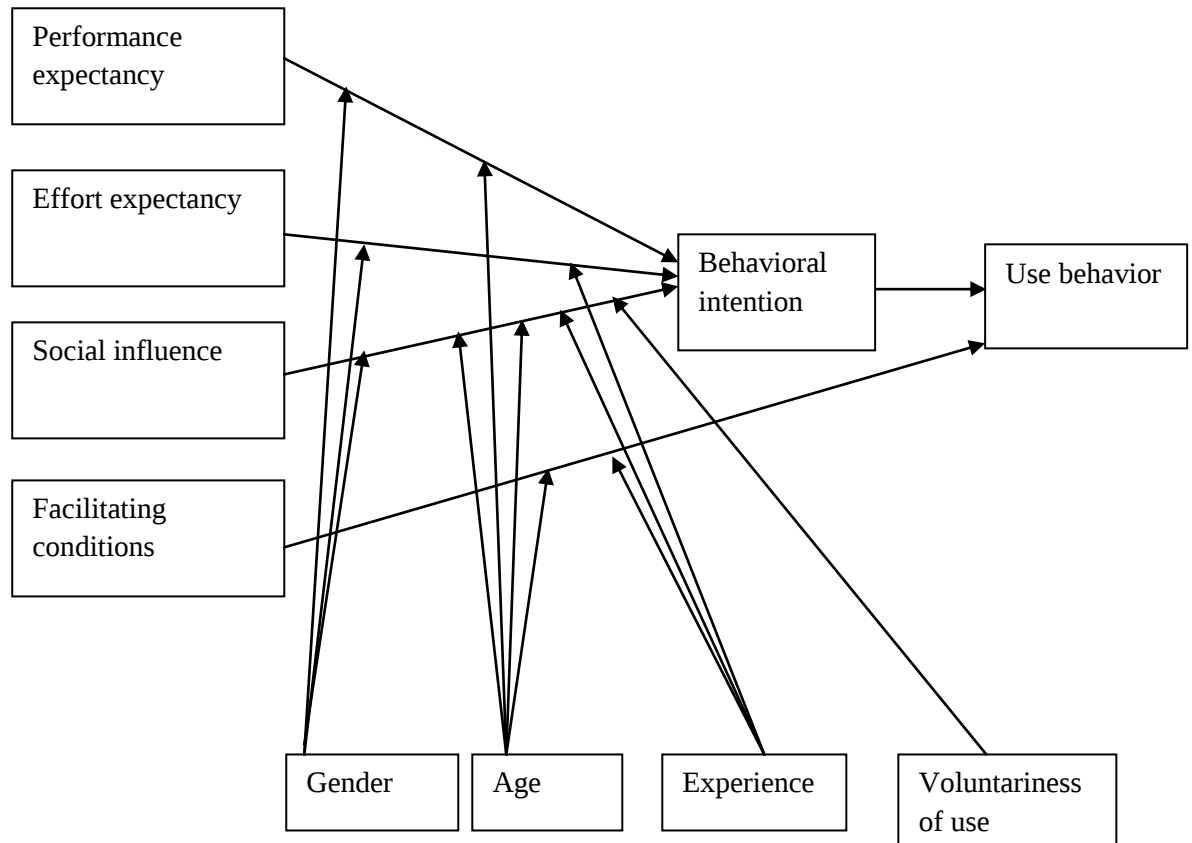
The UTAUT theory tries to explain the intention to use a certain system and corresponding usage behaviour. This theory was developed by combining eight other models that were used earlier by other researchers in explaining information systems and the usage behaviour

The UTAUT was formulated by Venkatesh et al (2003), which comprised of four main considerations

- i. Performance Expectancy (PE)
- ii. Effort Expectancy (EE)
- iii. Social Influence (SI)
- iv. Facilitating Conditions (FC)

The first three considerations are direct determinants of usage intention and behaviour and the last one is a direct determinant of user behaviour. The theory has four moderators, gender, age, experience and voluntariness of use, which enable the four main considerations to affect usage intention and behaviour. The behavioural intention seems to be a significant predictor of technology use (Venkatesh et al., 2003). This theory is also relevant to this study as it explains the intention of customers to use e-banking and their corresponding behavior. Intention and user behavior are important predictor of technology use, in this case e-banking, by customers of commercial banks.

### Diagram of Unified Theory of Acceptance Use of Technology (UTAUT)



### 2.4 Empirical Literature Review

The empirical literature review addressed research questions based on the studies carried out in the relevant research area.

Kawamala (2013) conducted an investigation of the e-banking and consumer loyalty in Tanzania banks. The examination explored the variables which improve the appropriation of e-banking in Tanzania, the client's view of e-banking in Tanzania, the effect of e-banking usefulness on the fulfilment results, risks of utilizing e-banking. The researcher utilizes surveys and interview as the strategy for information gathering. The examination uncovered the clients were happy with the e-banking services and that they lean toward ATM among the e-banking products due to its adequacy and ease

of use. The investigation suggested that education and promoting of e-banking product ought to be urged by the bank to pull in more clients

Kambona (2013) conducted an examination on adoption of web-based banking in Tanzania. The investigation went for demonstrating the level of client's mindfulness towards web-based banking in the banking sector. The investigation analyzed the level of client's mindfulness in web-based banking in Tanzania, the level of web-based banking unwavering quality to make sense of how banks can exploit the web-based saving money framework. The researcher utilizes interviews, surveys and documentation as information gathering technique. The investigation uncovered that banks have a direct level of client mindfulness and less promoting on the unwavering quality of web banking and services and expansion to that banks utilize the regular tool of the verbal commercial. The researcher recommended that banks should advertise its online services and use the opportunities available in the market to increase its market share.

Ulaya (2016) studied factors for adoption and benefit of e-banking to customers. The study aimed at assessing the components deciding the customer's selection of e-banking, the extent to which customers use e-banking and assessing the benefits of using e-banking services to customers.

The study uses structured questionnaires in data collection. The study finds that the demographic attributes had a noteworthy impact on the appropriation of e-banking by customers. The study additionally revealed that most of the users of electronic banking agreed on the value-based benefit with electronic banking as being convenient, time-saving and efficient transactions.

Mazwile (2014) contemplated the impact of electronic banking on service delivery fulfilment to clients. The investigation utilized a contextual investigation configuration utilizing quantitative and subjective approach. The investigation demonstrates that there is a positive view of the respondents impacted by the foundations of electronic banking products as far as for use, ease of use, efficient and cost. The investigation suggested that banks ought to

do broad client education to empower more clients to use the services and re-evaluation of service charges and cost for most extreme fulfilment.

Tarimo (2013) contemplated the evaluation of the impact of e-banking on the arrangement of value benefit in banks. The examination utilizes a contextual investigation configuration to uncover essential and expected information to answer the exploration questions. The investigation utilizes a survey as the strategy for information accumulation. The study revealed that the usage of e-banking differs depending on the kind of banking services. The researcher also recommends that the service providers should increasingly play an educative role and embark on a vigorous campaign on these services. They should educate potential customers, at the same time, reduce their cost of transactions and also improve their technical aspects so as to make the transactions smooth.

Reeti et al., 2009 conducted an investigation on client's point of view with respect to e-managing an account in developing the economy. The researcher trusts that variables influencing client discernment and state of mind towards and fulfilment with e-banking are a fundamental piece of a bank's methodology detailing the process in a rising economy.

The investigation finds that clients are impacted in their utilization of e-banking services by the sort of account they hold, their age and occupation, join most elevated level of convenience to adjust enquiry benefit among e-banking services, consider security and trust most imperative in influencing their fulfillment level and find moderate exchange speed the most every now and again confronted issue while utilizing e-banking.

Simpson (2002) uncovers that electronic managing an account is persuaded to a great extent by the possibilities of operating costs minimization and operating incomes boost. An assessment of internet banking in created and developing markets uncovers that in created markets substitute for physical branches for conveying banking services increases rapidly.

Egesa (2006) considered client reception of telebanking Technology in the Kenyan banks and found that clients progressively expand their utilization of telebanking as their experience develops with the framework and that instruction assumed an indispensable part in the selection and use of telebanking innovation. In this examination, he utilized the descriptive sort of research and made sampling among the business banks in Kenya.

Siam (2006) inspected the effect of e-banking upon Jordanian banks and presumed that larger part of the banks are giving services on the web through their sites and his discoveries demonstrate that the consideration is more to accomplishing e-banking as fulfilling and satisfying clients' needs. He likewise inferred that there ought to be an all-around verbalized technique to make progress and benefits over the long haul.

Maina (2010) completed a review on the effect of ICT on Business Value Creation in Kenyan Banking Sector. He got information from workers of thirty banks out of a population of forty-six banks that had as of late put in new incorporated centre banking frameworks. The overview discovered that the appropriation of ICT had affected the substance and nature of banking activities subsequently making esteem that improves monetary execution for the banks and consumer loyalty. ICT was found to display extraordinary potential for business process re-designing of Kenyan Banks.

Ayadi (2003) discloses that entrance to electronic methods for payments and the high number of clients associated with the web has changed the impression of banks toward advertising and expanded the advancement of web saving money. He contends that Internet saving money requires a sound security technique that includes outlining powerful strategies through which clients can be validated in a remote situation to such an extent that exchanges being led are anchored inside their particular surroundings. Web managing an account innovation has rolled out exceptional improvements in the banking industry, which include: cost lessening because of electronic handling completed on the Internet.

Amaoko (2012) in his examination on the effect of ICT on managing account tasks in Ghana, ICT has contributed emphatically to the arrangement of banking services and the development of the Ghanaian banking industry. Web banking and web-based banking isn't yet created in Ghana. The examination prescribed that banks ought to create easy to use frameworks and applications for the all-inclusive community, Government and banks should assume a key part in improving ICT foundation, set up motivations like duty diminishment, and make PC accessible and moderate for each Ghanaian. Monetary foundations should offer projects to console client's security with respect to ICT through sharpening, workshops and bolster the abilities improvement among bank staff, there ought to be a focal observing unit for all time kept an eye on by faculty to check the tasks of all the bank's ATM's so deficiency of money, intermittent shutdowns, seizure of electronic cards and so forth are taken care of with dispatch. Ultimately, the banking establishments should likewise turn out with more electronic items and services to lessen the turnaround time of clients. Such products will give them the chance to sit in the solace of their homes, work environments and execute business with the banks.

Morufu and Taibat (2012) inquired about on investor's impression of electronic managing an account in Nigeria deliberately to discover how financiers see the advantages and risks related with electronic banking by examining banks workers' recognition on electronic banking and its suggestions on bank benefit conveyance.

The examination reasoned that 'limits burden' and 'government access to information' show up as the most vital advantage and hazard separately while 'decreases HR prerequisites' and 'charges high expenses for services' are the slightest essential advantages and hazard-related with electronic banking.

Basweti et al (2013) examined on effect and difficulties of information correspondence innovation appropriation in the Tanzanian banking segment. The examination discovered that there is a requirement for bankers to instruct public in the utilization of web-based banking product, put more into ICT framework and the legislature to decrease the duty on ICT devices. They likewise prescribe that

individual advancements should be examined; the effect of receiving other individual innovations, gainfulness and execution issues ought to likewise be researched to open up and make room for approach and business choices.

Sohail and Shanmugham (2002) considered e-banking and client priorities in Malaysia. The investigation looks at the client's prioritization for electronic saving money and the elements, which they considered affected the reception of electronic banking. The examination uncovered that availability of the web, consciousness of e-banking, and client's hesitance to change is the components that essentially influenced the use of e-banking in Malaysia

Liao and Cheung (2001) led an examination of web-based e-banking and customer states of mind. Customer states of mind toward the utilization of readiness to utilize web e-retail saving money were recognized and estimated. The researcher utilizes the review information. The examination demonstrated that desires for exactness, speed, security and easiness are a portion of essential quality characteristics that fundamental perception of use.

Payam et al (2012) examined mobile managing an account selection by Iranian bank customers. The examination gives understanding into factors influencing the appropriation of mobile banking in Iran. The investigation found that apparent handiness, convenience, the requirement for communication, hazard, cost, the similarity with a way of life, validity and trust.

The investigation found that adjustment with a way of life and trust were the hugest predecessors clarifying the appropriation of mobile banking

## **2.5 Research gap**

Although there is growing interest in e-banking adoption by many commercial banks in Tanzania, there still low adoption rate among customers and its usage has not brought greater impact as the customer expected. More e-banking product should be launched in order to satisfy customers need. Some researchers in Tanzania did the same work but still, there are some areas not really covered. Ishengoma (2011)

directed an investigation on examination of mobile managing an account for money related incorporations in Tanzania. The researcher focuses only on one product of e-banking, which is mobile banking. Sara (2013) conducted a study on e-banking and customer's perception in Tanzania commercial banks but focuses only on CRDB bank. Erick (2015) conducted a study on customer perception on e-banking in Tanzania but the researcher concentrated on the risk of using e-banking only. Therefore, this study tries to fill the hole by conducting a study on the impact of e-banking adoption by commercial banks and customer's perceived usefulness, a case of commercial banks in Morogoro.

## **2.6 CONCEPTUAL FRAMEWORK**

### **2.6.1 Introduction**

A conceptual framework is an explanatory apparatus with a few varieties and settings. It is utilized to make applied refinements and compose thoughts. Strong calculated systems catch something genuine and do this in a way that is anything but difficult to recollect and apply. The utilization of the term conceptual framework crosses both scale (vast and little hypotheses) and settings (sociology, promoting, connected science, workmanship and so on.). Its unequivocal definition and application can in this manner shift. Conceptual structures are especially valuable for sorting out gadgets in experimental research.

### **2.6.2 Variables**

Variables are the properties or attributes of individuals or things that shift in size or quality from individual to individual or protest question. Further, variables can be characterized as the names that are given to the difference we wish to clarify; it can be either a consequence of some power or is itself the power that causes an adjustment in another variable

### **2.6.2.1 Independent variable**

Independent variables are those variables that can be manipulated either by the researcher or by nature. Independent variables are input. Therefore, from this study the independent variables are as follows;

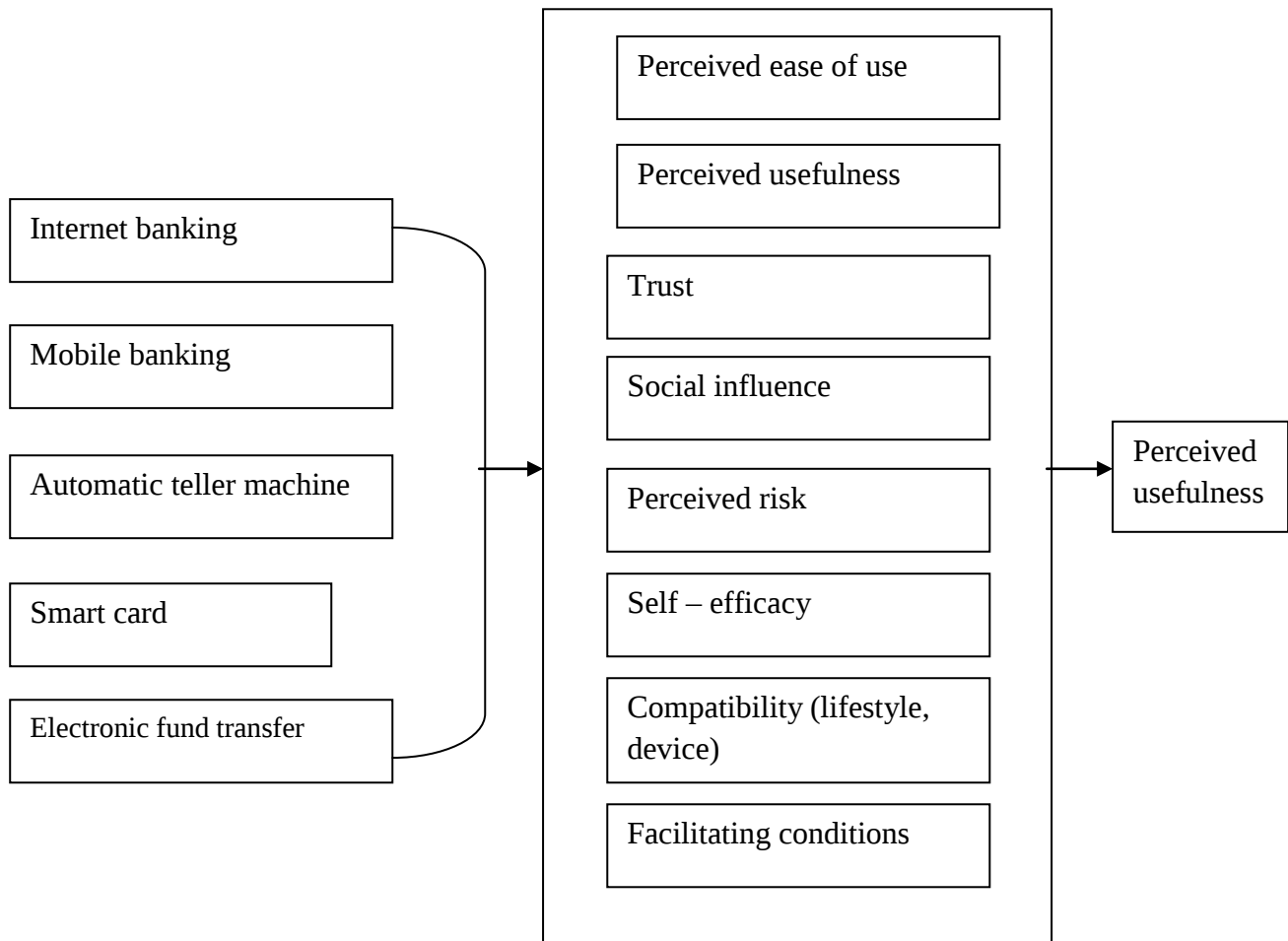
- Internet banking
- Mobile banking
- Automated teller machine
- Smart cards
- Electronic fund transfer

### **2.6.2.2 Dependent variable**

Dependent variables are the variables which cannot be manipulated by the researcher or nature. It is a measure of the effect of the independent variable. The dependent variables are influenced by the independent variable. Therefore, dependent variables are output. From the study, the dependent variable is customer's perceived usefulness.

The relationship between independent variable (Automated teller machine, mobile banking, internet banking and electronic fund transfer) and dependent variable (customers perceived usefulness) is moderated by factors such as perceived usefulness, perceived ease of use, perceived risk, trust, social influence and compatibility

**Conceptual Framework Diagram**



**Source: Own Researcher (2018)**

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

A research methodology guides the researcher in collecting, analyzing and interpreting observed facts (Bless and Achola, 1988)

This chapter presents methods, techniques and procedures which was used in conducting the study particularly, gathering information for it. The chapter covered mainly the research design, research area, study population, sampling techniques, data gathering methods and data analysis techniques.

#### **3.1 The Study Area**

The study was carried out on Commercial Banks at Morogoro Municipality in Morogoro Regional. One of the criteria used to select it is that there are many commercial banks as well as customers in Morogoro Municipality as compared to other districts in Morogoro region. Morogoro Municipality is located in the eastern of the country. It lies between Latitudes  $6^{\circ}\text{N}$  and  $6.3^{\circ}\text{S}$ , and Longitude  $35.3^{\circ}$  and  $36.02^{\circ}$  East. It is 196 km to Dar es Salaam and 260 km to Dodoma (United Republic of Tanzania URT, 2005). The researcher chose Morogoro region to be the study area because of the fact that it is the growing city and the population is increasing hence; there is a need for the fund. Therefore, it is high time for banks to estimate credits before issuing to the people who need.

The climate of Morogoro is tropical, marked with seasonal rainfall distribution with a long dry season beginning from late June to late March, and a wet season starting late March to the end of May. The average rainfall is 935mm per annum. The minimum average temperatures are  $24.6^{\circ}\text{C}$ . July is the coldest month, whereas November is the hottest month, with mid-day temperatures exceeding  $30^{\circ}\text{C}$  (URT, 2005).

Morogoro Municipality is administratively divided into 6 divisions, 29 wards and 295 *Mitaa* (hamlets). At the Headquarters, there are 9 departments with a total of 3900 employees (URT, 2016). It is projected that by reaching 2020 employees will be 4300 in Morogoro Municipal Council. It is believed that 75% of the income of Municipal residents originates from Agriculture and Animal husbandry. 25% of the population is engaged in petty Businesses such as retail shops, carpentry and food vending. Other activities include large, small and medium industries, consultancy and construction work (URT, 2005). According to Population and Housing Census (2012), the Municipality of Morogoro has a total population of 315,866 comprising 151,700 males and 164,166 females. The average household is 4.4 with an average population growth rate of 2.4%. This information is according to the national census of 2012. According to Directorate of Banking Supervision Annual Report (2016), geographically, Morogoro Region are ranked sixth in terms of number of commercial bank branches in Tanzania. It contains 32 branches of commercial banks out of 810 available branches in Tanzania. The researcher selected Morogoro Municipality as it contains more number of branches of commercial banks as compared to other district in Morogoro Region and there are a lot of customer's transacting with these banks by the use of e-banking and hence make it relevant for the study to be conducted.

### **3.2 Research Design**

As indicated by Macmillan and Schumacher (2001), a research design is an arrangement for choosing subjects, look into sites and information accumulation methodology to answer the exploration questions. It is the theoretical structure inside which explore is led and constitutes the outlines for the gathering of information and the investigation of the information gathered.

The research design is the plan of conditions for accumulation and investigation of information in a way that means to join importance to the research reason with the economy in the methodology (Kothari, 2004). Actually, the research design is the

theoretical structure inside which inquire about is directed; it constitutes the plan for the accumulation, estimation and investigation of information. All things considered, the plan incorporates a framework of what the researcher will do from composing the hypothesis and its operational ramifications for the last examination of information (Kothari, 2004).

### **3.2.1 Types of Research Design**

#### **3.2.1.1 Exploratory Research Design**

Exploratory research studies are additionally called formative research contemplates. The primary reason for such examinations is that of planning an issue for more exact examination or of building up the working theory from an operational perspective. The significant accentuation in such investigations is on the disclosure of thoughts and bits of knowledge. All things considered, the examination configuration fitting for such investigations must be sufficiently adaptable to give a chance to think about various parts of an issue under investigation.

#### **3.2.1.2 Descriptive/Diagnostic Research Design**

The descriptive research design is those which are concerned about depicting the attributes of a specific individual, or of a group, though diagnostic research studies decide the recurrence with which something happens or its relationship with studies else (Kothari, 2004). The investigations concerning whether certain factors are related are examples of diagnostic studies. As against this, studies concerned about a particular expectation, with the portrayal of realities and attributes concerning an individual, group or circumstance are examples of descriptive studies. In descriptive and also demonstrative studies, the researcher must have the capacity to characterize clearly, what he needs to gauge and should discover satisfactory strategies for estimating it alongside an obvious meaning of the population he needs to consider (Kothari, 2004)

### **3.2.1.3 Hypothesis-Testing Research Design**

Hypothesis-testing research studies are those where the researchers test the theory of a causal connection between factors. Such examinations require techniques that won't just lessen bias and increment dependability yet will allow drawing inductions about causality.

From the above clarification, this examination was descriptive in nature, since it went for portraying the effect of e-banking adoption and client's perceived usefulness. The descriptive research must be set up to keep in view the target and the asset accessible. However, it must guarantee the minimization of bias and augmentation of the dependability of the evidence gathered. This investigation utilized a survey research design. The study described the factors for e-banking adoption, customer's perception on e-banking adoption and challenges of using e-banking by customers.

### **3.3 Research Approach**

This examination applied both subjective and quantitative approach. A quantitative research contemplates goes for setting up the connection between one variable and another in the population (Hopkins, 2000). A quantitative research approach was chosen for this investigation since it is a formal goal, precise process in which numerical information is used to get data (Burns & Grove, 2005). The study used various instruments of data collection such as questionnaires, documentary review, journals and articles in order to collect reliable and quality data

### **3.4 Data types**

Information source and collection technique pre-educates the researcher of the essential data required to have the capacity to inspect the huge inquiries which will be brought up in the investigation. Albeit different strategies and wellsprings of information were distinguished, the most vital issue was the choice of the fitting respondents to answer the examination questions; subsequently, the investigation utilized both primary and secondary information.

Primary information accumulation structure was produced and circulated to the clients of commercial banks. The instrument was viewed as proper for the investigation as all respondents are proficient. It is somewhat exorbitant however it is the well-known technique for a survey study. The research value of the intentional investment, obscurity and security of the respondents from any conceivable risk were maintained amid the study.

### **3.5 Population of the Study**

Cooper and Emory (1995) characterize population as the aggregate accumulation of components about which the researcher wishes to make a few inferences. An element is a subject on which the estimation is being taken and is the unit of study

The population contemplate incorporated all clients of commercial banks accessible and works in the Morogoro Municipality. The population of the study involved all customers of commercial banks available at Morogoro Municipality, from which the sample size was drawn. The rationale of such population was that it provides the researcher with an adequate sampling frame.

### **3.6 Sampling Procedures**

The study was conducted through the use of the following procedures:

#### **3.6.1 Sampling Frame**

The researcher took the sample frame from all customers of commercial banks in Morogoro Municipal where individual respondents came from.

#### **3.6.2 Sampling Techniques**

Non-probability sampling techniques were applied to choose the fitting sample size of this examination from the chosen organization was considered. With non-probability sampling; purposive sampling was utilized to get respondents from key sources, such as clients of commercial banks. Purposive sampling is exceptionally valuable in circumstances where researchers need to come to a focused sample

rapidly (Babbie, E 2001). In addition, the explanation behind picking purposive sampling technique was to consider all data identified with the examination issue can be removed from the respondents who are straightforwardly associated with making exchanges with the banks. Therefore, the sampling in the examination was the client of commercial banks in Morogoro Municipality who utilizes e-banking.

### **3.6.3 Sample Size**

This study determines the sample size of subjects from the sampling outline proportionate to the examination population. The sample estimate was resolved in light of the accompanying criteria: The required level of exactness in the outcomes, the level of precision in the proposed examination, the available spending plan and time period for finishing it. The sample size was acquired from an aggregate number of the population estimate which was all clients of commercial banks in Morogoro Municipal. Thus the sample size was made of all clients of commercial banks operating at Morogoro Municipality.

## **3.7 Variables and their measurements**

### **3.7.1 Factors for e-banking adoption and their measurements**

The research questions asked customers to state the level of agreement of the factors which derive them to adopt e-banking. The questions in Table 3.1 are represented by FE. The key to each FE is presented at the bottom of table 3.1. Each question in Table 3.1 has a five-point Likert scale. The lowest scale is number 5 which indicate *strongly disagree* that the respondent has been driven by such factor to adopt e-banking, the scale number 4 indicates *disagree* that the respondents have been driven by such factor to adopt e-banking, scale number 3 indicates *neutral* that the respondents have been driven by such factor to adopt e-banking, the next scale is number 2 indicate *agree* that the respondents have been driven by such factor to adopt e-banking and the last scale is number 1 indicate *strongly agree* that the respondents have been driven by such factor to adopt e-banking

**Table 1:** Table 3.1 Factors for adoption determinants variables and their measurements

| Scale     | 1              | 2     | 3       | 4        | 5                 |
|-----------|----------------|-------|---------|----------|-------------------|
| Variables | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
| FE1       |                |       |         |          |                   |
| FE2       |                |       |         |          |                   |
| FE3       |                |       |         |          |                   |
| FE4       |                |       |         |          |                   |
| FE5       |                |       |         |          |                   |
| FE6       |                |       |         |          |                   |
| FE7       |                |       |         |          |                   |
| FE8       |                |       |         |          |                   |
| FE9       |                |       |         |          |                   |
| FE10      |                |       |         |          |                   |
| FE11      |                |       |         |          |                   |

#### Key

- 
- FE1 *E-banking provides a convenient way of conducting transactions*
- FE2 *E-banking saves time*
- FE3 *E-banking reduces transaction costs*
- FE4 *E-banking speed up transactions*
- FE5 *E-banking is a quality system*
- FE6 *Customer adopt e-banking because of social influence*
- FE7 *Customer adopt e-banking to be compatible with the lifestyle*
- FE8 *Customer adopt e-banking because of the perceived usefulness*
- FE9 *E-banking has a low risk*
- FE10 *Customers adopt e-banking because of self-efficacy*
- FE11 *E-banking has reasonable fees and charges*
-

### 3.7.2 Customer's perceived usefulness of e-banking

The research questions asked customers to state their perception on e-banking adoption by commercial banks. The questions in Table 3.2 are represented by PU. The key to each PU is presented at the bottom of table 3.2. Each question in Table 3.2 has a seven-point Likert scale. The lowest scale is number 1 which indicate *not important at all* by the respondent that such a factor has been a perceived usefulness of e-banking, the scale number 2 indicates *not very important* by the respondent that such a factor has been a perceived usefulness of e-banking, scale number 3 indicate *neutral* by the respondent that such a factor has been a perceived usefulness of e-banking, scale number 4 indicate *slightly important* by the respondent that such a factor has been a perceived usefulness of e-banking, scale number 5 indicate *important* by the respondent that such a factor has been a perceived usefulness of e-banking, the next scale is number 6 indicate *very important* by the respondent that such a factor has been a perceived usefulness of e-banking, and the last scale is number 7 indicate *extremely important* by the respondent that such a factor has been a perceived usefulness of e-banking

**Table 2 .** Table 3.2 Customers perception variables and their measurements

| Scale     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Total |
|-----------|---|---|---|---|---|---|---|-------|
| Variables |   |   |   |   |   |   |   |       |
| PU1       |   |   |   |   |   |   |   |       |
| PU2       |   |   |   |   |   |   |   |       |
| PU3       |   |   |   |   |   |   |   |       |
| PU4       |   |   |   |   |   |   |   |       |
| PU5       |   |   |   |   |   |   |   |       |
| PU6       |   |   |   |   |   |   |   |       |
| PU7       |   |   |   |   |   |   |   |       |

## Key

---

- PU1 *Expected transaction speed is an important attribute in the perceived usefulness of e-banking*
- PU2 *Expected user friendliness is an important attribute in the perceived usefulness of e-banking*
- PU3 *Expected transaction accuracy is an important attribute in the perceived usefulness of e-banking*
- PU4 *Expected transaction security is an important attribute in the perceived usefulness of e-banking*
- PU5 *Expected user involvement is an important attribute in the perceived usefulness of e-banking*
- PU6 *Expected user experience is an important attribute in the perceived usefulness of e-banking*
- PU7 *Expected convenience is an important attribute in the perceived usefulness of e-banking*
- 

### 3.7.3 Challenges of using e-banking by customers

The research questions asked customers to state the level of agreement of the challenges when using e-banking. The questions in Table 3.3 are represented by CE. The key to each CE is presented at the bottom of table 3.3. Each question in Table 3.3 has a five-point Likert scale. The lowest scale is number 5 which indicate *strongly disagree* by the respondent that such a factor has been a challenge when using e-banking, the scale number 4 indicate *disagree* by the respondent that such a factor has been a challenge when using e-banking, scale number 3 indicate *neutral* by the respondent that such a factor has been a challenge when using e-banking, the next scale is number 2 indicate *agree* by the respondent that such a factor has been a challenge when using e-banking and last scale is number 1 indicate *strongly agree* by the respondent that such a factor has been a challenge when using e-banking.

**Table 3.** Table 3.3 Challenges variable questions and their measurements

| Scale     | 1              | 2     | 3       | 4        | 5                 |
|-----------|----------------|-------|---------|----------|-------------------|
| Variables | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
| CE1       |                |       |         |          |                   |
| CE2       |                |       |         |          |                   |
| CE3       |                |       |         |          |                   |
| CE4       |                |       |         |          |                   |
| CE5       |                |       |         |          |                   |
| CE6       |                |       |         |          |                   |
| CE7       |                |       |         |          |                   |
| CE8       |                |       |         |          |                   |
| CE9       |                |       |         |          |                   |

---

**Key**

CE1 *There is no technical assistance when using e-banking*  
CE2 *There is a regular breach of internet connection when using e-banking*  
CE3 *There is high mobile phone charges for customers while using e-banking*  
CE4 *Customers faces computer hackers when using e-banking*  
CE5 *There is low direct customer connection when using e-banking*  
CE6 *There is double charges for customers while using e-banking*  
CE7 *Customers do not know exact charges when using e-banking*  
CE8 *There is a high risk of cybercrime when using e-banking to customers*  
CE9 *Network availability is a challenge for customers of e-banking*

---

### **3.8 Unit of analysis**

The unit of analysis includes customers of commercial banks and e-banking services provided by commercial banks.

### **3.9 Data Collection**

The task of data collection begins after a research problem has been defined and research design is completed. While deciding about the method of data collection to be used for the study, the researcher should keep in mind two types of data, primary and secondary data.

### **3.9.1 Primary data**

The primary data are those which are collected for the first time and thus happen to be original in character. It is the data which are collected for the first time by the researcher. The primary data are collected through observation, questionnaire and interview.

### **3.9.2 Secondary data**

Secondary data, on the other hand, are those which have already been collected by someone else and which have already been passed through some statistical process. The researcher has to decide which sort of data he would be using for his study and accordingly he will have to select one or the other method of data collection (Kothari, 2005)

For the purpose of this research, the researcher used both primary and secondary data sources to examine the impact of e-banking adoption by commercial banks and customers perceived usefulness.

### **3.9.3 Data Collection Methods**

#### **3.9.3.1 Questionnaire**

The questionnaire is a popular method of primary data collection which is adopted by individuals and researchers in case of big enquiries (Kothari, 2004). In this method, the questionnaire was prepared and distributed to the respondents with a request to answer the questions and return the questionnaire. It consists of a number of questions printed or typed in a definite order (Kothari, 2004). Quite often questionnaire is at the centre of a survey operation.

#### **3.9.3.2 Documentary Review**

Documents are any written or recorded materials which are not prepared at the request of an inquirer or for the purpose of evaluation (Ghuba and Lincoln, 1985).

The study used various sources of information which includes published and unpublished articles, reports and books through visiting the Regional library at Morogoro Municipality. The reasons for using documentary reviews was that documents are stable in that they could be reviewed repeatedly to provide the required information.

### **3.10 Validity and Reliability**

Validity and reliability explain the stability, consistency and soundness of the measures that were used in the survey. The aim is to maximize the stability, consistency and soundness of the instruments used to collect data (Kothari, 2004). The study used it by applying an approach used in previous studies (Cankar et al., 2009)

#### **3.10.1 Reliability**

Reliability is the degree of using research tools to produce the same results even if a measure of the subject is repeated several times (Tashakkori and Teddlie, 2010). This ability to produce consistent measurements enabled drawing conclusion and generalization of the research of this kind (Kothari, 2004). Using SPSS, Cronbach's alpha reliability test for the variable questions on each factor were conducted. This procedure was as follows;

Following factor analysis, the ten variables from factors determining customer's adoption of e-banking resulted in four factors with a total of ten variables. There were two variables in factor 1, three variables in factor 2, two variables in factor 3 and three variables in factor 4. Regarding customer's perception of e-banking adoption by commercial banks, six variables resulted in two factors. There were four variables in factor 1 and two variables in factor 2. Also for challenges facing customers when using e-banking, several variables resulted in three factors. There were two variables in factor 1, three variables in factor 2 and two variables in factor 3.

**Table 4 .** Table 3.4 Reliability test for factors determining customer's adoption of e-banking

| Reliability Statistics |            |                                  |      |
|------------------------|------------|----------------------------------|------|
| Cronbach's Alpha       | N of Items | Cronbach's Alpha if Item Deleted |      |
| .609                   | 10         | Convenient                       | .607 |
|                        |            | Time-saving                      | .625 |
|                        |            | Reduce cost                      | .553 |
|                        |            | Transaction speed                | .564 |
|                        |            | System quality                   | .547 |
|                        |            | Social influence                 | .594 |
|                        |            | Compatiblelifestyle              | .596 |
|                        |            | Low risk                         | .571 |
|                        |            | Self-efficacy                    | .567 |
|                        |            | Reasonable fees                  | .594 |

Table 3.4 above presents Cronbach's alpha reliability test and item-total statistics if one of the variables is deleted for factors determining customer's adoption of e-banking. Cronbach's alpha is 0.609; this value is within a recommended range (Davis, 1964 p.24). The results from Table 3.4 also showed that item-total statistics Cronbach's alpha, if item deleted, has a higher value if variable FE2 is deleted. That is, the reliability increases when variable FE2 is deleted while deletion of other variables decreases reliability.

**Table 5 .** Table 3.5 Reliability test for customer's perception on e-banking adoption by commercial banks

| Reliability Statistics |            |                                  |      |
|------------------------|------------|----------------------------------|------|
| Cronbach's Alpha       | N of Items | Cronbach's Alpha if Item Deleted |      |
| .661                   | 7          | Expected speed                   | .577 |
|                        |            | Expected user-friendliness       | .582 |
|                        |            | Expected accuracy                | .600 |
|                        |            | Expected security                | .637 |
|                        |            | Expected user involvement        | .627 |
|                        |            | Expected user experience         | .713 |
|                        |            | Expected convenience             | .631 |

Table 3.5 above presents Cronbach's alpha reliability test and item-total statistics if one of the variables is deleted for customer's perception on e-banking adoption by commercial banks. Cronbach's alpha is 0.661; this value is within a recommended range (Davis, 1964 p.24). The results from Table 3.5 also showed that item-total statistics Cronbach's alpha, if item deleted, has a higher value if variable PU 6 is deleted. That is, the reliability increases when variable PU6 is deleted while deletion of other variables decreases reliability.

**Table 6.** Table 3.6 Reliability test for challenges facing customers when using e-banking

| Reliability Statistics |            |                                  |      |
|------------------------|------------|----------------------------------|------|
| Cronbach's Alpha       | N of Items | Cronbach's Alpha if Item Deleted |      |
| .637                   | 7          | Breach internet                  | .648 |
|                        |            | High mobile charges              | .589 |
|                        |            | Hackers                          | .595 |
|                        |            | Double charges                   | .624 |
|                        |            | Exactly charges                  | .569 |
|                        |            | Cybercrime                       | .569 |
|                        |            | Network availability             | .603 |

Table 3.6 above presents Cronbach's alpha reliability test and item-total statistics if one of the variables is deleted for challenges facing customers when using e-banking. Cronbach's alpha is 0.637; this value is within a recommended range (Davis, 1964 p.24). The results from Table 3.6 also showed that item-total statistics Cronbach's alpha, if item deleted, has a higher value if variable CE2 is deleted. That is, the reliability increases when variable CE2 is deleted while deletion of other variables decreases reliability.

### 3.10.2 Validity

Content validity refers to the level to which the measurement normally captures the required information from the subject (Kothari, 2004). To reflect content validity, questionnaires were structured with the same questions only differing in terms of reflection among customers.

Areas such as factors for adopting e-banking by customers, perceived usefulness of e-banking by customers and challenges of using e-banking by customers were covered.

### **3.11 Data Processing and Analysis**

According to Bryman and Bell (2003) data analysis refers to a technique used to make inferences from data collected by means of systematic and objective identification of specific characteristics. Once data is collected it has to be edited to verify the completeness of data, coded in order to assign numbers or symbols to the various answers for effective categorization, entered in order to convert the information gathered to a medium for viewing and manipulation, in this study by using Statistical Package for Social Sciences (SPSS)

## CHAPTER FOUR

### PRESENTATION OF FINDINGS

#### 4.0 Introduction

This chapter presents the research findings in response to the research objectives of the research and research questions. In accomplishing the study objectives, the researcher prepared questions which were asked in the questionnaire for a response from the respondents. Based on the above introduction, the following were the findings obtained from the study

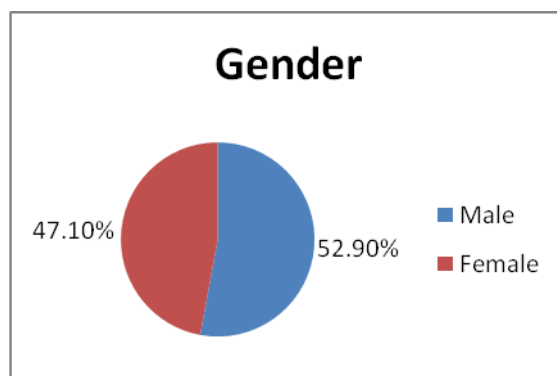
#### 4.1 Demographic Profile of Respondents

The study collected information concerning demographic characteristics of the respondents. The results of each of demographic characteristics are shown below

##### 4.1.1 Gender

In studying the demographic characteristics, the gender of the respondents was analyzed. The majority of the gender profile of respondents was male. The data showed that 64 (52.9%) of the respondents were male while 47(47.1%) of the respondents were female. The results are presented in figure 4.1 below

**Figure 4.1: Gender of respondents**



**Source:** Field data, 2018

From the above findings male seems to be a dominant character when it comes to transacting with the banks. This finding is supported by Ishengoma (2011) who concluded that in Tanzania men are more likely to save or borrow to invest than women

#### **4.1.2 Respondent's age**

The researcher examined the age of the respondents by asking the respondents to state their age in groups. The respondents were asked to select the age group in the range of: equal to 18 but less than 25, equal to 25 but less than 35, equal to 35 but less than 45, equal to 45 but less than 55 and equal to 55 and above. The findings were presented in table 4.1below:

**Table 7 Table 4.1: Respondent's age**

| <b>Age groups</b>            | <b>Frequencies</b> | <b>Percentages</b> |
|------------------------------|--------------------|--------------------|
| Equal to 18 but less than 25 | 19                 | 15.7               |
| Equal to 25 but less than 35 | 48                 | 39.7               |
| Equal to 35 but less than 45 | 30                 | 24.8               |
| Equal to 45 but less than 55 | 13                 | 10.7               |
| Equal to 55 and above        | 11                 | 9.1                |
| <b>Total</b>                 | <b>121</b>         | <b>100</b>         |

**Source:** Field Data, 2018

Findings in Table 4.1 show that there are differences in ages. The findings showed that out of the 121 respondents; 19(15.7%) of respondents were between 18-25 years, 48(39.7%) of respondents were between 25-35 years, 30(24.3%) of respondents were between 35-45 years, 13(10.7%) of respondents were between 45-55 years and 11(9.1%) were above 55 years. The largest numbers of respondents were between 25-35 years. The finding shows that younger people preferred mostly to use e-banking in commercial banks. This assertion was supported by the highest number of younger people using e-banking in their transactions with the bank

#### 4.1.3 Transacting bank

The researcher also asked the respondents which bank they are transacting with. The respondents were given the list of commercial banks and asked to respond to which bank are they transact with among of the following; Nmb, Crdb, NBC, Barclays, TPB, Exim, DTB, KCB and other banks. The results of the findings are as shown in table 4.2 below:

**Table 8 Table 4.2: Transacting bank**

| <b>List of banks</b> | <b>Frequencies</b> | <b>Percentages</b> |
|----------------------|--------------------|--------------------|
| NMB                  | 65                 | 53.7               |
| CRDB                 | 43                 | 35.5               |
| NBC                  | 8                  | 6.6                |
| TPB                  | 1                  | 0.8                |
| EXIM                 | 3                  | 2.5                |
| KCB                  | 1                  | 0.8                |
| <b>Total</b>         | <b>121</b>         | <b>100</b>         |

**Source:** Field data, 2018

Results in Table 4.2 shows that respondents transact with different banks. Out of 121 respondents; 65(53.7%) are transacting with NMB, 43(35.5%) are transacting with CRDB, 8(6.6%) are transacting with NBC, 1(0.8%) are transacting with TPB, 3(2.5%) are transacting with EXIM and 1(0.8%) are transacting with KCB. From the findings most of the respondents were transacting with NMB among other commercial banks. This is because NMB has got branches all over Tanzania and in Morogoro, it was one of the earliest banks to have a branch in Morogoro. Although Crdb was the first bank to introduce ATM in Tanzania NMB has got more customers because it is widely used by the public employee, farmers, small and middle businessmen. Also, the fact that it has got branches all over Tanzania customers are attracted to transact with

#### 4.1.4 Customer experience

The researcher also examined the period which customer have been transacting with the bank. Customers were asked to state their experiences with commercial banks. They asked to state their experience among the following period; less than 1 year, equal to 1 year but less than 5 years, equal to 5 years but less than 10 years and equal to 10 years and above. Customer experience is very important in analyzing the perception of the customer on e-banking adoption by commercial banks. The results of the findings are as shown in table 4.3 below

**Table 9 Table 4.3: Customer experience**

| <b>Customer Experiences</b>             | <b>Frequencies</b> | <b>Percentages</b> |
|-----------------------------------------|--------------------|--------------------|
| Less than 1 year                        | 7                  | 5.8                |
| Equal to 1 year but less than 5 years   | 33                 | 27.3               |
| Equal to 5 years but less than 10 years | 40                 | 33.1               |
| Equal to 10 years and above             | 41                 | 33.9               |
| <b>Total</b>                            | <b>121</b>         | <b>100</b>         |

**Source:** Field data, 2018

Results in Table 4.3 finds that out of 121 respondents; 7(5.8%) had experience of less than 1 year with the bank, 33(27.3%) had experience equal to 1 year but less than 5 years, 40(33.1%) had experience of equal to 5 years but less than 10 years and 41(33.9%) had experience of equal to 10 years and above. This shows that customer with the highest experience is 41 which falls in the category of 10 years and above. The results indicate that most of the customer who responds to the questions are more experienced with the commercial banks and hence enable the researcher to get more reliable data regarding e-banking adoption by commercial banks

#### 4.1.5 Occupation

The other demographic factor examined by the researcher is the occupation of the respondents. The respondents were asked to state their occupation among of the following option; Public employee, Private employee, Private employee, self-employed, Student and others and others. The occupation of the respondents is an important attribute as it determines the level of customer saving and transaction with the commercial banks. The results of the findings are presented in Table 4.4 below

**Table 10 Table 4.4: Occupation**

| Occupation                                              | Frequencies | Percentages |
|---------------------------------------------------------|-------------|-------------|
| Public employee                                         | 56          | 46.3        |
| The private employee, Self-employed, Student and others | 65          | 53.7        |
| <b>Total</b>                                            | <b>121</b>  | <b>100</b>  |

**Source:** Field data, 2018

Results in Table 4.4 finds that out of 121 respondents; 56(46.3%) were a public employee and 65(53.7%) were either private, self-employed, student or another customer. From the findings, it appears that private, self-employed, student and other customer has got the highest number of respondents as compared to another category. This category has got the highest respondents because it combined private, self-employed, student and others while the public employee was a standalone category. This means that customers who mostly use e-banking are private, self-employed, student and others

#### 4.1.6 Education level of respondents

The researcher examined the educational level of the respondents by asking the respondents to state their highest level of education attained. The levels of education were in the following category; diploma, degree and others. The level of education is very important as it enables easy understanding of the new technology.

Perceived easy use of technology results in an intention to use a particular technology as illustrated in Technology Acceptance Model (TAM). The results of the findings are as shown in Table 4.5 below;

| <b>Education level</b> | <b>Frequencies</b> | <b>Percentages</b> |
|------------------------|--------------------|--------------------|
| Diploma                | 37                 | 30.6               |
| Degree and others      | 84                 | 69.4               |
| <b>Total</b>           | <b>121</b>         | <b>100</b>         |

**Source:** Field data, 2018

Results in table 4.5 revealed that out of 121 respondents; 37(30.6%) were diploma holders and 84(69.4%) were degree holders and others. From the findings, the majority of the respondents are degree holders and others. The fact that there are sufficient respondents with the highest level of education enable the researcher to draw an appropriate conclusion on the adoption of e-banking and customer perceived usefulness. As described above, there is a correlation between the level of education and use of new technology.

#### **4.1.7 Income level of respondents**

The last demographic characteristic of respondents examined was income level of respondents. The income levels were in the following category; less than 500,000, equal to 500,000 but less than 5,000,000, equal to 5,000,000 but less than 10,000,000 and equal to 10,000,000 and above. The income level of respondents was examined because they are the one who engaged in banking activities. In order to have reliable data on e-banking usage, the respondents should be the user of such technology. Users of e-banking are in a position to provide their perception of e-banking products. The results of the findings are as shown in Table 4.6 below;

**Table 11 Table 4.6: Income level of respondents**

| <b>Income level</b>                         | <b>Frequencies</b> | <b>Percentages</b> |
|---------------------------------------------|--------------------|--------------------|
| Less than 500,000                           | 49                 | 40.5               |
| Less than 500,000 but less than 5,000,000   | 66                 | 54.5               |
| Less than 5000,000 but less than 10,000,000 | 4                  | 3.3                |
| Equal to 10,000,000 and above               | 2                  | 1.7                |
| <b>Total</b>                                | <b>121</b>         | <b>100</b>         |

**Source:** Field Data, 2018

Results in Table 4.6 shows that out of 121 respondents; 49(40.5%) had an income level of less than 500,000, 66(54.5%) had an income level of equal to 500,000 but less than 5,000,000, 4 had an income of equal to 5,000,000 but less than 10,000,000 and 2 (1.7%) had an income level of equal to 10,000,000 and above. From the findings, respondents with an income level of equal to 500,000 but less than 5,000,000 had the highest number of respondents. This means that customers who are mostly a user of e-banking are middle-income earners

#### **4.2 Factors determining customer's adoption of e-banking**

The analysis presents factors which customers perceive to be important in adopting the usage of electronic banking in conducting banking transaction. Some of these electronic banking products are six banking, ATMs, electronic fund transfer and smart cards.

**Table 12 Table 4.7 Customers percentage response of each question**

| Scale                   | 1                 | 2     | 3       | 4        | 5                    | Total |
|-------------------------|-------------------|-------|---------|----------|----------------------|-------|
| Variables\<br>Responses | Strongly<br>agree | Agree | Neutral | Disagree | Strongly<br>disagree |       |
| FE1                     | 50.4              | 43    | 5.8     | 0.8      | 0                    | 100   |
| FE2                     | 53.8              | 38    | 7.4     | 0.8      | 0                    | 100   |
| FE3                     | 15.7              | 25.6  | 29.8    | 22.3     | 6.6                  | 100   |
| FE4                     | 23.1              | 53.7  | 15.7    | 5.8      | 1.7                  | 100   |
| FE5                     | 14                | 33.1  | 32.2    | 18.2     | 2.5                  | 100   |
| FE6                     | 7.4               | 38    | 33.9    | 15.7     | 5                    | 100   |
| FE7                     | 16.5              | 40.5  | 24.8    | 15.7     | 2.5                  | 100   |
| FE8                     | 17.4              | 38    | 33.1    | 7.4      | 4.1                  | 100   |
| FE9                     | 26.4              | 37.2  | 22.4    | 9.9      | 4.1                  | 100   |
| FE10                    | 12.4              | 33.1  | 31.4    | 22.3     | 0.8                  | 100   |
| FE11                    | 21.5              | 33.9  | 19      | 21.5     | 4.1                  | 100   |

**Key**


---

FE1 *E-banking provides a convenient way of conducting transactions*

FE2 *E-banking saves time*

FE3 *E-banking reduces transaction costs*

FE4 *E-banking speed up transactions*

FE5 *E-banking is a quality system*

FE6 *Customer adopt e-banking because of social influence*

FE7 *Customer adopt e-banking to be compatible with the lifestyle*

FE8 *Customer adopt e-banking because of the perceived usefulness*

FE9 *E-banking has a low risk*

FE10 *Customers adopt e-banking because of self-efficacy*

FE11 *E-banking has reasonable fees and charges*

---

The results of the findings in table 4.7 showed that customers strongly agreed that convenient of e-banking is a factor which motivates them to adopt e-banking services. The zero per cent (0%) on table 4.1 showed that customers accept that convenient is a motivating factor for adopting e-banking though the extent of acceptance differs.

The acceptance of this factor as motives for adopting e-banking was supported by the highest score 55.5% of respondents strongly agreed that convenient is a factor which causes customers to adopt e-banking. This factor was supported by the time-saving factor which showed that 53.7% of respondents strongly agreed that e-banking time saving was a factor motivate them to adopt e-banking

The research question on whether transaction speed is a factor caused customers to adopt e-banking showed that 53.7% of respondents agreed that they adopt e-banking because of its ability to speed up the transaction. However, 29.8% of respondents did not agree or disagree on whether e-banking reduces transaction costs and thus they adopt it due to that fact. This means that cost reduction is the least factor which determines customer adoption of e-banking. About e-banking has reasonable fees and charges, results on table 4.7 showed that 33.9% of respondents agreed that they adopt e-banking as it has reasonable fees and charges followed by 21.5% and 21.5% of strongly agree and disagree respectively on whether they adopt e-banking because of reasonable fees and charges

With regards to quality of e-banking system results in table 4.7 showed that 33.1% of respondents agreed that they adopt e-banking because of the quality of the system. On the issue of social influence, results in table 4.7 showed that 38% of respondents agreed that they were influenced by social factors to adopt e-banking. This means that families, friends, children, relatives and neighbours played an important role in influencing them to adopt e-banking. The research question that customers adopt e-banking in order to be compatible with lifestyle showed that 40.5% of respondents agreed that they adopt e-banking in order to be compatible with lifestyle.

This means that respondents wanted to go along with the new technology of conducting banking transaction. This was supported by 33.1% of respondents who agreed that they adopt e-banking because of self-efficacy as indicated in table 4.7. Results in table 4.7 also showed that 38% of respondents agreed that they adopt e-banking due to its perceived usefulness

The last research question asked about the factors for customer's adoption of e-banking was that customers adopt e-banking because of the perceived low risk. As indicated in Table 4.7 above, 37.2% of respondents agreed that they were motivated to join using e-banking because of its lower risk of transacting. Customers can transfer money from one account to another without physically holding money in their bags

### 4.3 Customer's perceived usefulness of e-banking

The analysis presents the perception of customers on the usefulness of e-banking products. Customers gave their perception of how useful e-banking is in conducting banking transactions. Table 4.8 below present the summary of the research findings based on the customers perceived usefulness of e-banking. The question is indicated by letter PU and the key is given at the bottom of table 4.8

**Table 13 Table 4.8 Customers percentage response of each question**

| Scale     | 1   | 2   | 3    | 4    | 5    | 6    | 7    | Total |
|-----------|-----|-----|------|------|------|------|------|-------|
| Variables |     |     |      |      |      |      |      |       |
| PU1       | 1.7 | 1.7 | 6.6  | 3.3  | 8.3  | 15.7 | 62.7 | 100   |
| PU2       | 3.3 | 0.8 | 3.3  | 9.9  | 19   | 39.7 | 24   | 100   |
| PU3       | 0.0 | 0.8 | 9.9  | 5    | 38.8 | 24.8 | 20.7 | 100   |
| PU4       | 3.3 | 1.7 | 0.8  | 5.8  | 33.1 | 30.6 | 24.7 | 100   |
| PU5       | 1.7 | 6.6 | 11.6 | 10.7 | 24   | 28.1 | 17.3 | 100   |
| PU6       | 5.8 | 5.8 | 13.2 | 5.8  | 25.6 | 25.6 | 18.2 | 100   |
| PU7       | 0.0 | 0.8 | 3.3  | 7.4  | 18.2 | 26.4 | 43.9 | 100   |

#### Key

- 
- PU1 Expected transaction speed is an important attribute in the perceived usefulness of e-banking  
 PU2 Expected user friendliness is an important attribute in the perceived usefulness of e-banking  
 PU3 Expected transaction accuracy is an important attribute in the perceived usefulness of e-banking  
 PU4 Expected transaction security is an important attribute in the perceived usefulness of e-banking  
 PU5 Expected user involvement is an important attribute in the perceived usefulness of e-banking  
 PU6 Expected user experience is an important attribute in the perceived usefulness of e-banking  
 PU7 Expected convenience is an important attribute in the perceived usefulness of e-banking
-

Table 4.8 showed the results for perceived usefulness of e-banking to customers. Customers were asked to state the extent of the perceived usefulness of e-banking. The first question asked respondents if expected transaction speed is an important attribute in the perceived usefulness of e-banking. The results showed that 62.8% of respondents accept that expected speed is an extremely important factor in the perceived usefulness of e-banking while 1.7% of respondents said that expected speed is not important at all in the perceived usefulness of e-banking. Respondents were also asked if expected user-friendliness is an important attribute in the perceived usefulness of e-banking. The results showed that 39.7% of respondents accept that expected user-friendliness is a very important factor in the perceived usefulness of e-banking while 0.8% of respondents said that expected user-friendliness is not very important factor in the perceived usefulness of e-banking. The other question asked was if expected transaction accuracy is an important attribute in the perceived usefulness of e-banking. The results showed that 38.8% of respondents accept that expected transaction accuracy is an important factor in the perceived usefulness of e-banking while 0.8% of respondents said that expected transaction speed is not very important factor in the perceived usefulness of e-banking

With regards to whether expected transaction security is an important attribute in the perceived usefulness of e-banking, the results on table 4.8 showed that 33.1% of respondents accept that expected security is an important factor in the perceived usefulness of e-banking while 3.3% of respondents said that expected security is not important at all in the perceived usefulness of e-banking.

Also, respondents were asked to state if expected user involvement is an important attribute in the perceived usefulness of e-banking. The results on table 4.8 showed that 28.1% of respondents accept that user involvement is a very important factor in the perceived usefulness of e-banking while 1.75 of respondents said that user involvement is not an important factor at all in the perceived usefulness of e-banking.

Regarding the expected user experience as an important attribute in the perceived usefulness of e-banking, results on table 4.8 showed that 25.6% of respondents accept that expected user experience is very important factor in the perceived usefulness of e-banking while 5.8% of respondents said that expected user experience is not important factor at all in the perceived usefulness of e-banking.

Lastly, customers were asked to state if expected convenience is an important attribute in the perceived usefulness of e-banking. The results in table 4.8 showed that 43.8% of respondents accept that expected convenience is extremely important in the perceived usefulness of e-banking. Customers expected that e-banking services enabled them to conduct the transaction in real time and anywhere. The results in Table 4.8 also showed that 0.8% of respondents said that expected convenience is not an important factor at all in the perceived usefulness of e-banking

#### **4.4 Challenges of using e-banking to customers**

Customers of e-banking face different challenges when conducting transactions. The analysis presents challenges customer's faces when using e-banking. The level and type of challenges differ from one customer to another.

##### **4.4.1 The benefits of using e-banking exceeds its challenges**

E-banking transactions have got its benefits and challenges. Respondents were asked to state whether the benefit of e-banking outweighs it's or not.

The analysis of the findings showed that, 26 respondents equivalent to 21.5% strongly agreed that the benefit of e-banking exceed its challenges, 61 respondents equivalent to 50.4% agreed that the benefit of e-banking exceeds its challenges, 29 respondents equivalent to 24% were neutral on whether the benefit of e-banking exceeds its challenges and 5 respondents equivalent to 4.1% disagreed that the benefit of e-banking exceeds its challenges. The results of the findings are presented in Table 4.9 below

**Table 14.** Table 4.9 Benefits outweigh challenges

| <b>Option</b>     | <b>Frequencies</b> | <b>Percentages</b> |
|-------------------|--------------------|--------------------|
| Strongly agree    | 26                 | 21.5               |
| Agree             | 61                 | 50.4               |
| Neutral           | 29                 | 24                 |
| Disagree          | 5                  | 4.1                |
| Strongly disagree | 0                  | 0                  |
| <b>Total</b>      | <b>121</b>         | <b>100</b>         |

**Source:** Field data, 2018

#### 4.4.2 The frequency of using e-banking

Customers had a different number of times of using e-banking. The number of times customer uses e-banking is what we call the frequency of using e-banking. The analysis of the findings showed that, 33 respondents equivalent to 27.3% use e-banking very often, 29 respondents equivalent to 24% use e-banking at least once a week, 13 respondents equivalent to 10.7% use e-banking at least once after every two weeks, 31 respondents equivalent to 25.6% use e-banking at least once a month and 15 respondents equivalent to 12.4% use e-banking at least once after every three months. The results of the findings are presented in Table 4.26 below

**Table 15 .** Table 4.10 Transaction frequency

| <b>Option</b>                          | <b>Frequencies</b> | <b>Percentages</b> |
|----------------------------------------|--------------------|--------------------|
| Very often                             | 33                 | 27.3               |
| At least once a week                   | 29                 | 24                 |
| At least once after every two weeks    | 13                 | 10.7               |
| At least once a month                  | 31                 | 25.6               |
| At least once after every three months | 15                 | 12.4               |
| <b>Total</b>                           | <b>121</b>         | <b>100</b>         |

**Source:** Field data, 2018

**Table 16 .** Table 4.11 Customers percentage response of each question

| Scale               | 1              | 2     | 3       | 4        | 5                 | Total |
|---------------------|----------------|-------|---------|----------|-------------------|-------|
| Variables\Responses | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |       |
| CE1                 | 28.1           | 28.1  | 14      | 24.8     | 4                 | 100   |
| CE2                 | 14             | 38.8  | 21.5    | 22.3     | 3.4               | 100   |
| CE3                 | 28.1           | 30.6  | 21.5    | 18.2     | 1.6               | 100   |
| CE4                 | 19.8           | 38.8  | 31.5    | 7.4      | 2.5               | 100   |
| CE5                 | 8.3            | 42.1  | 27.3    | 20.7     | 1.6               | 100   |
| CE6                 | 21.5           | 38    | 18.2    | 16.5     | 5.8               | 100   |
| CE7                 | 32.2           | 33.9  | 14.9    | 14.9     | 4.1               | 100   |
| CE8                 | 23.1           | 43    | 22.3    | 5.8      | 5.8               | 100   |
| CE9                 | 31.4           | 42.1  | 16.5    | 6.6      | 3.4               | 100   |

### Key

---

CE1 *There is no technical assistance when using e-banking*

CE2 *There is a regular breach of internet connection when using e-banking*

CE3 *There is high mobile phone charges for customers while using e-banking*

CE4 *Customers faces computer hackers when using e-banking*

CE5 *There is low direct customer connection when using e-banking*

CE6 *There is double charges for customers while using e-banking*

CE7 *Customers do not know exact charges when using e-banking*

CE8 *There is a high risk of cybercrime when using e-banking to customers*

CE9 *Network availability is a challenge for customers of e-banking*

---

The results of the findings from table 4.11 showed that 28.1% of respondents strongly agreed that unavailability of immediate technical assistance is a challenge when conducting e-banking transaction while 4.1% strongly disagreed that unavailability of immediate technical assistance is a challenge when conducting e-banking. Also from table 4.11 results showed that 38.8% of respondents agreed that regular breach of the internet is a challenge to customers when using e-banking.

With regard to whether high mobile charges are a challenge, results showed that 30.6% of respondents agreed that high mobile charges are a challenge customer faces when using e-banking.

The results of the findings in table 4.11 also revealed that 38.8% of respondents agreed that the presence of computer hackers is a challenge to customers when using e-banking while 2.5% of respondents strongly disagreed that presence of computer hackers is a challenge when using e-banking. The other question which was asked of the respondents is whether low direct customer connection is a challenge when using e-banking. The results of the findings showed that 42.1% of respondents agreed that low direct customer connection is a challenge when using e-banking.

The research question also asked the respondents to state whether there are double charges when using e-banking. The results of the findings in table 4.11 showed that 38% of respondents agreed that presence of transaction double charges is a challenge when using e-banking. The other question asked was customers do not know exact charges when using e-banking and thus become a challenge.

The results on table 4.11 showed that 33.9% of the respondents agreed that not knowing e-banking exactly charges is a challenge to them when using e-banking while 4.1% of respondents strongly disagreed that not knowing exactly charge is a challenge when using e-banking. Regarding whether the presence of cybercrime when using e-banking is a challenge to customers, results on table 4.11 showed that 43% of respondents agreed that presence of cybercrime is a serious challenge facing customers when using e-banking. Lastly, customers were asked to state whether the issue of network connection is a challenge when using e-banking. The results on table 4.11 showed that 42.1% of respondents agreed that network availability is a challenge customer faces when using e-banking while 3.4% of respondents strongly disagree that network availability is a challenge to customers when using e-banking.

## **4.5 Factor analysis**

This section explains factor analysis, condition for factor analysis and the process of extracting factors. The results of this factor analysis are used to form a summated scale of a factor that is used in the subsequent section to analyze the influence of the factors on e-banking adoption and customers perceived usefulness.

Factor analysis is a method for data analysis that relies on interdependence techniques with the single purpose of defining the underlying structure among many variables in the analysis (Hair, Tatham, Anderson, and Black, 2006; Vickers and Minke, 1995). Factor analysis provides a summary of original variables into a new composite variable that contains the original variable

The following section present evaluation of the appropriateness of factor analysis by looking into the correlations among variables and measure of sampling adequacy and partial correlations. The results from the preliminary check and measure of sampling adequacy and partial correlation provide the basis for presenting revised correlations, and measure of sampling adequacy and partial correlations.

### **4.5.1 Evaluating the appropriateness of factor analysis**

In order to use factor analysis in analyzing data, the minimum sample size is 20 (Preacher and MacCallum, 2002). The following measures the appropriateness of factor analysis

### **4.5.2 Correlations among variables**

Table 4.12 presents correlations among factors for adoption of e-banking variables. In table 4.12 correlations significant at 0.05 levels are indicated with one asterisk while correlations significant at 0.01 are presented with two asterisks. There are a total of 9 and 12 correlations significant at 0.05 and 0.01 levels respectively

**Table 17 .** Table 4.12 Correlations among variables for factors determining e-banking adoption by customers

| Correlations |     |        |        |      |        |       |        |       |        |        |        |
|--------------|-----|--------|--------|------|--------|-------|--------|-------|--------|--------|--------|
|              | FE1 | FE2    | FE3    | FE4  | FE5    | FE6   | FE7    | FE8   | FE9    | FE10   | FE11   |
| FE1          | 1   | .325** | .245** | .100 | .054   | -.095 | -.145  | .108  | .352** | -.008  | -.083  |
| FE2          |     | 1      | -.146  | .155 | -.031  | .003  | .030   | .077  | .219*  | -.079  | -.153  |
| FE3          |     |        | 1      | .126 | .305** | .153  | .128   | .211* | .174   | .176   | .381** |
| FE4          |     |        |        | 1    | .273** | .165  | .193*  | .174  | .235** | .277** | .075   |
| FE5          |     |        |        |      | 1      | .120  | .149   | .178  | .210*  | .310** | .268** |
| FE6          |     |        |        |      |        | 1     | .418** | .086  | -.052  | .213*  | .025   |
| FE7          |     |        |        |      |        |       | 1      | .232* | .022   | .044   | .082   |
| FE8          |     |        |        |      |        |       |        | 1     | .225*  | .233*  | .203*  |
| FE9          |     |        |        |      |        |       |        |       | 1      | .260** | .118   |
| FE10         |     |        |        |      |        |       |        |       |        | 1      | .171   |
| FE11         |     |        |        |      |        |       |        |       |        |        | 1      |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Overall Measures of Sampling Adequacy: 0.629

Bartlett Test of Sphericity: 195.701

Significance: 0.000

Key

FE1 *E-banking provides a convenient way of conducting transactions*

FE2 *E-banking saves time*

FE3 *E-banking reduces transaction costs*

FE4 *E-banking speed up transactions*

FE5 *E-banking is a quality system*

FE6 *Customer adopt e-banking because of social influence*

FE7 *Customer adopt e-banking to be compatible with the lifestyle*

FE8 *Customer adopt e-banking because of the perceived usefulness*

FE9 *E-banking has a low risk*

FE10 *Customers adopt e-banking because of self-efficacy*

FE11 *E-banking has reasonable fees and charges*

However variable FE10 which was about “Customers use e-banking because of the perceived self-efficacy” has its correlation not significant with any of the variables. The overall measure of sampling adequacy (MSA) and Bartlett test of Sphericity are shown at the bottom of table 4.12 above. The MSA is 0.629 which is within the recommended range (Hair et al., 2006, p.93). The Bartlett test of Sphericity is significant at  $p < 0.01$  level, which further support the use of factor analysis (Hair et al., 2006)

**Table 18.** Table 4.13 Correlation among variables for customer perception on e-banking adoption by commercial banks

**Correlations**

|     | PU1 | PU2    | PU3    | PU4    | PU5    | PU6    | PU7    |
|-----|-----|--------|--------|--------|--------|--------|--------|
| PU1 | 1   | .483** | .436** | .310** | .286** | .055   | .322** |
| PU2 |     | 1      | .526** | .337** | .141   | .077   | .320** |
| PU3 |     |        | 1      | .385** | .208*  | -.091  | .315** |
| PU4 |     |        |        | 1      | .082   | -.018  | .175   |
| PU5 |     |        |        |        | 1      | .364** | .184*  |
| PU6 |     |        |        |        |        | 1      | .027   |
| PU7 |     |        |        |        |        |        | 1      |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Overall Measures of Sampling Adequacy: 0.722

Bartlett Test of Sphericity: 155.218

Significance: 0.000

Key

---

PU1 Expected transaction speed is an important attribute in the perceived usefulness of e-banking  
 PU2 Expected user friendliness is an important attribute in the perceived usefulness of e-banking  
 PU3 Expected transaction accuracy is an important attribute in the perceived usefulness of e-banking  
 PU4 Expected transaction security is an important attribute in the perceived usefulness of e-banking  
 PU5 Expected user involvement is an important attribute in the perceived usefulness of e-banking  
 PU6 Expected user experience is an important attribute in the perceived usefulness of e-banking  
 PU7 Expected convenience is an important attribute in the perceived usefulness of e-banking

---

From table 4.13, correlations significant at the 0.05 level are indicated with one asterisk while correlations significant at 0.01 are indicated with two asterisks

From table 4.13, there are a total of 2 and 11 correlations significant at 0.05 and 0.01 levels respectively. However, a variable PU4 which was about “*Expected transaction security is an important attribute in the perceived usefulness of e-banking*” has its correlation not significant with any of the other variables. Also, variable PU6 which was about “*Expected user experience is an important attribute in the perceived usefulness of e-banking*” has its correlation not significant with any of the other variables. The overall Measure of Sampling Adequacy (MSA) and Bartlett test of Sphericity is presented at the bottom of the Table 4.13 above. The MSA is 0.722 which is within the recommended range (Hair et al., 2006). The Bartlett Test of Sphericity is significant at  $p < 0.01$  level, which further support the use of factor analysis (Hair et al., 2006)

**Table 19 .** Table 4.14 Correlation among variables for challenges faces customers when using e-banking

| Correlations |     |        |        |        |        |        |        |        |        |
|--------------|-----|--------|--------|--------|--------|--------|--------|--------|--------|
|              | CE1 | CE2    | CE3    | CE4    | CE5    | CE6    | CE7    | CE8    | CE9    |
| CE1          | 1   | .328** | .174   | .221*  | .301** | .319** | .288** | .320** | .236** |
| CE2          |     | 1      | .421** | .206*  | .185*  | -.063  | -.057  | .111   | .094   |
| CE3          |     |        | 1      | .434** | .167   | .154   | .119   | .124   | .105   |
| CE4          |     |        |        | 1      | .229*  | .161   | .161   | .192*  | .126   |
| CE5          |     |        |        |        | 1      | .252** | .292** | .193*  | .207*  |
| CE6          |     |        |        |        |        | 1      | .477** | .212*  | .012   |
| CE7          |     |        |        |        |        |        | 1      | .404** | .373** |
| CE8          |     |        |        |        |        |        |        | 1      | .472** |
| CE9          |     |        |        |        |        |        |        |        | 1      |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Overall Measures of Sampling Adequacy: 0.676

Bartlett Test of Sphericity: 216.547

Significance: 0.000

- CE1 *There is no technical assistance when using e-banking*  
CE2 *There is a regular breach of internet connection when using e-banking*  
CE3 *There are high mobile phone charges for customers while using e-banking*  
CE4 *Customers faces computer hackers when using e-banking*  
CE5 *There is low direct customer connection when using e-banking*  
CE6 *There are double charges for customers while using e-banking*  
CE7 *Customers do not know exact charges when using e-banking*  
CE8 *There is a high risk of cybercrime when using e-banking to customers*  
CE9 *Network availability is a challenge for customers of e-banking*
- 

From table 4.14, there are a total of 8 and 14 correlations significant at 0.05 and 0.01 levels respectively. However, each variable has correlation significant with all variables. The overall Measure of Sampling Adequacy (MSA) and Bartlett test of Sphericity is presented at the bottom of the table 4.14. The MSA is 0.676 which is within the recommended range (Hair et al., 2006, p.93). The Bartlett Test of Sphericity is significant at  $p < 0.01$  level, which further support the use of factor analysis (Hair et al., 2006)

#### **4.5.2 Measures of sampling adequacy and partial correlations**

Table 4.15 presents Measure of Sampling Adequacy (MSA) and Partial correlation for each of the variable for factors determining customer's adoption of e-banking. The values of MSA are indicated by the letter (a) on the diagonal and the off-diagonal indicate the partial correlation. The criteria for inclusion of a variable in factor analysis need to have an MSA greater than 0.5 (Hair et al., 2006)

**Table 20 . Table 4.15 Measure of Sampling Adequacy and Partial correlations for factors determining customer's adoption of e-banking**

|      | FE1               | FE2               | FE3               | FE4               | FE5               | FE6               | FE7               | FE8               | FE9               | FE10              | FE11              |
|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| FE1  | .489 <sup>a</sup> |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| FE2  | -.301             | .528 <sup>a</sup> |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| FE3  | -.340             | .233              | .591 <sup>a</sup> |                   |                   |                   |                   |                   |                   |                   |                   |
| FE4  | -.025             | -.133             | -.011             | .773 <sup>a</sup> |                   |                   |                   |                   |                   |                   |                   |
| FE5  | .006              | .012              | -.162             | -.161             | .796 <sup>a</sup> |                   |                   |                   |                   |                   |                   |
| FE6  | .046              | -.060             | -.131             | -.053             | .003              | .552 <sup>a</sup> |                   |                   |                   |                   |                   |
| FE7  | .190              | -.050             | -.069             | -.121             | -.071             | -.386             | .542 <sup>a</sup> |                   |                   |                   |                   |
| FE8  | -.062             | -.066             | -.074             | -.030             | -.010             | .052              | -.211             | .751 <sup>a</sup> |                   |                   |                   |
| FE9  | -.270             | -.143             | -.020             | -.101             | -.076             | .129              | -.045             | -.091             | .699 <sup>a</sup> |                   |                   |
| FE10 | .087              | .121              | -.011             | -.177             | -.182             | -.219             | .159              | -.160             | -.214             | .637 <sup>a</sup> |                   |
| FE11 | .193              | .052              | -.329             | .013              | -.138             | .071              | .009              | -.121             | -.075             | -.032             | .640 <sup>a</sup> |

Note: Subscript a on the diagonal indicate measure of Sampling Adequacy (MSA)

Key

---

FE1 *E-banking provides a convenient way of conducting transactions*

FE2 *E-banking saves time*

FE3 *E-banking reduces transaction costs*

FE4 *E-banking speed up transactions*

FE5 *E-banking is a quality system*

FE6 *Customer adopt e-banking because of social influence*

FE7 *Customer adopt e-banking to be compatible with the lifestyle*

FE8 *Customer adopt e-banking because of the perceived usefulness*

FE9 *E-banking has a low risk*

FE10 *Customers adopt e-banking because of self-efficacy*

FE11 *E-banking has reasonable fees and charges*

---

From table 4.15 above, the value of a Measure of Sampling Adequacy (MSA) is indicated by the letter (a) on the diagonal and the off-diagonal indicate the partial correlation. The criteria for inclusion of a variable in factor analysis need to have an MSA of greater than 0.5 (Hair et al., 2006). Results from table 4.15 showed that one variable FE1 has MSA of 0.489. According to Hair et al., (2006) it is recommended to remove this variable in the analysis. Given the number of variables in the study, this variable was deleted (Hair et al., 2006; Tashakkori and Teddlie, 2010)

**Table 21. Table 4.16 Measure of Sampling Adequacy and Partial correlation for each of variable customers perceived the usefulness of e-banking**

|     | PU1               | PU2               | PU3               | PU4               | PU5               | PU6               | PU7               |
|-----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| PU1 | .797 <sup>a</sup> |                   |                   |                   |                   |                   |                   |
| PU2 | -.287             | .734 <sup>a</sup> |                   |                   |                   |                   |                   |
| PU3 | -.148             | -.358             | .729 <sup>a</sup> |                   |                   |                   |                   |
| PU4 | -.124             | -.119             | -.219             | .834 <sup>a</sup> |                   |                   |                   |
| PU5 | -.202             | .098              | -.168             | .031              | .572 <sup>a</sup> |                   |                   |
| PU6 | .026              | -.145             | .210              | .001              | -.388             | .410 <sup>a</sup> |                   |
| PU7 | -.139             | -.132             | -.119             | -.012             | -.088             | .014              | .863 <sup>a</sup> |

a. Measures of Sampling Adequacy (MSA)

Key

---

PU1 *Expected transaction speed is an important attribute in the perceived usefulness of e-banking*  
PU2 *Expected user friendliness is an important attribute in the perceived usefulness of e-banking*  
PU3 *Expected transaction accuracy is an important attribute in the perceived usefulness of e-banking*  
PU4 *Expected transaction security is an important attribute in the perceived usefulness of e-banking*  
PU5 *Expected user involvement is an important attribute in the perceived usefulness of e-banking*  
PU6 *Expected user experience is an important attribute in the perceived usefulness of e-banking*  
PU7 *Expected convenience is an important attribute in the perceived usefulness of e-banking*

---

From table 4.16 value of a Measure of Sampling Adequacy (MSA) is indicated by the letter (a) on the diagonal and the off-diagonal indicate partial correlation. The criteria for inclusion of a variable in factor analysis need to have an MSA of greater than 0.5 (Hair et al., 2006). Results of the findings from table 4.16 showed that one variable PU6 has MSA of 0.410. Since this variable did not meet the minimum standard, it is recommended to remove this variable in the analysis (Hair et al., 2006). Given the number of variables in the study, this variable was deleted (Hair et al., 2006; Tashakkori and Teddlie, 2010)

**Table 22. Table 4.17 Measure of Sampling Adequacy and Partial correlation for each variable of challenges customers face when using e-banking**

|     | CE1               | CE2               | CE3               | CE4               | CE5               | CE6               | CE7               | CE8               | CE9               |
|-----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| CE1 | .737 <sup>a</sup> |                   |                   |                   |                   |                   |                   |                   |                   |
| CE2 | -.321             | .543 <sup>a</sup> |                   |                   |                   |                   |                   |                   |                   |
| CE3 | .086              | -.393             | .605 <sup>a</sup> |                   |                   |                   |                   |                   |                   |
| CE4 | -.083             | .016              | -.368             | .727 <sup>a</sup> |                   |                   |                   |                   |                   |
| CE5 | -.120             | -.120             | .010              | -.120             | .839 <sup>a</sup> |                   |                   |                   |                   |
| CE6 | -.245             | .184              | -.134             | -.017             | -.118             | .582 <sup>a</sup> |                   |                   |                   |
| CE7 | -.058             | .141              | -.040             | -.009             | -.129             | -.396             | .706 <sup>a</sup> |                   |                   |
| CE8 | -.135             | -.045             | .021              | -.083             | .021              | -.068             | -.184             | .765 <sup>a</sup> |                   |
| CE9 | -.090             | .006              | -.039             | .004              | -.093             | .256              | -.278             | -.359             | .631 <sup>a</sup> |

a. Measures of Sampling Adequacy (MSA)

Key

- 
- CE1 *There is no technical assistance when using e-banking*  
CE2 *There is a regular breach of internet connection when using e-banking*  
CE3 *There is high mobile phone charges for customers while using e-banking*  
CE4 *Customers faces computer hackers when using e-banking*  
CE5 *There is low direct customer connection when using e-banking*  
CE6 *There is double charges for customers while using e-banking*  
CE7 *Customers do not know exact charges when using e-banking*  
CE8 *There is a high risk of cybercrime when using e-banking to customers*  
CE9 *Network availability is a challenge for customers of e-banking*
- 

From table 4.17 value of a Measure of Sampling Adequacy (MSA) is indicated by the letter (a) on the diagonal and the off-diagonal indicate partial correlation. The criteria for inclusion of a variable in factor analysis need to have an MSA of greater than 0.5 (Hair et al., 2006). Results of the findings from table 4.16 showed that all variables have MSA of greater than 0.5. Since all variables meet the minimum standard, it is recommended to include all variables in the analysis.

### 4.5.3 Revised correlation among variables

#### 4.5.3.1 Revised correlations among variables after deleting FE1 for factors determining customer's adoption of e-banking

A revised correlation among variables was conducted after deleting FE1 which had MSA below 0.5. Overall MSA increased from 0.629 to 0.662 which is within the recommended range, and Bartlett Sphericity Test is still significant at  $p < 0.01$  level (Hair et al., 2006). The number of correlations significant at 0.05 levels is still 9 as in the first correlations, but the number of correlations significant at 0.01 levels dropped to 9 because of variable FE1 which was deleted. The results of the findings are shown in Table 4.18 below

**Table 23. Table 4.18 Revised correlations**

|      | FE2 | FE3   | FE4  | FE5    | FE6  | FE7    | FE8   | FE9    | FE10   | FE11   |
|------|-----|-------|------|--------|------|--------|-------|--------|--------|--------|
| FE2  | 1   | -.146 | .155 | -.031  | .003 | .030   | .077  | .219*  | -.079  | -.153  |
| FE3  |     | 1     | .126 | .305** | .153 | .128   | .211* | .174   | .176   | .381** |
| FE4  |     |       | 1    | .273** | .165 | .193*  | .174  | .235** | .277** | .075   |
| FE5  |     |       |      | 1      | .120 | .149   | .178  | .210*  | .310** | .268** |
| FE6  |     |       |      |        | 1    | .418** | .086  | -.052  | .213*  | .025   |
| FE7  |     |       |      |        |      | 1      | .232* | .022   | .044   | .082   |
| FE8  |     |       |      |        |      |        | 1     | .225*  | .233*  | .203*  |
| FE9  |     |       |      |        |      |        |       | 1      | .260** | .118   |
| FE10 |     |       |      |        |      |        |       |        | 1      | .171   |
| FE11 |     |       |      |        |      |        |       |        |        | 1      |

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Overall Measures of Sampling Adequacy: 0.662

Bartlett Test of Sphericity: 151.516

Significance: 0.000

---

FE2 *E-banking saves time*

FE3 *E-banking reduces transaction costs*

FE4 *E-banking speed up transactions*

FE5 *E-banking is a quality system*

FE6 *Customer adopt e-banking because of social influence*

FE7 *Customer adopt e-banking to be compatible with the lifestyle*

FE8 *Customer adopt e-banking because of the perceived usefulness*

FE9 *E-banking has a low risk*

FE10 *Customers adopt e-banking because of self-efficacy*

FE11 *E-banking has reasonable fees and charges*

---

#### 4.5.3.2 Revised correlations among variables after deleting PU6 for customers perceived the usefulness of e-banking

A revised correlation among variables was conducted after deleting PU6 which had MSA below 0.5. Overall MSA increased from 0.722 to 0.791 which is within the recommended range, and Bartlett Sphericity Test is still significant at  $p < 0.01$  level (Hair et al., 2006). The number of correlations significant at 0.05 levels is still 22 as in the first correlations, but the number of correlations significant at 0.01 levels dropped to 10 because of variable PU6 which was deleted. The results of the findings are shown in Table 4.19 below

**Table 24. Table 4.19 Revised correlations**

|     | PU1 | PU2    | PU3    | PU4    | PU5    | PU7    |
|-----|-----|--------|--------|--------|--------|--------|
| PU1 | 1   | .483** | .436** | .310** | .286** | .322** |
| PU2 |     | 1      | .526** | .337** | .141   | .320** |
| PU3 |     |        | 1      | .385** | .208*  | .315** |
| PU4 |     |        |        | 1      | .082   | .175   |
| PU5 |     |        |        |        | 1      | .184*  |
| PU7 |     |        |        |        |        | 1      |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Overall Measures of Sampling Adequacy: 0.791

Bartlett Test of Sphericity: 132.459

Significance: 0.000

---

PU1 Expected transaction speed is an important attribute in the perceived usefulness of e-banking  
 PU2 Expected user friendliness is an important attribute in the perceived usefulness of e-banking  
 PU3 Expected transaction accuracy is an important attribute in the perceived usefulness of e-banking  
 PU4 Expected transaction security is an important attribute in the perceived usefulness of e-banking  
 PU5 Expected user involvement is an important attribute in the perceived usefulness of e-banking  
 PU7 Expected convenience is an important attribute in the perceived usefulness of e-banking

---

#### 4.5.4 Revised Measures of Sampling Adequacy and Partial Correlations

##### 4.5.4.1 Revised sampling adequacy after deleting FE1

Results from Table 4.20 present the revised MSA and partial correlations for factors determining customer's adoption of e-banking. Except for variable FE2, all the MSA values on the diagonal are greater than 0.5 which is the recommended cut-off point value (Hair et al., 2006). Variable FE2 has MSA less than 0.5 and should be removed from the analysis.

**Table 25. Table 4.20 Revised MSA**

|      | FE2               | FE3               | FE4               | FE5               | FE6               | FE7               | FE8               | FE9               | FE10              | FE11              |
|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| FE2  | .464 <sup>a</sup> |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| FE3  | .146              | .708 <sup>a</sup> |                   |                   |                   |                   |                   |                   |                   |                   |
| FE4  | -.148             | -.021             | .760 <sup>a</sup> |                   |                   |                   |                   |                   |                   |                   |
| FE5  | .014              | -.171             | -.161             | .789 <sup>a</sup> |                   |                   |                   |                   |                   |                   |
| FE6  | -.048             | -.123             | -.052             | .003              | .531 <sup>a</sup> |                   |                   |                   |                   |                   |
| FE7  | .008              | -.004             | -.118             | -.073             | -.402             | .562 <sup>a</sup> |                   |                   |                   |                   |
| FE8  | -.089             | -.101             | -.032             | -.010             | .055              | -.203             | .740 <sup>a</sup> |                   |                   |                   |
| FE9  | -.244             | -.124             | -.112             | -.078             | .147              | .007              | -.112             | .651 <sup>a</sup> |                   |                   |
| FE10 | .155              | .020              | -.176             | -.183             | -.224             | .145              | -.156             | -.198             | .643 <sup>a</sup> |                   |
| FE11 | .118              | -.285             | .018              | -.141             | .063              | -.029             | -.112             | -.024             | -.050             | .713 <sup>a</sup> |

a. Measures of Sampling Adequacy(MSA)

Key

FE2 *E-banking saves time*

FE3 *E-banking reduces transaction costs*

FE4 *E-banking speed up transactions*

FE5 *E-banking is a quality system*

FE6 *Customer adopt e-banking because of social influence*

FE7 *Customer adopt e-banking to be compatible with the lifestyle*

FE8 *Customer adopt e-banking because of the perceived usefulness*

FE9 *E-banking has a low risk*

FE10 *Customers adopt e-banking because of self-efficacy*

FE11 *E-banking has reasonable fees and charges*

#### 4.5.4.2 Revised sampling adequacy after deleting PU6

Results from Table 4.21 present the revised MSA and partial correlations for customer's perceived usefulness of e-banking. All the MSA values on the diagonal are greater than 0.5 which is the recommended cut-off point value (Hair et al., 2006).

**Table 26. Table 4.21 Revised MSA**

|     | PU1               | PU2               | PU3               | PU4               | PU5               | PU7               |
|-----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| PU1 | .792 <sup>a</sup> |                   |                   |                   |                   |                   |
| PU2 | -.287             | .764 <sup>a</sup> |                   |                   |                   |                   |
| PU3 | -.157             | -.338             | .779 <sup>a</sup> |                   |                   |                   |
| PU4 | -.125             | -.120             | -.224             | .829 <sup>a</sup> |                   |                   |
| PU5 | -.208             | .045              | -.096             | .034              | .744 <sup>a</sup> |                   |
| PU7 | -.139             | -.131             | -.125             | -.012             | -.090             | .859 <sup>a</sup> |

a. Measures of Sampling Adequacy (MSA)

Key

PU1 *Expected transaction speed is an important attribute in the perceived usefulness of e-banking*

PU2 *Expected user friendliness is an important attribute in the perceived usefulness of e-banking*

PU3 *Expected transaction accuracy is an important attribute in the perceived usefulness of e-banking*

PU4 *Expected transaction security is an important attribute in the perceived usefulness of e-banking*

PU5 *Expected user involvement is an important attribute in the perceived usefulness of e-banking*

PU7 *Expected convenience is an important attribute in the perceived usefulness of e-banking*

#### 4.5.4.3 Second revised correlation among variables after deleting FE2 for factors determining customer's adoption of e-banking

A revised correlation among variables was conducted after deleting FE2 which had MSA below 0.5. Overall MSA increased from 0.662 to 0.687 which is within the recommended range, and Bartlett Sphericity Test is still significant at  $p < 0.01$  level (Hair et al., 2006). The number of correlations significant at 0.01 levels is still 9 as in the second correlations, but the number of correlations significant at 0.05 levels dropped to 8 because of variable FE2 which was deleted. The results of the findings are shown in Table 4.22 below

**Table 27. Table 4.22 Second revised correlations among variables**

|      | FE3 | FE4  | FE5    | FE6  | FE7    | FE8   | FE9    | FE10   | FE11   |
|------|-----|------|--------|------|--------|-------|--------|--------|--------|
| FE3  | 1   | .126 | .305** | .153 | .128   | .211* | .174   | .176   | .381** |
| FE4  |     | 1    | .273** | .165 | .193*  | .174  | .235** | .277** | .075   |
| FE5  |     |      | 1      | .120 | .149   | .178  | .210*  | .310** | .268** |
| FE6  |     |      |        | 1    | .418** | .086  | -.052  | .213*  | .025   |
| FE7  |     |      |        |      | 1      | .232* | .022   | .044   | .082   |
| FE8  |     |      |        |      |        | 1     | .225*  | .233*  | .203*  |
| FE9  |     |      |        |      |        |       | 1      | .260** | .118   |
| FE10 |     |      |        |      |        |       |        | 1      | .171   |
| FE11 |     |      |        |      |        |       |        |        | 1      |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Overall Measures of Sampling Adequacy: 0.687

Bartlett Test of Sphericity: 134.319

Significance: 0.000

#### Key

FE3 *E-banking reduces transaction costs*

FE4 *E-banking speed up transactions*

FE5 *E-banking is a quality system*

FE6 *Customer adopt e-banking because of social influence*

FE7 *Customer adopt e-banking to be compatible with the lifestyle*

FE8 *Customer adopt e-banking because of the perceived usefulness*

FE9 *E-banking has a low risk*

FE10 *Customers adopt e-banking because of self-efficacy*

FE11 *E-banking has reasonable fees and charges*

#### 4.5.4.4 Second revision of measure of sampling adequacy for factors determining customer's adoption of e-banking

Results from Table 4.23 present the revised MSA and partial correlations for factors determining customer's adoption of e-banking. All the MSA values on the diagonal are greater than 0.5 which is the recommended cut-off point value (Hair et al., 2006).

**Table 28. Table 4.23 Second revised MSA**

|      | FE3               | FE4               | FE5               | FE6               | FE7               | FE8               | FE9               | FE10              | FE11              |
|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| FE3  | .720 <sup>a</sup> |                   |                   |                   |                   |                   |                   |                   |                   |
| FE4  | .001              | .773 <sup>a</sup> |                   |                   |                   |                   |                   |                   |                   |
| FE5  | -.175             | -.161             | .784 <sup>a</sup> |                   |                   |                   |                   |                   |                   |
| FE6  | -.117             | -.060             | .004              | .538 <sup>a</sup> |                   |                   |                   |                   |                   |
| FE7  | -.006             | -.118             | -.074             | -.403             | .561 <sup>a</sup> |                   |                   |                   |                   |
| FE8  | -.089             | -.046             | -.009             | .051              | -.203             | .751 <sup>a</sup> |                   |                   |                   |
| FE9  | -.092             | -.154             | -.077             | .139              | .009              | -.138             | .717 <sup>a</sup> |                   |                   |
| FE10 | -.002             | -.156             | -.188             | -.219             | .146              | -.144             | -.168             | .687 <sup>a</sup> |                   |
| FE11 | -.308             | .036              | -.144             | .070              | -.030             | -.102             | .005              | -.070             | .695 <sup>a</sup> |

a. Measures of Sampling Adequacy (MSA)

Key

FE3 *E-banking reduces transaction costs*

FE4 *E-banking speed up transactions*

FE5 *E-banking is a quality system*

FE6 *Customer adopt e-banking because of social influence*

FE7 *Customer adopt e-banking to be compatible with the lifestyle*

FE8 *Customer adopt e-banking because of the perceived usefulness*

FE9 *E-banking has a low risk*

FE10 *Customers adopt e-banking because of self-efficacy*

FE11 *E-banking has reasonable fees and charges*

## 4.6 Deriving Factors and Assessing Overall Fit

To derive the factors, to observe a number of factors that are retained, the total variance matrix and unrotated factor matrix are presented in Table 4.24.

The table 4.24 presents total variance matrix for factors determining customer's adoption of e-banking, with factors 1,2,3 and 4 each with eigenvalues greater than 1 (2.519,1.682,1.366 and 1.012) respectively. The eigenvalue greater than 1 was used in order to have the highest amount of variance accounted for by each factor (Cliff, 1998; Hair et al., 2006). This is also indicated by the scree plot figure 4.2 in which the horizontal line to the scree plot cross just above eigenvalue of 1, and retains 4 factors.

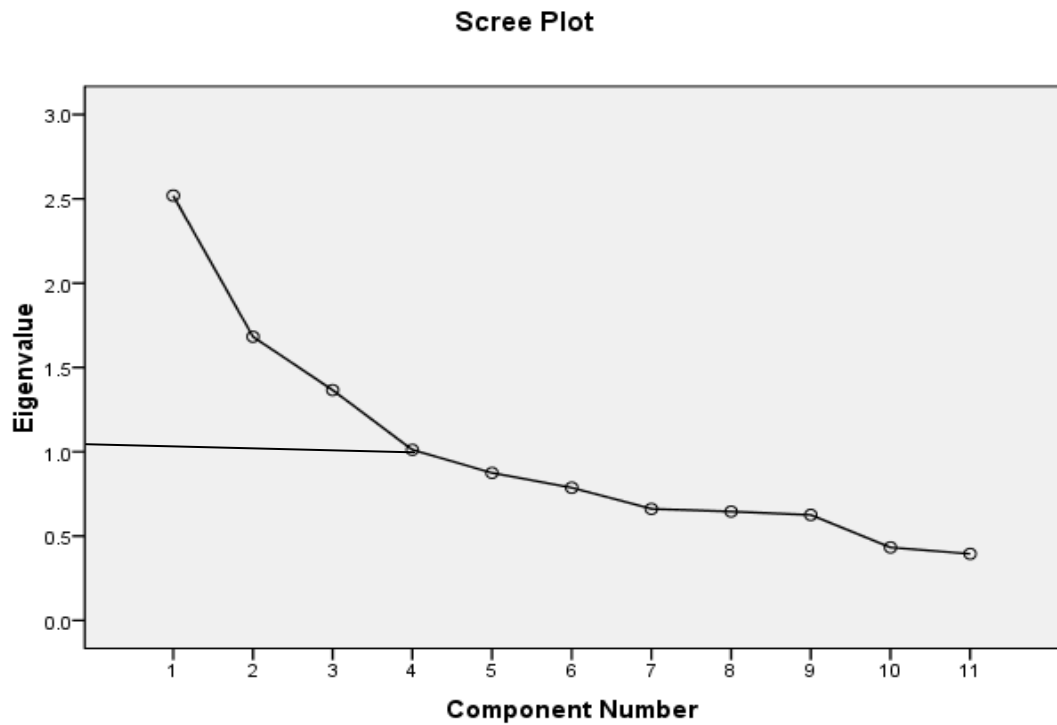
**Table 29. Table 4.24 Factors for extraction of factors matrix**

**Total Variance Explained**

| Component | Initial Eigenvalues |               |              | Extraction Sums of Squared Loadings |               |              |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|
|           | Total               | % of Variance | Cumulative % | Total                               | % of Variance | Cumulative % |
| 1         | 2.519               | 22.902        | 22.902       | 2.519                               | 22.902        | 22.902       |
| 2         | 1.682               | 15.294        | 38.196       | 1.682                               | 15.294        | 38.196       |
| 3         | 1.366               | 12.416        | 50.612       | 1.366                               | 12.416        | 50.612       |
| 4         | 1.012               | 9.196         | 59.808       | 1.012                               | 9.196         | 59.808       |
| 5         | .875                | 7.950         | 67.758       |                                     |               |              |
| 6         | .787                | 7.154         | 74.912       |                                     |               |              |
| 7         | .661                | 6.011         | 80.922       |                                     |               |              |
| 8         | .646                | 5.871         | 86.793       |                                     |               |              |
| 9         | .626                | 5.687         | 92.480       |                                     |               |              |
| 10        | .433                | 3.934         | 96.414       |                                     |               |              |
| 11        | .395                | 3.586         | 100.000      |                                     |               |              |

Extraction Method: Principal Component Analysis.

**Figure 4.2      Scree Test for Factor Analysis for factors determining e-banking adoption**



The table 4.25 below presents total variance matrix for customers perceived the usefulness of e-banking, with factor 1 and factor 2 each with eigenvalues greater than 1 (2.587 and 1.324) respectively. The eigenvalue greater than 1 was used in order to have the highest amount of variance accounted for by each factor (Cliff, 1998; Hair et al., 2006). This is also indicated by the scree plot figure 4.3 in which the horizontal line to the scree plot cross just above eigenvalue of 1, and retains 2 factors

**Table 30 . Table 4.25 Factors for extraction matrix**

**Total Variance Explained**

| Component | Initial Eigenvalues |               |              | Extraction Sums of Squared Loadings |               |              |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|
|           | Total               | % of Variance | Cumulative % | Total                               | % of Variance | Cumulative % |
| 1         | 2.587               | 36.953        | 36.953       | 2.587                               | 36.953        | 36.953       |
| 2         | 1.324               | 18.916        | 55.869       | 1.324                               | 18.916        | 55.869       |
| 3         | .823                | 11.754        | 67.623       |                                     |               |              |
| 4         | .675                | 9.640         | 77.263       |                                     |               |              |
| 5         | .656                | 9.369         | 86.632       |                                     |               |              |
| 6         | .549                | 7.839         | 94.471       |                                     |               |              |
| 7         | .387                | 5.529         | 100.000      |                                     |               |              |

Extraction Method: Principal Component Analysis.

**Figure 4.3 Scree Test for Factor Analysis for customers perceived the usefulness of e-banking**

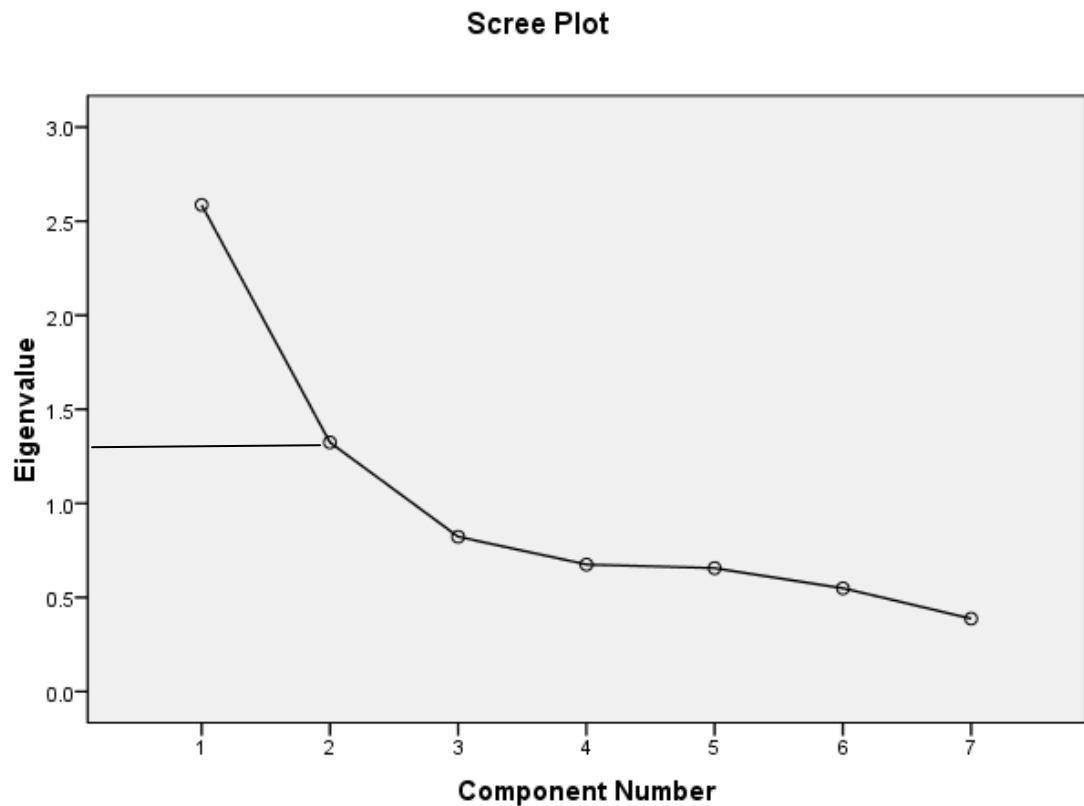


Table 4.26 below presents total variance matrix for challenges facing customers when using e-banking, with factor 1,2 and 3 each with eigenvalues greater than 1 (2.807,1.505 and 1.122) respectively. The eigenvalue greater than 1 was used in order to have the highest amount of variance accounted for by each factor (Cliff, 1998; Hair et al., 2006). This is also indicated by the scree plot figure 4.4 in which the horizontal line to the scree plot cross just above eigenvalue of 1, and retains 3 factors

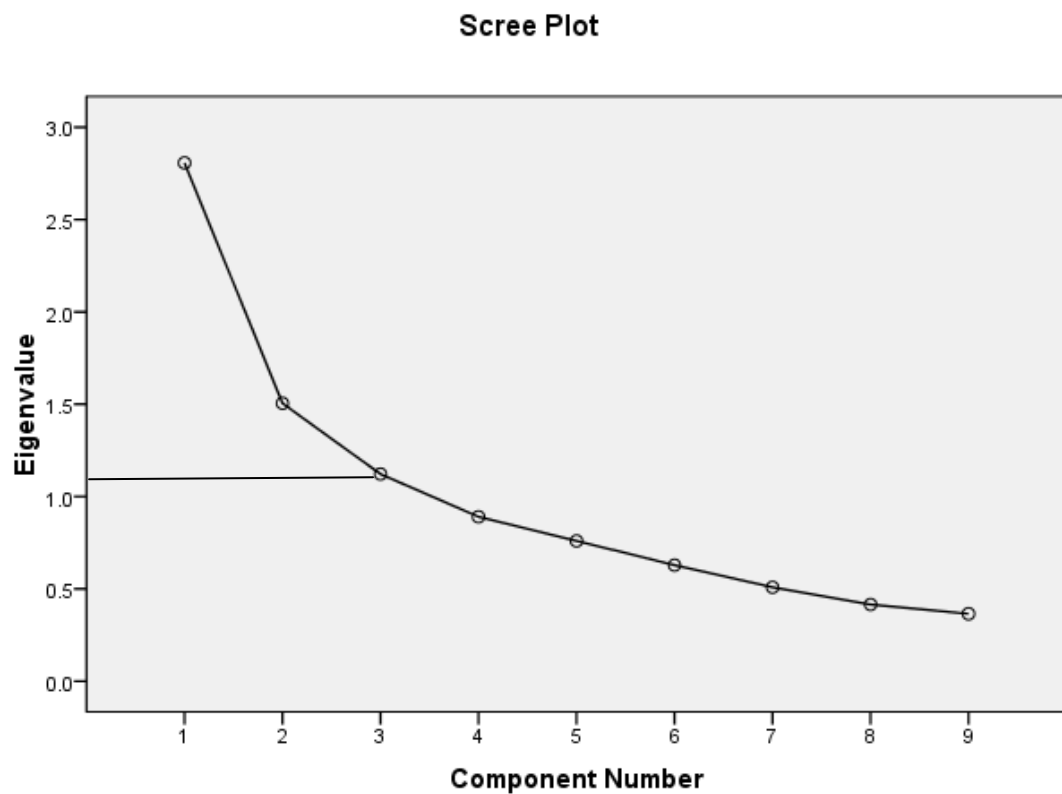
**Table 31. Table 4.26 Factors for extraction matrix**

**Total Variance Explained**

| Component | Initial Eigenvalues |               |              | Extraction Sums of Squared Loadings |               |              |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|
|           | Total               | % of Variance | Cumulative % | Total                               | % of Variance | Cumulative % |
| 1         | 2.807               | 31.190        | 31.190       | 2.807                               | 31.190        | 31.190       |
| 2         | 1.505               | 16.720        | 47.909       | 1.505                               | 16.720        | 47.909       |
| 3         | 1.122               | 12.464        | 60.373       | 1.122                               | 12.464        | 60.373       |
| 4         | .890                | 9.891         | 70.265       |                                     |               |              |
| 5         | .759                | 8.437         | 78.702       |                                     |               |              |
| 6         | .628                | 6.981         | 85.683       |                                     |               |              |
| 7         | .508                | 5.648         | 91.331       |                                     |               |              |
| 8         | .415                | 4.614         | 95.945       |                                     |               |              |
| 9         | .365                | 4.055         | 100.000      |                                     |               |              |

Extraction Method: Principal Component Analysis.

**Figure 4.4    Scree Test for Factor Analysis for challenges facing customers when using e-banking**



#### **4.7    Interpreting the factors by examining the unrotated factor matrix**

##### **4.7.1    Unrotated factor matrices for factors determining customer's adoption of e-banking**

Table 4.27 presents unrotated factor matrices for factors determining customer's adoption of e-banking, in which it indicates the degree of association of each of the variables and the factors. Factor loading is sorted according to the size of loading on each factor.

**Table 32. Table 4.27 Unrotated factor matrix**

**Component Matrix<sup>a</sup>**

|      | Component |       |       |       | Communalities |
|------|-----------|-------|-------|-------|---------------|
|      | 1         | 2     | 3     | 4     |               |
| FE1  | .237      | .744  | -.070 | .304  | .708          |
| FE2  | .069      | .634  | .479  | .111  | .648          |
| FE3  | .594      | -.077 | -.387 | .438  | .700          |
| FE4  | .546      | .122  | .308  | -.359 | .537          |
| FE5  | .629      | -.087 | -.161 | -.203 | .470          |
| FE6  | .365      | -.416 | .541  | .132  | .616          |
| FE7  | .394      | -.389 | .558  | .336  | .731          |
| FE8  | .548      | .052  | .055  | .195  | .345          |
| FE9  | .514      | .535  | -.067 | -.119 | .570          |
| FE10 | .579      | -.095 | -.055 | -.572 | .675          |
| FE11 | .472      | -.275 | -.497 | .188  | .581          |

Extraction Method: Principal Component Analysis.

a. 4 components extracted.

---

**Key**

FE1 *E-banking provides a convenient way of conducting transactions*

FE2 *E-banking saves time*

FE3 *E-banking reduces transaction costs*

FE4 *E-banking speed up transactions*

FE5 *E-banking is a quality system*

FE6 *Customer adopt e-banking because of social influence*

FE7 *Customer adopt e-banking to be compatible with the lifestyle*

FE8 *Customer adopt e-banking because of the perceived usefulness*

FE9 *E-banking has a low risk*

FE10 *Customers adopt e-banking because of self-efficacy*

FE11 *E-banking has reasonable fees and charges*

---

From table 4.27 above, variables FE3, FE4, FE5, FE8, FE9 and FE10 has loading of greater than 0.5 on factor 1, variables FE1, FE2 and FE9 has loading of greater than 0.5 on factor 2, while variables FE6 and FE7 has loading of greater than 0.5 on factor 3 and variable FE10 has loading of greater than 0.5 on factor 4.

#### 4.7.2 Unrotated factor matrices for customers perceived usefulness of e-banking

Table 4.28 below, presents unrotated factor matrix for customers perceived the usefulness of e-banking. Variables PU1, PU2, PU3, PU4 and PU7 has a loading of greater than 0.5 on factor 1 while variables PU5 and PU6 has a loading of greater than 0.5 on factor 2.

**Table 33. Table 4.28 Unrotated factor matrix**

##### **Component Matrix<sup>a</sup>**

|     | Component |       | Communalities |
|-----|-----------|-------|---------------|
|     | 1         | 2     |               |
| PU1 | .752      | .022  | .565          |
| PU2 | .763      | -.115 | .596          |
| PU3 | .762      | -.242 | .639          |
| PU4 | .577      | -.253 | .397          |
| PU5 | .427      | .696  | .666          |
| PU6 | .121      | .839  | .719          |
| PU7 | .573      | .004  | .328          |

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

##### **Key**

---

PU1 Expected transaction speed is an important attribute in the perceived usefulness of e-banking  
 PU2 Expected user friendliness is an important attribute in the perceived usefulness of e-banking  
 PU3 Expected transaction accuracy is an important attribute in the perceived usefulness of e-banking  
 PU4 Expected transaction security is an important attribute in the perceived usefulness of e-banking  
 PU5 Expected user involvement is an important attribute in the perceived usefulness of e-banking  
 PU6 Expected user experience is an important attribute in the perceived usefulness of e-banking  
 PU7 Expected convenience is an important attribute in the perceived usefulness of e-banking

---

### 4.7.3 Unrotated factor matrix for challenges facing customers when using e-banking

Table 4.29 below, presents unrotated factor matrix for challenges facing customer's when using e-banking of e-banking. Variables CE1, CE4, CE5, CE6, CE7, CE8 and CE9 has a loading of greater than 0.5 on factor 1, variables CE2 and CE3 has a loading of greater than 0.5 in factor 2 while variables CE6 and CE9 has a loading of greater than 0.5 on factor 3

**Table 34. Table 4.29 Unrotated factor matrix**

#### Component Matrix<sup>a</sup>

|     | Component |       |       |               |
|-----|-----------|-------|-------|---------------|
|     | 1         | 2     | 3     | Communalities |
| CE1 | .654      | .054  | .026  | .432          |
| CE2 | .379      | .694  | -.211 | .670          |
| CE3 | .492      | .606  | .127  | .625          |
| CE4 | .523      | .399  | .172  | .463          |
| CE5 | .568      | .007  | .162  | .349          |
| CE6 | .521      | -.329 | .644  | .795          |
| CE7 | .654      | -.494 | .130  | .689          |
| CE8 | .637      | -.280 | -.401 | .645          |
| CE9 | .540      | -.252 | -.642 | .767          |

Extraction Method: Principal Component Analysis.

a. 3 components extracted

#### Key

- 
- CE1 *There is no technical assistance when using e-banking*  
CE2 *There is a regular breach of internet connection when using e-banking*  
CE3 *There is high mobile phone charges for customers while using e-banking*  
CE4 *Customers faces computer hackers when using e-banking*  
CE5 *There is low direct customer connection when using e-banking*  
CE6 *There is double charges for customers while using e-banking*  
CE7 *Customers do not know exact charges when using e-banking*  
CE8 *There is a high risk of cybercrime when using e-banking to customers*  
CE9 *Network availability is a challenge for customers of e-banking*
-

## **4.8 Applying Oblique Rotation**

After summarization process, the rotation was used to select the factor that accounts for most of the variables. An oblique rotation was used because the aim was to obtain factors that relate to each other (Fan, 2001; Hair et al., 2006). Tabachnick and Fidell (2007, p.646) argued that if factor correlation is driven by data look for correlation matrix for correlation around 0.32 and above. Oblique rotation involves two matrices, pattern matrix and structure matrix. The pattern matrix presents the involvement of variables in a given factor while structure matrix presents the correlation of these variables in a given pattern (Powell, 1978; Preacher and MacCallum, 2002)

### **4.8.1 Oblique rotation of factor analysis for factors determining customer's adoption of e-banking**

Table 4.30 present oblique rotations for factors determining customer's adoption for e-banking. FE8 was deleted because of small loading (is less than 0.5 loading). Table 4.30 present two matrices, pattern matrix and structure matrix. The results from table 4.30 showed that factor 1 have loading pattern with FE3 and FE11 variables, factor 2 has loading pattern with FE1, FE2 and FE9 variable, factor 3 has loading pattern with FE7 and FE6 variables while factor 4 has loading pattern with FE10, FE4 and FE5 variables. This same pattern indicates a correlation in the structure matrix. These factors were named as follows. Factor 1 is reasonable fees and charges, factor 2 is convenient (time and location), factor 3 is social influence and factor 4 is transaction speed.

**Table 35. Table 4.30 Oblique rotation of factor analysis for factors determining customer's adoption of e-banking**

|      | Pattern Matrix <sup>a</sup> |      |      |       | Structure Matrix |      |      |       |
|------|-----------------------------|------|------|-------|------------------|------|------|-------|
|      | Component                   |      |      |       | Component        |      |      |       |
|      | 1                           | 2    | 3    | 4     | 1                | 2    | 3    | 4     |
| FE3  | .822                        |      |      |       | .817             |      |      |       |
| FE11 | .730                        |      |      |       | .741             |      |      |       |
| FE1  |                             | .813 |      |       |                  | .796 |      |       |
| FE2  |                             | .723 |      |       |                  | .711 |      |       |
| FE9  |                             | .542 |      |       |                  | .602 |      |       |
| FE7  |                             |      | .857 |       |                  |      | .848 |       |
| FE6  |                             |      | .760 |       |                  |      | .772 |       |
| FE10 |                             |      |      | -.837 |                  |      |      | -.803 |
| FE4  |                             |      |      | -.644 |                  |      |      | -.665 |
| FE5  |                             |      |      | -.531 |                  |      |      | -.611 |
|      |                             |      |      |       |                  |      |      |       |

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 9 iterations.

Key

---

FE1 E-banking provides a convenient way of conducting transactions

FE2 E-banking saves time

FE3 E-banking reduces transaction costs

FE4 E-banking speed up transactions

FE5 E-banking is a quality system

FE6 Customer adopt e-banking because of social influence

FE7 Customer adopt e-banking to be compatible with the lifestyle

FE9 E-banking has a low risk

FE10 Customers adopt e-banking because of self-efficacy

FE11 E-banking has reasonable fees and charges

---

#### 4.8.2 Oblique rotation of factor analysis for customers perceived the usefulness of e-banking

Table 4.31 present oblique rotations for customer's perceived usefulness of e-banking. There was no variable deleted since all variables were above 0.5. Table 4.31 present two matrices, pattern matrix and structure matrix. The results from table 4.31 showed that factor 1 have loading pattern with PU3, PU2, PU1, PU4 and PU7 variables while factor 2 has loading pattern with PU6 and PU5 variables. This same pattern indicates a correlation in the structure matrix. These factors were named as follows. Factor 1 is perceived ease of use and factor 2 is perceived user involvement.

**Table 36. Table 4.31 Oblique rotation of factor analysis for customers perceived the usefulness of e-banking**

|     | Pattern Matrix <sup>a</sup> |      | Structure Matrix |      |
|-----|-----------------------------|------|------------------|------|
|     | Component                   |      | Component        |      |
|     | 1                           | 2    | 1                | 2    |
| PU3 | .806                        |      | .793             |      |
| PU2 | .768                        |      | .772             |      |
| PU1 | .715                        |      | .735             |      |
| PU4 | .632                        |      | .614             |      |
| PU7 | .549                        |      | .563             |      |
| PU6 |                             | .854 |                  | .836 |
| PU5 |                             | .768 |                  | .793 |

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 9 iterations

#### Key

- 
- PU1 Expected transaction speed is an important attribute in the perceived usefulness of e-banking  
 PU2 Expected user friendliness is an important attribute in the perceived usefulness of e-banking  
 PU3 Expected transaction accuracy is an important attribute in the perceived usefulness of e-banking  
 PU4 Expected transaction security is an important attribute in the perceived usefulness of e-banking  
 PU5 Expected user involvement is an important attribute in the perceived usefulness of e-banking  
 PU6 Expected user experience is an important attribute in the perceived usefulness of e-banking  
 PU7 Expected convenience is an important attribute in the perceived usefulness of e-banking
-

### 4.8.3 Oblique rotation of factor analysis for challenges facing customers when using e-banking

Table 4.32 present oblique rotations for challenges facing customer's when using e-banking. CE1 and CE5 were deleted because of small loading (were less than 0.5). Table 4.32 present two matrices, pattern matrix and structure matrix. The results from table 4.32 showed that factor 1 have loading pattern with CE6 and CE7 variables, factor 2 have loading pattern with CE3, CE2 and CE4 while factor 3 has loading pattern with CE9 and CE8 variables. This same pattern indicates a correlation in the structure matrix. These factors were named as follows. Factor 1 is transparency fees and charges, factor 2 is system security and factor 3 is network availability.

**Table 37. Table 4.32 Oblique rotation of factor analysis for challenges facing customers when using e-banking**

| Pattern Matrix <sup>a</sup> |      |      |       | Structure Matrix |      |      |       |
|-----------------------------|------|------|-------|------------------|------|------|-------|
| Component                   |      |      |       | Component        |      |      |       |
|                             | 1    | 2    | 3     |                  | 1    | 2    | 3     |
| CE6                         | .920 |      |       | CE6              | .879 |      |       |
| CE7                         | .646 |      |       | CE7              | .732 |      |       |
| CE3                         |      | .798 |       | CE3              |      | .785 |       |
| CE2                         |      | .796 |       | CE2              |      | .756 |       |
| CE4                         |      | .629 |       | CE4              |      | .656 |       |
| CE9                         |      |      | -.908 | CE9              |      |      | -.864 |
| CE8                         |      |      | -.764 | CE8              |      |      | -.796 |

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 10 iterations.

#### Key

CE1 There is no technical assistance when using e-banking

CE2 There is a regular breach of internet connection when using e-banking

CE3 There is high mobile phone charges for customers while using e-banking

CE4 Customers faces computer hackers when using e-banking

CE5 There is low direct customer connection when using e-banking

CE6 There is double charges for customers while using e-banking

CE7 Customers do not know exact charges when using e-banking

CE8 There is a high risk of cybercrime when using e-banking to customers

CE9 Network availability is a challenge for customers of e-banking

## **CHAPTER FIVE**

### **DISCUSSION OF THE FINDINGS**

#### **5.0 Introduction**

This chapter presents the discussion of the findings as presented in the previous chapter. This chapter discusses in detail the findings of the study by explaining each objective. The discussion of the findings helps the researcher to understand factors determining customer's adoption of e-banking, customer's perception on e-banking adoption by commercial banks and challenges of using e-banking by customers of commercial banks.

#### **5.1 Demographic profile of respondents**

The literature suggests that social demographic characteristics have an impact on the adoption of new technology (Karjaluoto et al., 2002 and Sathye, 1999). People with high education have high reasoning skills, which contributed to the early adoption of new technology. This study has analyzed demographic attributes such as gender, age, occupation, education and income. The findings are discussed below

##### **5.1.1 Gender**

As presented in figure 4.1, the gender of the respondents was analyzed. The majority of the gender profile of respondents was male. The data showed that 64 (52.9%) of the respondents were male while 47(47.1%) of the respondents were female. This showed that males are dominant when it comes to saving with the bank and consequently male are transacting more using e-banking. This finding was in line with the findings by Ishengoma (2011) that men are more likely to save than women. Also, Laforet and Li (2005) studied the factors affecting the adoption and use of internet banking in China and concluded that most users of internet banking in China are men.

### **5.1.2 Age**

Findings from Table 4.1 show that there are differences in ages. The findings showed that out of the 121 respondents; 19(15.7%) of respondents were between 18-25 years, 48(39.7%) of respondents were between 25-35 years, 30(24.3%) of respondents were between 35-45 years, 13(10.7%) of respondents were between 45-55 years and 11(9.1%) were above 55 years. The largest numbers of respondents were between 25-35 years. The finding shows that younger people preferred mostly to use e-banking in commercial banks. This assertion was supported by Akinci et al (2004) findings in Turkey that the younger people using e-banking in their transactions with the bank are higher than older people. Reeti et al., (2009) studied customer's perspectives regarding e-banking in an emerging economy in India concluded that people in the younger age open to new ideas and ready to use technology in its new forms as compared to older people.

### **5.1.3 Transacting bank**

Results in Table 4.2 shows that respondents transact with different banks. Out of 121 respondents; 65(53.7%) are transacting with NMB, 43(35.5%) are transacting with CRDB, 8(6.6%) are transacting with NBC, 1(0.8%) are transacting with TPB, 3(2.5%) are transacting with EXIM and 1(0.8%) are transacting with KCB. From the findings most of the respondents were transacting with NMB among other commercial banks. This is because NMB has got branches all over Tanzania and in Morogoro, it was one of the earliest banks to have a branch in Morogoro. Although Crdb was the first bank to introduce ATM in Tanzania but NMB has got more customers because it is widely used by the public employee, farmers, small and middle businessmen. Also, the facts that it has got branches all over Tanzania customers are attracted to transact with NMB as compared to other banks. This was supported by the study done by

#### **5.1.4 Customer experience**

Results in Table 4.3 finds that out of 121 respondents; 7(5.8%) had experience of less than 1 year with the bank, 33(27.3%) had experience equal to 1 year but less than 5 years, 40(33.1%) had experience of equal to 5 years but less than 10 years and 41(33.9%) had experience of equal to 10 years and above. This shows that customer with the highest experience is 41 which falls in the category of 10 years and above. The results indicate that most of the customer who responds to the questions are more experienced with the commercial banks and hence enable the researcher to get more reliable data regarding e-banking adoption by commercial banks

#### **5.1.5 Occupation**

Results in Table 4.4 finds that out of 121 respondents; 56(46.3%) were a public employee and 65(53.7%) were either private, self-employed, student or another customer. From the findings, it appears that private, self-employed, student and other customer has got the highest number of respondents as compared to another category. This category has got the highest respondents because it combined private, self-employed, student and others while the public employee was a standalone category. This means that customers who mostly use e-banking are private, self-employed, student and others. Reeti et al., (2009) concluded that people with the current account with the bank were the ones who are self-employed, professionals and businessmen and hence they are more likely to use e-banking.

#### **5.1.6 Educational level**

Results in table 4.5 revealed that out of 121 respondents; 37(30.6%) were diploma holders and 84(69.4%) were degree holders and others. From the findings, the majority of the respondents are degree holders and others. The fact that there are sufficient respondents with the highest level of education enable the researcher to draw an appropriate conclusion on the adoption of e-banking and customer perceived usefulness.

As described above, there is a correlation between the level of education and use of new technology. A study by Mohamed and Mohamed (2012) showed that education level has an influence on adoption of e-banking and thus people with higher education are more likely to use e-banking than non-educated people. Also, Ulaya (2016) concluded that higher educated people participate more in the electronic bank than less educated people. Technology Acceptance Model (TAM) suggests that the perceived easy use of technology brings an intention to use that technology. This showed that level of education and technology acceptance are concurrent. Teo et al., (2012) also incorporate demographic factors in their study and reveal that education had a positive relationship with the perceived usefulness of e-banking

#### **5.1.7 Income level**

Results in Table 4.6 showed that out of 121 respondents; 49(40.5%) had an income level of less than 500,000, 66(54.5%) had an income level of equal to 500,000 but less than 5,000,000, 4 had an income of equal to 5,000,000 but less than 10,000,000 and 2(1.7%) had an income level of equal to 10,000,000 and above. From the findings, respondents with an income level of equal to 500,000 but less than 5,000,000 had the highest number of respondents. This means that customers who are mostly a user of e-banking are middle-income earners. This result is in line with the study conducted by Sohail and Shanmugham (2002) on e-banking and customer preferences in Malaysia and concluded that there is a significant relationship between income and customers use of e-banking. Sulaiman et al., (2007) in their study conducted in Malaysia also reveal that income has significant influence in the adoption of e-banking. According to Crabbe et al., (2009) demographic factors such as income have a significant role in adoption decision in Ghana.

### **5.2 Factors determining customer's adoption of e-banking**

Following factor analysis, ten item questions were retained, and four factors were extracted. Identification of factors was conducted and factors were named. Each factor name describes factors determining customer's adoption of e-banking. These

factors include reasonable fees and charges (factor 1), convenient (factor 2), social influence (factor 3) and transaction speed (factor 4).

Factor one is defined as customers use e-banking because of reasonable fees and charges. The cost of transferring money from bank account to phone number is reduced as only one transaction is conducted. High fees and charges will have a negative impact on customer's adoption of e-banking. This factor goes in line with Sohail and Shanmugham (2003) concluded that cost of computers and internet access does not influence the usage of e-banking. A study by Speece (2003) showed that e-banking has successfully reduced operating and administrative costs which enable banks to offer lower service fees on e-banking. Factor two is defined as customers use e-banking because it is a convenient way. This means the customer can conduct a transaction without visiting bank premises and at any time. This finding goes in line with the finding by Agarwal et al., (2009) who concluded that convenience to be one of the factors that influence customer's overall satisfaction with e-banking to a very large extent. They continued to comment that a major factor responsible for making internet popular as a medium for conducting business and transactions among people has been the convenience it provides to users. Liao and Cheung (2002) also in their study revealed that expected convenience; that is 24 hours' access was singled out by 91% of respondents to be important and the fact that people can be able to execute financial transactions in the comfort of home. White and Nteli (2004) hypothesized that convenience has a positive effect on customer satisfaction. Factor three defined as customers use e-banking because of social influence, which is friends and relatives. According to Agarwal et al., (2009) the maximum influence on customers in respect of influencing them to use e-banking is of friends or relative. Factor four is defined as customers use e-banking because it speeds up the transaction. This means customers do not need to be in the queue in order to conduct the transaction.

### **5.3 Customers perceived usefulness of e-banking**

For customer's perceived usefulness, seven-item questions were retained and two factors were extracted. These factors were renamed as perceived ease of use (factor 1) and perceive user involvement (factor 2).

The item questions in factor 1 include expected user friendliness, expected transaction speed, expected transaction security and expected convenience. The item questions in factor 2 include expected user experience and expected user involvement. The finding from the study in factor 1 showed that customers use e-banking because of the perceived ease of use. E-banking system has been made simple such that every customer can use it without any problem. Liao and Cheung (2002) conclude that expected ease of use is likely to be a significant determinant of consumer perceived usefulness of e-banking. Wessels and Drennan's (2010) in their study also revealed that there is a positive relationship between perceived ease of use and intention to use. Hanafizadeh et al., (2014) in their study of mobile banking adoption by Iranian bank clients also concluded that perceived ease of use is significant in the perceived usefulness of e-banking.

The findings of the study in factor 2 showed that customer's use e-banking because of its expected user involvement. The fact that e-banking is a self-service system, customers felt to be involved in conducting the transaction. The findings go in line with the study by Liao and Cheung (2002,) that expected user involvement was found to be fairly important. In particular, endowing more perceived control seemed to increase the user's sense of self-security; individuals felt it possible to proceed at their own pace without being prompted by the computer at every turn.

### **5.4 Challenges of using e-banking by customers of commercial banks**

For challenges of using e-banking by customers, seven-item questions were retained and three factors extracted. These factors were renamed as transparency of fees and charges (factor 1), system security (factor 2) and network availability (factor 3). The item question in factor 1 includes there are double charges for customers while using

e-banking and customers do not know exact charges when using e-banking. The item question in factor 2 include there are highly mobile phone charges for customers while using e-banking, there is a regular breach of internet connection when using e-banking and customers faces computer hackers when using e-banking.

The item question in factor 3 include network availability is a challenge for customers who are using e-banking and there is a high risk of cybercrime when using e-banking.

The findings in factor 1 showed that customers do not know exact charges of e-banking transactions. They just guess out.

## **CHAPTER SIX**

### **SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

#### **6.0 Introduction**

This chapter presents a summary, conclusion and recommendations of customers perceived usefulness and e-banking adoption by commercial banks. Summary of the findings are presented and then provide a conclusion as to the customers perceived usefulness and e-banking adoption by commercial banks. Lastly, the chapter provides recommendations for the research findings.

#### **6.1 Summary of the findings**

The overall objective of this study was to analyze the impact of e-banking adoption by commercial banks and customers perceived usefulness. The study uses commercial banks at Morogoro as a case study. The study collected data using a survey designed to measure e-banking adoption and customer's perceived usefulness. Following data collection, the data were analyzed using factor analysis to obtain item question that has a higher loading on factors. The results in factor analysis ended up with three factors namely; adoption factors (F1), e-banking challenges (F2) and perceived usefulness (F3). For adoption factors, the results of the factor named include reasonable bank fees and charges, convenience, social influence and transaction speed. For e-banking challenges factors the results of the factor named include transparency of fees and charges, system security and network availability and for perceived usefulness, the results of the factor named include expected ease of use and expected user involvement. A reliability test was performed on the item question that loaded on each factor. The item for each factor was found to be reliable, with Cronbach's alpha above 0.5 which is within the recommended range (Davis, 1964, p. 24; Nunnally et al., 1967, p.226) referenced by (Peterson, 1994, p.382)

Following the results from factor analysis, a summated scale was formed for each of the factor (Hair et al., 2006). These resulting factors (adoption factors, e-banking challenges and perceived usefulness) were used to analyze the impact of e-banking adoption and customer's perceived usefulness. Under specific objective one which was adoption factors, reasonable bank fees and charges, convenience, social influence and transaction speed all seemed to be the factors for customer's adoption of e-banking. In objective two which was e-banking challenges, transparency of fees and charges, system security and network availability were the challenges customer faces when using e-banking. Lastly, with specific objective three which was perceived usefulness, expected ease of use and expected user involvement were perceived to be the use of e-banking.

## **6.2 Conclusion**

The banking industry in Tanzania is rapidly transformed through the use of e-banking. The traditional banking system is replaced by the modernized banking system which uses automated technology. Nowadays customers are not necessarily required to visit bank premises in order to get certain services. This study by the use of factor analysis showed the impact of e-banking adoption by commercial banks and customers perceived usefulness by first looking at the demographic attribute of the respondents like gender, age, occupation, education and income which had an influence on adoption of e-banking by customers. Not only this had an influence on e-banking adoption but also there are other factors like reasonable bank fees and charges, the fact that e-banking saves time, social influence and the quality of e-banking system had to influence on adoption of e-banking. Further, it has been noted that customers use e-banking very often in conducting banking transaction although this does not prevent them to visit bank premise for some services since not all banking services are available on e-banking menu. Furthermore, the study found that the benefit of using e-banking exceeds its challenges and thus why despite some of the challenges customer faces they still use e-banking. Customers perceive expected convenience to the usefulness of e-banking.

Customers can conduct the transaction in any location and at any time by the use of e-banking instead of visiting banking premises. Also, e-banking has got its challenges like unknown charges of e-banking transaction, cybercrime risks and network availability. However, these challenges do not prevent customers to continue using e-banking since the benefit of it outweigh its challenges

### **6.3 Recommendations**

Recommendations were made based on the research findings and literature reviewed. The researcher recommends the following;

- Commercial banks should improve awareness to customers on some of the e-banking product like internet banking which is not so popular among other e-banking product
- Commercial banks should increase the number of e-banking product in order to reduce congestion on banking premises. Increasing the number of e-banking product will make customer server themselves instead of visiting banks
- Commercial banks should revise their fees and charges on e-banking transaction in order to motivate customers to use e-banking service. Some customers are reluctant to use e-banking because of the high transaction charges.
- Commercial banks should improve technical assistance in their e-banking services in order to quickly resolve technical issues in e-banking system
- The issue of convenience (time and location) is very important for e-banking adoption by customers and hence commercial banks should make sure e-banking facilities like ATMs are placed at many locations as much as possible

#### **6.4 Areas for further studies**

The study covered commercial banks in Morogoro Municipality but the researcher wished to expand the coverage of the study by extending other Regions but time and funds deficit could not allow doing so, therefore I recommend other researchers to do the same study to other Regions.

Furthermore, other researchers could do study on challenges of electronic banking adoption to customers

## REFERENCES

- Adeoti, J.O (2005) "*Information Technology Investment in Nigerian Manufacturing Industry: The Progress So Far*", Selected Papers for the 2004 Annual Conference, Ibadan: Nigerian Economic Society, 213-244
- Agboola A. A . (2006). Electronic payment systems and Telebanking Services in Nigeria. *Journal of Internet Banking and commerce*, 11(3), 1-10
- Ajzen,I.(1991). The theory of planned behavior. *Organizational behavior and human decision process*. 50: 179-211
- Alsajjan,B., and Dennis,C.(2010). Internet banking acceptance model: Cross-market examination. *Journal of Business Research*, 63(9), 957-963
- Amaoko, A. (2012). The impact of information communication technology (ICT) on banking operations in Ghana. *International Journal of Business and Management Tomorrow* Vol. 2 No. 3
- Ayadi A. (2003), Technological and organizational preconditions to Internet banking implementation: the case of Tunisia Bank. *Journal of Internet Banking and Commerce*, 11(11): 1-15.
- Balachandher Krishnan Guru, Santha Vaithilingam, Northline Ismail, and Rajendra Prasad, (2001) "*Electronic Banking in Malaysia*", A Note on Evolution of Services and Consumer Reactions
- Basweti O.K., Masese C.B and Dr Martin O.R (2013) "Impact and challenges of information communication technology adoption in the Tanzanian banking sector". *International Journal of Academic Researchers in Business and Social Sciences*, February 2013, Vol.3 No.2
- Berger A. N. (2003) 'The economic effects of technological progress: evidence from the banking industry'. *Journal of Money, Credit, Banking*, 35 (2): 141-176.

Chang,H., and Abdul Hamid, M. (2010). An emperical investigation of internet banking in Taiwan. *Global Journal of Business Research*. 4(2) 39-48

Cheung, C.M.K and Lee, M.K.O (2006). Understanding consumer trust in internet shopping: A multidisciplinary approach. *Journal of the American Society for Information Science and Technology*, 57(4), 479-492

Chorafas, Dimitris N. (2000). "Electronic Funds Transfer", Butterworths, London, UK,1st edition.

Davis, F. D., Bagozzi, R.P., and Warshaw, P.R (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, 22(14), 1111-1132

Egesa, A. (2006). Customer Adoption of Tele-banking Technology in Kenyan Banks. Unpublished MBA project University of Nairobi

Essinger, James, (1999) "*The Virtual Banking Revolution*", The Customer, The Bank and the future. 1st ed., International Thomson Business Press, London, UK.

Eyadat, M. and Kozak, S. (2005). The role of Information Technology in the profit and cost efficiency improvements in the banking sector. *Journal of Academy of Business and Economics*, February 2005.

Gerstenfield, A. Woltzel L. (2007), "Strategies for Innovation in Developing Countries," *Sloan Management Review*, fall, pp 57 - 68.

Hernando, I and Nieto, M. J. (2007), *Is the Internet Delivery Channel changing Banks' Performance?* The Case of Spanish Banks, *Journal of Banking & Finance*.

Laudon, D.P. and Laudon, J.P. (1991): *Business Information System: A Problem Solving Approach*, New York, HBJ, College Publishers.

Maina (2010), *A survey on the impact of ICT on Business Value Creation in Kenya Banking Sector*. Unpublished MBA project, University of Nairobi.

- Mathwick,C., Rigdon and Malhotra,N.K (2001). The effect of dynamic retail experiences on experimental perceptions of value: An internet and catalog comparison, *Journal of Retailing*, 78(1), 51-60
- Morufu, O & Taibat, A. (2012). Banker's perception of electronic banking in Nigeria: A review of the post-consolidation experience. *Research Journal of Finance and Accounting*, 3(2), 1-11
- Rogers,E.M. (1995). *Diffusion of innovations*, Free Press, New York, Fourth Edition 1995.
- Rose, Peter S. (1999), *Commercial Banking Management*, 40 ed,, Irwin/McGraxvl - Hill, Boston, USA.
- Saythe, M. (2005), The Impact of Internet Banking on Performance and Risk Profile Evidence from Australian Credit Unions. *Journal of Banking Regulation*, Vol.6, pp. 163-174.
- Siam, A. Z. (2006). Role of the Electronic Banking Services on the Profits of Jordanian Banks. *American Journal of Applied Sciences*, 1999-2004.
- Simpson, J. (2002), The Impact of the Internet in Banking Observations and Evidence from Developed and Emerging Markets *Telematics and Informatics*, Vol.19, No. 4, pp. 315-330.
- Shu W. and Strassmann P.A. (2005). 'Does information technology provide banks with profit? ' *Information & Management Journal*, 42: 781-787
- Venkatesh, V., Morris, M., Davis, G., Davis, F. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478
- Whitten J. L., Bentley L.D. and Dittman K.C (2004) '*System Analysis and Design Methods*, 'McGraw-Hill, New York.

## APPENDICES

### QUESTIONNAIRES FOR E-BANKING AND ITS RELATIONSHIP TO CUSTOMER'S PERCEIVED USEFULNESS

Dear Respondents,

Information and Communication technology are widely used by banks nowadays in their operations, through the use of Bills payment, Balance inquiry, Mobile phone recharge, Internet banking, Electronic Fund Transfer, Smart cards and other e-banking products.

In this context, I am conducting research on “**E-banking and its relationship to customer's perceived usefulness, a case of commercial banks in Morogoro**” for the Master's Degree of Science in Accounting and Finance, Mzumbe University.

The information gathered will be used for academic purposes only. Your response will be held with the highest degree of confidentiality and will be maintained.

I, therefore, request your time and resource to answer the following questions;

#### **PART I: BACKGROUND INFORMATION OF THE RESPONDENTS**

(Please tick inside the relevant brackets)

1. What is your gender

Female [    ]

Male [    ]

2. What is your age group

Equal to 18 but less than 25 years [    ]

Equal to 25 but less than 35 years [    ]

Equal to 35 but less than 45 years [    ]

Equal to 45 but less than 55 years [    ]

55 years and above [    ]

3. Which among of the following banks do you normally transact with

NMB [    ]

CRDB [    ]

NBC [    ]

BARCLAYS [    ]

TPB [    ]

EXIM [    ]

DTB [    ]

KCB [    ]

Others please specify .....

4. How long have you been customer of your present bank

Less than 1 year [    ]

1 year but less than 5 years [    ]

5 years but less than 10 years [    ]

10 years and above [    ]

5. Kindly indicate your occupation

Public employee [   ]

Private employee [   ]

Self employed [   ]

Student [   ]

Others please specify .....

6. Please indicate the level of your education

Diploma [   ]

Bachelor Degree [   ]

Others please specify .....

7. What is your income per month

Less than 500,000 [   ]

Equal to 500,000 but less than 5,000,000 [   ]

Equal to 5,000,000 but less than 10,000,000 [   ]

More than 10,000,000 [   ]

## PART II: FACTORS DETERMINING CUSTOMERS ADOPTION OF E-BANKING

8. Please choose the option that closely matches your option by writing a number on the following statements based on the factors for customer adoption of e-banking

1= Strongly Agree 2= Agree 3= Neutral 4= Disagree 5= Strongly Disagree

| SN | Statement                                                                                         | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|----|---------------------------------------------------------------------------------------------------|----------------|-------|---------|----------|-------------------|
| 1  | Customers adopt e-banking because it provides a convenient way of conducting banking transactions |                |       |         |          |                   |
| 2  | Customers adopt e-banking on banking transactions because it saves time                           |                |       |         |          |                   |
| 3  | Customers adopt e-banking on banking transactions because it reduces transaction costs            |                |       |         |          |                   |
| 4  | Customers use e-banking on banking transaction because it speeds up transactions                  |                |       |         |          |                   |
| 5  | Customers use e-banking because of the system quality                                             |                |       |         |          |                   |
| 6  | Customers use e-banking on banking transactions because of social influence                       |                |       |         |          |                   |

| SN | Statement                                                                                    | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|----|----------------------------------------------------------------------------------------------|----------------|-------|---------|----------|-------------------|
| 7  | Customers use e-banking in banking transactions in order to be compatible with the lifestyle |                |       |         |          |                   |
| 8  | Customers use e-banking because of the perceived usefulness                                  |                |       |         |          |                   |
| 9  | Customers use e-banking because of the perceived low risk                                    |                |       |         |          |                   |
| 10 | Customers use e-banking because of the perceived behavioural/self-efficacy                   |                |       |         |          |                   |
| 11 | Customers use e-banking because of the reasonable bank fees and charges                      |                |       |         |          |                   |

### **PART III: CUSTOMERS PERCEPTIONS OF E-BANKING ADOPTION**

9. Please tick the option that closely matches your option on the following statements based on the customer's perceptions on e-banking adoption by commercial banks
- Use a scale of 1 to 7, where 1= Not important at all 2= Not very important 3= Neutral 4= Slightly important 5= Important 6= Very important 7= Extremely important

| SN | Statement                                                                                                  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|
| 1  | Expected transaction speed is an important attribute in the perceived usefulness of e-banking              |   |   |   |   |   |   |   |
| 2  | Expected user-friendliness is an important attribute in the perceived usefulness of e-banking              |   |   |   |   |   |   |   |
| 3  | Expected transaction accuracy is an important attribute in the perceived usefulness of e-banking           |   |   |   |   |   |   |   |
| 4  | Expected transaction security is an important attribute in the perceived usefulness of e-banking           |   |   |   |   |   |   |   |
| 5  | Expected user involvement is an important attribute in the perceived usefulness of e-banking               |   |   |   |   |   |   |   |
| 6  | Expected user experience is an important attribute in the perceived usefulness of e-banking                |   |   |   |   |   |   |   |
| 7  | Expected convenience(time and location) is an important attribute in the perceived usefulness of e-banking |   |   |   |   |   |   |   |

**PART IV: CHALLENGES OF USING E-BANKING BY CUSTOMERS  
OF COMMERCIAL BANKS**

10. The benefit of using e-banking to customers outweigh its challenges

Strongly Agree [    ]

Agree [    ]

Neutral [    ]

Disagree [    ]

Strongly Disagree [    ]

11. How often do you use e-banking on banking transactions

Very often [    ]

At least once a week [    ]

At least once after every two weeks [    ]

At least once a month [    ]

At least once after every three months [    ]

12. Please choose the option that closely matches your option by writing a number on the following statements based on the challenges customers faces when using e-banking

1= Strongly agree 2= Agree 3= Neutral 4= Disagree 5= Strongly disagree

| <b>SN</b> | <b>Statement</b>                                                          | <b>Strongly Agree</b> | <b>Agree</b> | <b>Neutral</b> | <b>Disagree</b> | <b>Strongly Disagree</b> |
|-----------|---------------------------------------------------------------------------|-----------------------|--------------|----------------|-----------------|--------------------------|
| 1         | There is no technical assistance for customers while using e-banking      |                       |              |                |                 |                          |
| 2         | There is a regular breach of internet connection when using e-banking     |                       |              |                |                 |                          |
| 3         | There are high mobile phone charges for customers while using e-banking   |                       |              |                |                 |                          |
| 4         | Customers face computer hackers when using e-banking                      |                       |              |                |                 |                          |
| 5         | There is low direct customer connection when using e-banking              |                       |              |                |                 |                          |
| 6         | There are double charges for customers while using e-banking              |                       |              |                |                 |                          |
| 7         | Customers do not know exact charges when using e-banking                  |                       |              |                |                 |                          |
| 8         | There is a high risk of cybercrime when using e-banking to customers      |                       |              |                |                 |                          |
| 9         | Network availability is a challenge for customers who are using e-banking |                       |              |                |                 |                          |

**Thank you for your time and response for my questionnaire**