

**FACTORS INFLUENCING THE ADOPTION OF MOBILE
FINANCIAL SERVICES IN THE UNBANKED POPULATION:
THE CASE OF CHAMWINO DISTRICT**

By

AULELIUS LEMA

**A dissertation Submitted in Partial Fulfilment of the Requirements for Award
of the Master Degree in Science of Accounting and Finance of Mzumbe
University**

2014

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation/thesis entitled **Factors Influencing the Adoption of Mobile Financial Services in the Unbanked Population: The Case of Chamwino District** in partial/fulfilment of the requirements for award of the degree of Master of science in Accounting and Finance of Mzumbe University.

Signature

Major Supervisor

Signature

Internal Examiner

Accepted for the Board of.....

Signature

DEAN/DIRECTOR,

FACULTY/DIRECTORATE/SCHOOL/BOAR

DECLARATION AND COPYRIGHT

I, Aulelius Lema, declare that this thesis is my own original work and that it has not been presented and will not be presented to any other university for a 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

I wish to express my sincere thanks to God for his grace, protection and support in my life because I believe without him this work could have even more difficult. I am grateful to my supervisor Mr Severin Gasper Msaidi for support, in writing this dissertation.

Special thanks to my lovely brother and sisters, Audax Simkoko, Eliashiwanga, Nazario and Almanda. Together we have made a great family brought together by the love of our late mother Agatha M Ngimba. I wish to express my gratitude to my uncle Mr Eleuter M Ngimba for his enduring and valuable support in my education and our family for he made it possible when everything seemed impossible.

Special thanks to my fiancée Wema S. Kambey for her moral and financial support in my studies.

Special thanks to my workmates for their support and encouragement. I equally wish to extend special thanks to my colleagues and students of MSc Accounting and Finance class of 2012-2014 who helped me greatly through all the phases of my studies of coursework and dissertation writing. Their support is highly appreciated and respected.

In a special way I acknowledge the support of my close friends Fintan Paul, Dorika Mwamtambulo, Edward Ntulo, Gloria Lukumay and Dr Alex Kira.

I am indebted to many individuals for their ideas and assistance, their support is highly appreciated even though their names are not mentioned.

DEDICATION

This work is dedicated to the memories of my mother Agatha M. Ngimba and my fiancée Wema S Kambey

ABSTRACT

Mobile financial services (MFS) are a recent rapid development that is taking place in developing and emerging countries. The penetration of mobile financial services has been supported by rapid advances in wireless technologies and mobile penetration in many countries across the globe and a number of developing countries. Currently there are 150 operating mobile money deployment and over 110 planned to be deployed worldwide. Its development provides a great opportunity to deliver financial services to the unbanked who are more than 2.5 billion across the globe.

Mobile financial adoption has been different from one country to another. Evidences show that countries like Kenya have experienced a faster mobile financial service adoption than other countries like Tanzania (Keeler, 2012; Horne and Nickerson, 2013). This study investigated the factors influencing the adoption of mobile financial services in the unbanked population. The study hypothesizes the following variables to have influence on the adoption of mobile financial service; Perceived usefulness (PU), Perceived ease of use (PEU), Perceived cost (PC), Perceived trust (PT), Perceived risk (PR) and Social influence.

The construct validity of the measurement items was established by using confirmatory factor analysis and the reliability was established by using Cronbach's Alpha coefficient. The hypothesis was tested by using multiple regression analysis and the independent sample t-test was used to investigate if there is a difference in the adoption between male and female. The sample size used 206 respondents who were selected from the study area.

The study revealed that perceived usefulness, perceived cost and social influence were found to have a significant influence on the adoption of mobile financial services. Perceived ease of use, perceived cost and perceived trust were found to have an insignificant influence on the adoption of mobile financial services. It was also revealed that there is no significant difference in the adoption of mobile financial services between male and female.

TABLE OF CONTENTS

CERTIFICATION	i
DECLARATION AND COPYRIGHT	ii
ACKNOWLEDGEMENTS	iii
DEDICATION	v
ABSTRACT	vi
LIST OF TABLES	xi
LIST OF FUGURES	xii
CHAPTER ONE	1
BACKGROUND OF THE PROBLEM	1
1.1 Introduction	1
1.1.1 Mobile financial services penetration in Tanzania	5
1.1.2 Mobile financial service regulation in Tanzania.....	7
1.2 Statement of the Problem	8
1.3 Objective of the Study	9
1.3.1 General objective	9
1.3.2 Specific objective.....	9
1.4 Research hypothesis	10
1.5 Scope of the study	10
1.6 Significance of the Study	10
1.7 Delimitation.....	11
1.8 Organisation of the report.....	11
CHAPTER TWO	13
LITERATURE REVIEW	13
2.1 Introduction	13
2.1 Theoretical literature review.....	13
2.1.1 Mobile financial service.....	13
2.1.2 Adoption theories.....	15
2.2 Empirical evidence	17
2.2.1 Mobile financial service development	17

2.2.2 Mobile financial service adoption.....	21
2.2.3 Mobile financial services adoption journey.....	21
2.2.4 Early Studies on TAM and Mobile Financial Service Adoption.....	24
2.3 Conceptual Framework and Research Hypothesis.....	32
2.3.1 Perceived usefulness	33
2.3.2 Perceived ease of use	33
2.3.3 Perceived cost	35
2.3.4 Perceived trust.....	35
2.3.5 Perceived risk.....	36
2.3.6 Social influence.....	36
CHAPTER THREE	38
RESEARCH METHODOLOGY	38
3.1 INTRODUCTION.....	38
3.2 Research Methodology.....	38
3.3 Research design.....	38
3.4 Study area	39
3.5 Study population.....	39
3.6 Unit of analysis.....	39
3.7 Variables and their measurement	40
3.7.1 Items used to measure the constructs of this study.....	40
3.7.2 Composite scale used in the study	41
3.8 Sample Design and Sampling Plan	43
3.8.1 Sampling technique.....	43
3.8.2 Sample size	43
3.9 Characteristics of respondents and uses of mobile financial services.....	44
3.9.1 Sample size and response rate	44
3.9.2 Demographic Characteristics respondents.....	44
3.9.3 Mobile Financial service usage.....	46
3.10 Data Collection.....	47
3.10.1 Types and sources of data.....	47
3.10.2 Data collection methods.....	47

3.11 Reliability and Validity of the measurement instruments	48
3.11.1 Reliability of the Study	48
3.11.2 Validity of the study	49
3.11 Ethical consideration	52
3.12 Data analysis methods	53
3.12.1 Hypothesis testing.....	53
3.12.2 Multiple regression analysis	53
3.12.3 Correlation analysis	54
3.12.4 Independent sample t-test	55
CHAPTER FOUR.....	56
RESEARCH FINDINGS	56
4.1 Introduction	56
4.2 Result for hypothesis 1 (Perceived usefulness)	61
4.3Results for hypothesis 2 (Perceived ease of use).....	61
4.4 Result for hypothesis 3 (Perceived cost)	61
4.5Result for hypothesis 4 (Perceived trust)	61
4.6 Result hypothesis 5 (Perceived risk)	62
4.7 Result hypothesis 5 (Social influence)	62
CHAPTER FIVE.....	67
DISCUSSION OF RESEARCH FINDINGS	67
5.1 Introduction	67
5.2 Perceived usefulness	68
5.3 Perceived ease of use and mobile financial service adoption	69
5.4 Perceived cost and mobile financial service adoption	71
5.5 Perceived Trust and mobile financial services adoption	72
5.6 Perceived risk and mobile financial service adoption	74
5.7 Social influence and mobile financial service adoption	77
CHAPTER SIX	81
SUMMARY, CONCLUSION AND POLICY IMPLICATION	81
6.1 Introduction	81
6.2 Research objective and the research Model	81

6.3 Summary of research findings.....	81
6.4 Conclusion.....	83
6.5 Practical Implications and recommendations	83
6.6 Limitation of the study and Recommendations for further studies	85
REFERENCES	87
APPENDICES	100
Appendix I Questionnaire.....	100
Appendix II Research Proposal Approval Form	103
Appendix III Permit Letter from Chamwino District Council	104

LIST OF TABLES

Table 2.1 Summary of selected literature review;	30
Table 3.1 Variables or construct and their measurement item the sources	42
Table 3.2 Respondents Age and Gender	44
Table 3.3 Respondents' Education Level.....	45
Table 3.4 Respondents working status.....	45
Table 3.5 Cronbach's Alpha Coefficient for the Main Constructs	49
Table 3.6 Summary of the CFA Factor loading for each item used to measure the constructs	52
Table 4.1 Descriptive Statistics for the composite scales	57
Table 4.2 Pearson Correlations	58
Table 4.3 Regression analysis result	60
Table 4.4 Summary of Result for hypothesis test	61
Table 4.5 Group Statistics	63
Table 4.6 Independent Samples t-Test result	64
Table 4.7 Type of perceived risk and respondents' perception means and percentages	66

LIST OF FUGURES

Figure 1.1 Mobile Financial Service Trend in Tanzania: Registered Accounts and Active Usage of Mobile Financial Service: 2008-2013.....	6
Figure 1.2 Mobile money Transaction volume and Transaction value (TZS Billion): August 2012-september 2013	7
Figure 2.1 GMSA Mobile money for the unbanked customers' progression journey	22
Figure 2.2 Conceptual Framework.....	32
Figure 3.1 Mobile Financial service usages	43
Figure 3.2 Confirmatory Factor analysis (CFA) using SPSS Amos.....	51

CHAPTER ONE

BACKGROUND OF THE PROBLEM

1.1 Introduction

Mobile financial services in Africa have emerged as an important driver of financial inclusion and an innovative channel of financial service delivery to the unbanked. It presents an enormous opportunity to overcome the dominance of banks in the provision of formal financial service because of its transformative power and ability to reach the unbanked. Financial inclusion has recently gained recognition throughout the world as an important policy objective. Policymakers and institution has recognised the importance of financial inclusion (inclusive financial service delivery) as a pillar for development (Cull, Demirgüç-Kunt, and Lyman, 2012).

The group of 20 major economies (G-20) in 2009 formed the Financial Inclusion Expert group, in 2010 they defined the principals of innovative financial inclusion and they recognised officially access to quality financial service as one of the nine key pillars of the global development agenda (Global Partnership for Financial Inclusion (GPFI), 2011). The World Bank launched the Global Findex database in 2011 to collect data on financial inclusion and the financial access indicators in order to cover the data gaps. New international bodies also have emerged such as the Alliance for Financial Inclusion (AFI) whose objective is to encourage financial inclusion for the world's poor. Many initiatives are being deployed to find innovative channels to speedup financial inclusion.

More than 80 institutions from the developing world and emerging countries endorsed the Maya declaration¹ which according to the AFI, (2012 p.2) is the “first global and measurable set of commitments by developing and emerging countries to unlock the economic and social potential of the 2.5 billion poorest people who are

¹ Maya declaration is the declaration endorsed by 80 institutions from developing and emerging countries making a measurable commitment to promote financial inclusion in 2011 in Riviera, Maya, Mexico.

financially excluded through greater financial inclusion. Under the declaration members committed themselves to create policy environment for technological innovation which will increase access and reduce costs of financial services to encourage wider financial inclusion with consumer protection, empowerment, financial integrity and stability (Alliance for Financial Inclusion (AFI), 2013). The Maya declaration sets the targets of financial services delivery in developing and emerging countries (World Bank (WB), 2012). These initiatives have been followed by increasing number of financial sector reforms that aim at promoting financial inclusion at the global level.

According to the World Bank 2.5 billion people do not have an account at a formal financial institution and most of them come from the developing world (Klapper and Demircuc-Kunt, 2012). The Global Findex shows that three quarter of the world's poor do not have an account at the formal financial institution not only because they are poor but also due to costs travel distance and paper work involved are the reason which are given by many as barriers to access. Hannig and Jensen (2010) identified that there is progress in financial inclusion in different parts of the world but the progress is uneven and the delivery of financial services is still poor. Some countries have faster rates of financial inclusion than other countries. The Finscope survey shows that Africa faces even a greater challenge of financial inclusion when compared with other continent like Asia which has 25 percent of poor household who have access to financial services. The Global Findex database of financial inclusion shows that less than quarter of African adult has an account with a formal financial institution and many use informal means to borrow and save, 24 percent in Sub Saharan 11 percent in central Africa and 51 percent in southern Africa (Demircuc-Kunt and Klapper, 2012). Financial exclusion is reported to be even higher in other African countries like the Democratic Republic of Congo and Central African Republic where 95% of adult are unbanked (Demircuc-Kunt and Klapper, 2012). The World bank report quotes an individual from the Democratic Republic of Congo in the UN/World Bank Institute e-conference on building inclusive financial sectors in March-April 2005 saying "...the minimum standard for a financial structure is absent... (UNCDF, 2006). Many people in Africa remain excluded from

the access to financial services because of unfavourable policy environment, poor financial infrastructure; weak delivery mechanism and absence of responsible finance with customer focus (Stein, Randhawa, and Bilandzic, 2011). This has made the financial sector to remain poor incapable to support its economy. Financial deepening in the economy is important for the efficiency and stability in the economy because it improves the access to financial services (Cull, Demirgüç-Kunt, and Lyman, 2012). The recent development in the financial sector have resulted in more financial deepening but access to financial service has remained the challenge especially to the poor and those who live in rural areas (Ndulu, 2012). There is also evidence that financial deepening is not the substitute for financial inclusion as a policy goal, that financial inclusion should be a separate policy goal (Hannig and Jansen, 2010). According to Cull, Demirgüç-Kunt, and Lyman, (2012) a deep financial sector is not always inclusive if financial access is mainly directed to the wealthy. Hannig and Jansen (2010) conclude that many people remain excluded because much emphasis was placed to encourage financial deepening than financial inclusion. These have forced them to depend only on their limited saving to invest in their education or become entrepreneurs (Demirguc-Kunt and Klapper, 2012).

Inclusive financial system which allows broad access to financial services is likely to benefit poor people and other disadvantaged groups (Demirguc-Kunt and Klapper, 2012). Many individuals and firms in Africa lack proper access to bank line of credit (Demirguc-Kunt and Klapper, 2012). Financial inclusion as an emerging policy issue represents the appreciation of the contribution of finance to economic development and poverty reduction (Hannig and Jansen, 2010). Inclusive financial system has become a policy priority in many developing countries because there is much evidence suggesting that an inclusive financial sector increases investment, creates jobs, helps to reduce poverty (Ndulu, 2012) and that there is a link between access to financial services and household investment in education or business which can contribute to economic growth in developing countries (Karen Ellis, 2010). Cull, Demirgüç-Kunt, and Lyman, (2012) posits that there is a link between financial inclusion and financial sector stability, growth of non financial firms, and efficient allocation of capital in the economy. At the country level there are evidence which

suggest that access to financial services for all improves financial intermediation through household saving and investment. Because of these observations many countries are developing reforms and policies which could foster financial inclusion in their economies. In this regard it is important to have policies which balance access to finance between urban areas and rural areas in order to reduce the gap (IFC, 2011; Stein et al, 2011; Ndulu, 2012).

The development and rapid diffusion of information and communication technology that has taken place in Africa has shown that mobile financial services have the potential to accelerate financial inclusion in Africa. Kumar, Balasubramanian, and Subramanian, (2012) in their study about technology and financial inclusion found that technology being a supporter of financial inclusion because of its power to have a greater outreach to the unbanked. Innovation in mobile financial services has opened another delivery channel for basic financial services to the poor and those who live in rural areas.

Mobile financial services has the potential of reducing costs of financial services and real-time financial transactions, expand access point, lessen the need to carry cash by introducing e-money and attract the unbanked customers (Hannig and Jansen, 2010). The expansion of the mobile market in Africa have laid the foundations and potential for an equally increase in the range of financial services (AFI, 2012). Mobile financial services allow the use of existing mobile platforms of owned by Mobile Network Operators. Between 2002 and 2010 the number of mobile phone subscription increased from 18 million to more than 400 million which is 70 percent of the population (AFI, 2012). The Global Findex² survey shows that mobile financial services may help the historically unbanked people in the world to gain access to financial services. In Sub Saharan the number of mobile financial services has expanded to 16 percent in 2011 covering people who were excluded from the

² Global Findex is the World Bank's database of indicators which measures the use of financial services which is distinct from the access for 148 countries. It focuses on the use and ownership of an account at a formal financial institution (saving, borrowing, make payments, and risk management).

traditional banking services (Demirguc-Kunt and Klapper, 2012). This shows the potential that mobile financial services can increase the number of people with access to financial services. Because only 20 percent of these people have access to formal financial services which leaves a large gap which have to be filled. The recent developments in mobile financial services have obtained positive response from many people in the world who were excluded from the formal financial services. Population that previously had no access to financial services surveys show that they now use mobile financial services and there are growing range of financial services delivered by their mobile phones (Brooking, 2011). In Tanzania where 56 percent of the population were financially excluded by 2012 but the number of adult people using mobile financial service reached 45 percent of the population (Intermedia, 2013).

1.1.1 Mobile financial services penetration in Tanzania

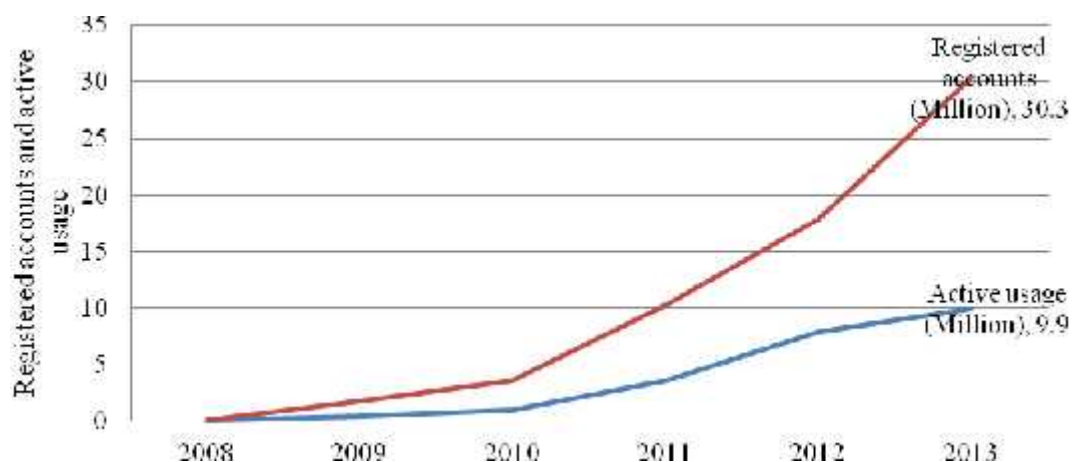
Mobile financial service in Tanzania started in 2008 when Vodacom Tanzania launched Vodafone M-Pesa with the market campaign which targeted the rural, poor and the unbanked population (Intermedia, 2013). In the same year Zantel Tanzania launched the service called Z-Pesa and in 2012 it upgraded its service version the Ezy Pesa. Then it was followed by Tigo and Airtel Tanzania. Currently there are four mobile money products provided by telecom companies in the market which are Vodacom M-Pesa, Tigo Pesa, Airtel money and Ezy Pesa. This has made the mobile money in Tanzania unique in terms of competition in comparison with other countries by having more than one mobile financial service provider.

Mobile financial service penetration in Tanzania has been supported by the high use of mobile phone which has been an important feature in most of the developing world. The authorized business models for mobile financial service provision in Tanzania are the bank led model and the non bank led model (Komba, 2013). Mobile financial service market currently has four products which are offered by mobile network operators (Non Bank led model) which are Vodacom M-PESA, Tigo Pesa, Airtel Money and Easy Pesa (Intermedia, 2013). The banking sector has also adopted the mobile payment systems like NMB Bank has the Pesa Fasta, CRDB Bank PLC

has the SIM Banking services, Akiba commercial bank, National bank of commerce, Tanzania postal bank, Standard Chartered Bank and DCB bank. Other banks with mobile money products include Exim bank, First National Bank, Eco Bank, Amana Bank and Barclays Bank. According to Intermedia (2013) Financial Inclusion Tracker Survey (FITS) conducted in Tanzania which involved 2980 household 63% of household own or have access to a mobile phone and 56% of household have at least one active SIM card. The study also revealed that even in the underprivileged household rural, unbanked and poor (living on less than \$2 a day) one half of them has a mobile phone and owns a SIM card. Agent network penetration has reached 134158 and they serve 40% of the population, mobile money subscribers or accounts are 30.3 million, active users of mobile money are 9.9 million which percent of the adults in Tanzania as at 13th September (Komba, 2013). This penetration exceeds the financial institution access points and branches which serve only 12% of the population.

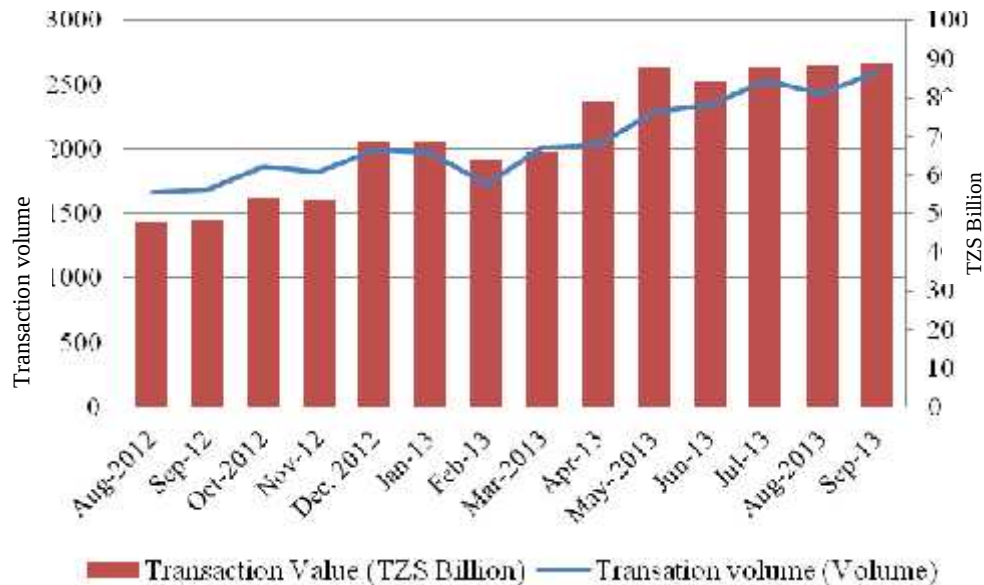
The services they provide range from domestic and international money transfers, mobile payments (airtime top ups, merchants payments, utility bill payments, and salary transfers), mobile banking (balance inquiry, withdrawals, deposit and credit services), and limited saving facilities (Intermedia, 2013).

Figure 1:1 Mobile Financial Service Trend in Tanzania: Registered Accounts and Active Usage of Mobile Financial Service: 2008-2013



Source: Source Bank of Tanzania

Figure 1:2 Mobile money Transaction volume and Transaction value (TZS Billion): August 2012-september 2013



Source: Source Bank of Tanzania

This progress show that mobile financial service can be important tool for financial service delivery and financial inclusion to the unbanked because of its wider network and outreach. In response to this the Bank of Tanzania has developed the mobile payment regulation for guiding all the industry players and it has established the working relation with Tanzania Communication Regulatory Authority (TCRA) for the oversight of mobile financial services (BoT, 2010). The Bank of Tanzania is now working to formulate the financial inclusion policy in the country (BoT, 2010).

1.1.2 Mobile financial service regulation in Tanzania

Mobile financial services in Tanzania are regulated jointly by the Bank of Tanzania and the Tanzania Communication Regulatory Authority (TCRA). The bank of Tanzania is mandated to approve business model, and to ensure compliance with E-money issuance, protection of customer funds, Agent management, Audit and licensing of mobile financial service providers (Komba, 2013). TCRA is responsible for the regulation and oversight of the Mobile network operators (MNO) which fall within its jurisdiction under its traditional role. To safeguard customer money MNO are required to use a trust account at a bank and abide by the BoT account

management standards. The partner bank uses houses the trust account through which the MNO could issue the electronic value and safely deposit the equivalence of the float (Castri and Gidvan, 2014). The value must be backed by 100 percent liquidity to safeguard the users' money.

1.2 Statement of the Problem

There is a large gap in financial service access and usage between those who live in urban and rural areas in Tanzania. Several reforms in the financial sector has been undertaken in order to increase the number of financial services available for people (Ndulu, 2012). The reforms undertaken have been in the legal, regulatory and supervisory framework in banking and non banking financial institutions. The first reforms were undertaken between 1990s and 2002 and the second reforms started in 2003 (Mgimwa, 2012). These reforms were necessary for sustainable growth and financial inclusion in the country.

The Finscope survey conducted in 2009 shows that only 12.4 percent of the adult population in Tanzania had access to formal financial institution (Banks and financial institution) and 4.5 percent depend on semi formal institution (Microfinance institution, SACCOS, and NGOs) and 56 percent of adult had no access to any kind of financial services.

Mobile financial services development which has taken place has changed the way financial services are delivered. It has introduced the branchless provision of financial services thus breaking the traditional barriers to access financial services (Saxena, 2007; Alexandre and Eisenhart, 2013; World Economic Forum, 2011).

Despite the increase in the introduction of mobile payment technologies, adoption remains slow (Castri and Gidvan, 2014). The speed and nature of adoption of mobile financial services makes it important to understand why new mobile payment technologies are adopted. The speed of adoption of these services in Tanzania has been slow as compared with that of Kenya (Horne and Nickerson, 2013; Keeler, 2012). It has been observed that adoption trend varied from one county to another (GMSA-mWomen, 2013). According to the study conducted by Keeler, (2012)

comparing the rollout of M-Pesa in Kenya and Tanzania revealed that Tanzanians have less use for Urban-rural money transfer than Kenyans and the business models were country specific. These points out the importance research for specific country in order to reflect the differences in national markets and business models. Studies on mobile financial service adoption using Technology Acceptance Model (TAM) are also scant. This research will bridge the knowledge gap in mobile financial service adoption in the unbanked population.

1.3 Objective of the Study

1.3.1 General objective

The main purpose of this study is to assess the factors that influence mobile financial service adoption by the unbanked population. The study intends to follow the Technology Acceptance Models (TAM) which are used to find out what factors cause people to accept or reject a new technology or an innovation (Li, 2010).

1.3.2 Specific objective

Specific objectives of the study are;

1. To assess the influence of perceived usefulness on the adoption of mobile financial services in the unbanked population.
2. To assess the influence perceived ease of use on the adoption of mobile financial services in the unbanked population.
3. To assess the influence of perceived risk and customers perception of different facets of risk on the adoption of mobile financial services.
4. To assess the influence of perceived cost on the adoption of mobile financial services in the unbanked population.
5. To assess the influence of perceived trust on the adoption of mobile financial services in the unbanked population.
6. To assess the influence of perceived social influence on the adoption of mobile financial services in unbanked population.

1.4 Research hypothesis

The above research objectives of the study was designed to answer the following main research question; what are the factors which influence mobile financial services adoption in by the unbanked population? From this main question the following six hypotheses were proposed;

- H₁ Perceived usefulness has a positive effect on the adoption of mobile financial services
- H₂ Perceived ease of use has a positive effect on the adoption of mobile financial services.
- H₃ Perceived cost on mobile financial services has a negative significant effect on the adoption of mobile financial service.
- H₄ Perceived trust on mobile financial services has a positive influence on the adoption of mobile financial services.
- H₅ Perceived risk has a significant negative influence on the adoption of mobile financial services.
- H₆ Social influence has a positive influence on the adoption of mobile financial services.

1.5 Scope of the study

The study was conducted in Chamwino district as a case of the unbanked population. Data was collected from users of mobile financial services provided by Mobile network operators (MNO). The study covered users of mobile financial services provided by MNO only.

1.6 Significance of the Study

Mobile financial services adoption trend is different from one place to another. It is also a new initiative in the country therefore we believe this study will have greater contribution to the literature on mobile financial adoption. Throughout the world policymakers have recognized the importance of evidence based decision making which resulted in the increase in the effort to collect data (IFC, 2011). Data and

studies on financial service adoption are important for measurement and evaluation of financial inclusion programmes.

This study will contribute to knowledge on how mobile financial services can be designed to promote wider mobile financial service adoption in rural areas characterized with slow rate of adoption. In this respect the study provides insight on how people in rural areas access financial services, how they use the services, save, make payments and transfer or receive money. The study also provides knowledge on the financial behaviour of people who live in rural areas on how they perceive the factors which influence their adoption behaviour. Stein, et al, (2011) and Claessens, (2005) identified that good policy environment are needed for the improvement of financial infrastructures, financial delivery systems and responsible finance which will establish an inclusive financial sector.

1.7 Delimitation

This study investigated factors which influence the adoption of mobile financial services provided by Mobile Network Operators (MNO) in the unbanked. The study did not study the adoption of mobile financial services by businesses. The study also will focus in rural areas where people for a long time have limited access to financial services.

1.8 Organisation of the report

This report has six chapters covered with the following components;

Chapter 1: This chapter presented the background of the research problem, statement of the research problem, research objectives and research questions, significance of the study and delimitation of this study.

Chapter 2: This chapter presents the literature review on the adoption of mobile financial services. It includes theoretical literature review, empirical literature review and the conceptual framework and the research model.

Chapter 3: The chapter covers the discussion and presentation of research methodology used in this study. The chapter also includes the discussion of the validity and reliability of the instrument used in measuring the constructs used in this study.

Chapter 4: The chapter covers the presentation of the research findings and hypothesis testing result.

Chapter 5: Discusses the findings of the research and conclusion of the research hypothesis.

Chapter 6: Presents the summary of the study, conclusion of the study, recommendations, and suggestions for further studies and the limitation of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter looks at studies that have been on the adoption of mobile and theories that have been used to describe mobile financial services adoption. The chapter is divided into two parts the theoretical review and the empirical review.

2.1 Theoretical literature review

This chapter presents the theoretical literature review on mobile financial services. It starts by defining mobile financial services. We explain the meaning of different terms which are used in this study.

2.1.1 Mobile financial service

Mobile financial service (MFS) is a term applied to a range of financial activities conducted using mobile devices, such as cellular phones or personal digital assistants (Cheney, 2008). It also termed as mobile money. Mobile financial service business models may be categorized as bank-led model (FI-led) and non bank led model (MNO- led) (Boyd and Jacob 2007; Cheney, 2008)

2.1.1.1 Bank-led model

Under the bank-led model the customer conducts a variety of financial service using retail agents through mobile phone instead or through a bank employee (Mwaura, 2009). It is the convergence of mobile technology and financial services (Dass & Pal, 2011). In this model customer relationship remain with the bank and the customer has a direct contractual with a regulated financial institutions. This is also known as mobile banking where there is a connection between a mobile phone and a personal or business bank account (Chemonics International Inc, 2010). The mobile phone is used as the channel for banking service such as deposit, withdraw, fund transfer and balance inquiry. The customer interacts with the bank through mobile devices like mobile phone or a personal digital assistant (Boyd and Jacob 2007). It is branchless

banking linking customers and their bank accounts using electronic platforms (AFI, 2012).

It is the application of mobile commerce which enables people to access bank accounts by using mobile phones (Masinge, 2010). They use mobile banking platforms which interacts with customers using SMS text messaging, browser based programs or downloadable mobile-banking application (Cheney, 2008). Browser based application uses a wireless Access Protocol (WAP) and requires mobile phones which are WAP-enabled. According to Chemonics International Inc, (2010) in developed most m-banking uses the internet and many in developing countries uses the short message services (SMS) or text message to conduct transaction. Retail banks uses mobile money additive channel for financial service delivery used as an extra access channel for existing customers (Bångens and Söderberg, 2008).

2.1.1.2 Non-bank-model

Non-bank-led Model is where a bank is not involved and non bank institutions perform all the functions. They are operated by telecom companies. According to Mwaura (2009) banks may participate as safe keeper of surplus fund. It is mostly regulated by Mobile network operators (Chemonics International Inc, 2010). They have a greater potential for financial inclusion by using mobile phone as a channel for financial services allows outreach to many clients who have access to phones but not bank accounts. The Non-bank led model according to Porteous (2006) in Bångens and Söderberg, (2008) is categorized as a transformational mobile banking. Porteous (2006) regard mobile banking as transformational because M-banking access amongst previously unbanked groups is believed to have a direct, positive effect on users, positively affect a transition from informal to formal transaction and hence bringing people and their financial assets into the formal economy.

Non-bank led models uses existing telecom and agent or representatives' infrastructure, run by new or alternative banking actors, and has a geographic coverage and pricing with the potential to attract previously unbanked segments (Bångens & Söderberg, 2008). They have a greater transformational power because they are cheaper to produce and buy, do not require expensive headset supported by

rapid growth of ICT, uses existing infrastructure and wide coverage to reach the unbanked. This study focused on the adoption of mobile financial services provided by telecom companies which is a non-bank led model because of its potential of reaching the unbanked.

2.1.2 Adoption theories

Adoption is the acceptance and continued use of a product (Lule, 2008). Several model and theories has been used to study adoption of technology. These theories and models have been extended to be used in studying the adoption of mobile financial services and mobile banking. They include Technology acceptance model (TAM) (Davis, 1989), Unified Theory of use and acceptance of technology (UTAUT) (Venkatesh & Davis, 2000) and the Roger's innovation adoption.

2.1.2.1 Technology Acceptance model

According to TAM user's adoption of new service or technology is determined by the user's intention to use the system which is in turn determined by the user's beliefs about the system (Davis, 1989). TAM further suggests that two beliefs perceived ease of use and perceived usefulness are important in explaining the variances in user's intentions. Where perceived usefulness is the degree to which a person believes that using a particular service will his job easy and the perceived ease of use is defined as the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). These two behavioural beliefs, perceived usefulness and perceived ease of use, then lead to individual behaviour intention and actual behaviour. In his study Davis (1989) found that perceived usefulness is the strongest predictor of an individual's adoption behaviour. This model has been extended to include other variable which influences customer behaviour in order to be applicable in other field which involves technological adoption and the use of new services. Venkatesh and Davis, (2000) extended the TAM model to include subjective nom, image, job relevance, output quality and result demonstrability as factors which influences the perceived usefulness (TAM2). TAM 2 regards the additional variables as cognitive instrumental determinants of

perceived usefulness. It also retains the perceived ease of use as a direct determinant of perceived usefulness (Venkatesh and Davis, 2000).

2.1.2.2 Unified Theory of Use and Acceptance of Technology

Unified Theory of use and acceptance of technology (UTAUT), this theory suggests that customer adaptation is determined by mainly three constructs which are performance expectancy, effort expectancy, social influence and facilitating condition. According to Li (2010) this theory is based on the most significant constructs from TAM and TAM2.

- Performance expectancy is the degree to which user of the system expects that the system will improve his or her job performance (Li, 2010). According to Li (2010) these construct includes five constructs which are perceived usefulness (TAM/TAM2), extrinsic motivation (from Motivation model), relative advantage (from Innovation diffusion theory Rogers, 1995) and outcome expectation (from the social cognitive theory)
- Effort expectancy, the degree of ease associated with the system (Li, 2010).
- Social influence, the degree to which an individual perceives that important others believe that he or she should use the new system. It includes subjective norm, social factors and image.

2.1.2.3 Roger's innovation adoption theory

The Roger's (1995) innovation adoptions curve theory has been used to explain innovation adoption. Rogers identifies five attributes of an innovation that influence the adoption and acceptance behaviour: relative advantage, complexity, compatibility, trialability, and observability (Li, 2010). According to Li (2010), individuals' perceptions about these characteristics of an information technology are important factors in influencing an individual's adoption behaviour.

All the above theories have been found to explain the adoption of various technological solutions introduced in the market. These theories propose different constructs but they generally explain the same concept. However it has been found

that the adoption of mobile payment technologies is highly contextual that it varies from one place to another.

2.2 Empirical evidence

2.2.1 Mobile financial service development

Mobile banking and mobile payments play an important role in the financial services delivery especially in transforming and driving financial inclusion. Financial services delivered via mobile phones can help to reach the large percentage of the world's population that has access to these devices but which remains un-served by formal financial services providers (AFI, 2012). Alexandre and Eisenhart (2013) posit that mobile money is potential for financial inclusion because it has the potential to reach millions of customers including those who are at the bottom of the pyramid. They further identified that mobile money is key to financial inclusion and integrity because of the following: (1) mobile money reduces dependency on cash which they argue that it is the common enemy of financial inclusion and financial integrity, (2) mobile money generates data which are instrumental to the growth of financial inclusion, and (3) mobile money encourages the development of account which is the key to financial inclusion and financial integrity.

To the unbanked potential customers a mobile money account is often the first one they have and has the potential to integrate them further into the formal financial services ecosystem by providing access to other accounts that cover the range of their financial services needs (Alexandre and Eisenhart, 2013). Alexandre and Eisenhart (2013) regards mobile money as a Gateway to an account while an account is taken as a gateway to using a wide variety of financial services. Haushofer and Shapiro, (2013) regards mobile money as a bank account in the SIM card protected by four digit PIN code. According to AFI (2010) mobile financial service as a mechanism of financial inclusion play two roles: (1) as channel for providing electronic financial services and (2) as a payment mechanism that enable the transfer of payment orders between electronic accounts or electronic wallets.

Mobile money has introduced new channels of financial service delivery to the under banked and unbanked population which will bring them into the formal economy using mobile phone (Ondiege, 2012). The new technology drastically reduces the cost of convenient and real time financial transaction, expands access points and lessens the need to carry cash by introducing e-money (Hannig and Jansen 2010; Alexandre and Eisenhart 2013). It has the capacity of reducing cost for both users and financial institution by using the existing infrastructure. Alonso et al (2013) posits that mobile money provides the opportunity to create new products and innovative business model that can be offered to a large segment of population with mobile phones who do not have banking product for saving.

The notable achievement in mobile financial services in Kenya changed the financial habit and approach to financial inclusion by professionals and central bankers (Brooking, 2011). Safaricom in Kenya has in 2009 had more than 7 million registered customers many were previously unbanked. The survey on the e-money in Kenya the shown that mobile financial services has a positive impact on financial inclusion where the use of semi formal financial services including M-PESA had increased from 8.1% in 2006 to 17.9% in 2009 and the population with access to only informal financial services decreased from 35% to 26.8% (Hannig and Jansen 2010).

AFI adds that mobile financial services delivered by a range of providers most of them private can reach every one who can use them including disabled, poor, rural and other excluded population. The United Nations (UN) and AFDB define financial inclusion as “the provision of access to credit for all bankable people and firms; access to insurance for all insurable people and firms; and access to savings and payments services for everyone”. WB, (2010) define financial inclusion as the absence of price and non price barriers to us financial services. Srijanani (2012) compares financial inclusion with the delivery of public goods in the sense that there should be unrestricted access to all. As banking services are in the nature of public, it is essential that the availability of banking and payment to the entire population without discrimination be the prime objective of the public policy. Aduda and

Kalunda (2012) explain financial inclusion as a process of advancing banking sector outreach which is the process of availing an array of required financial services, at fair price, at the right place, form and time, and without any form of discrimination to all members of the society. At the institutional level financial inclusion entails designing products and training staff to deliver financial services and products that meets the needs of the unbanked (Aduda and Kalunda, 2012).

Diverse and competitive market place encourages efficiency in the operation of financial service providers. The competitive market place reduces dominance and exploitation of the users of financial services. Evidence also shows that a competitive market place forces financial services providers to consider the unbanked as a market opportunity and it is important driver to diversity in the in the range products provided in the market (GPFI, 2010).

WB, (2008) recognizes that though financial service provider may be competitive and use the best financial technology, prices, interest rates charged, loan sizes, and insurance coverage in the market economy it will depend on the creditworthiness and capacity of the customer. Also even worth customers in advanced financial economies do not use all of the financial services available in the economy or they may not borrow money even if the loan is provided at a favourable interest rate. More over some financial products are not attractive to some customers on ethical or religious grounds; non usage in these circumstances cannot be linked with lack of access (WB, 2008). Child and Youth Financial International (CYFI) , (2012) explain that to be financially capable people must be more than financially literate, confident and motivated to use financial service, they must also have a good access to the required financial products that allow them to act in their best financial interest. Also people must be able to understand, assess and act in their best financial interest (Johnson and Sherraden 2007, p. 124 in CYFI 2012). This is also consistent with the idea that people makes financial decision basing on their ability, knowledge skills and their circumstances (CYFI 2012). Financial capability influences the behaviour of people like the poor regarding banks and some financial products as suitable for

the rich thus resulting in self exclusion and social exclusion to access and use of financial services.

The scope of financial inclusion has evolved from being limited to a bank account and a saving account to include insurance, remittance, payment, loans and financial counselling (Sahrawat, 2010). Sahrawat, (2010) concludes that full financial inclusion should include banks accounts, saving, affordable credit, insurance, payment service, remittances, and financial counselling. Aduda and Kalunda, (2012) adds sufficient education and support to help customers make informed financial decision in the full suite of financial inclusion.

2.2.2 Mobile financial service adoption

Rogers and Shoemaker (1971) in Lule (2008) acknowledges that customers go through a process of knowledge, persuasion decision and confirmation before they are ready to adopt a product or service. According to Chitungo and Munongo (2013) adoption or rejection of an innovation begins when the consumer becomes aware of the product or service. The adoption of mobile financial services is not the same for all countries across the globe. The difference in economic environment determines the adoption of money transfer system, that is the adoption in developed countries is not the same as in developing countries and the adoption in urban is not the same with that in rural areas (Marumbwa and Mutsikiwa, 2013).

2.2.3 Mobile financial services adoption journey

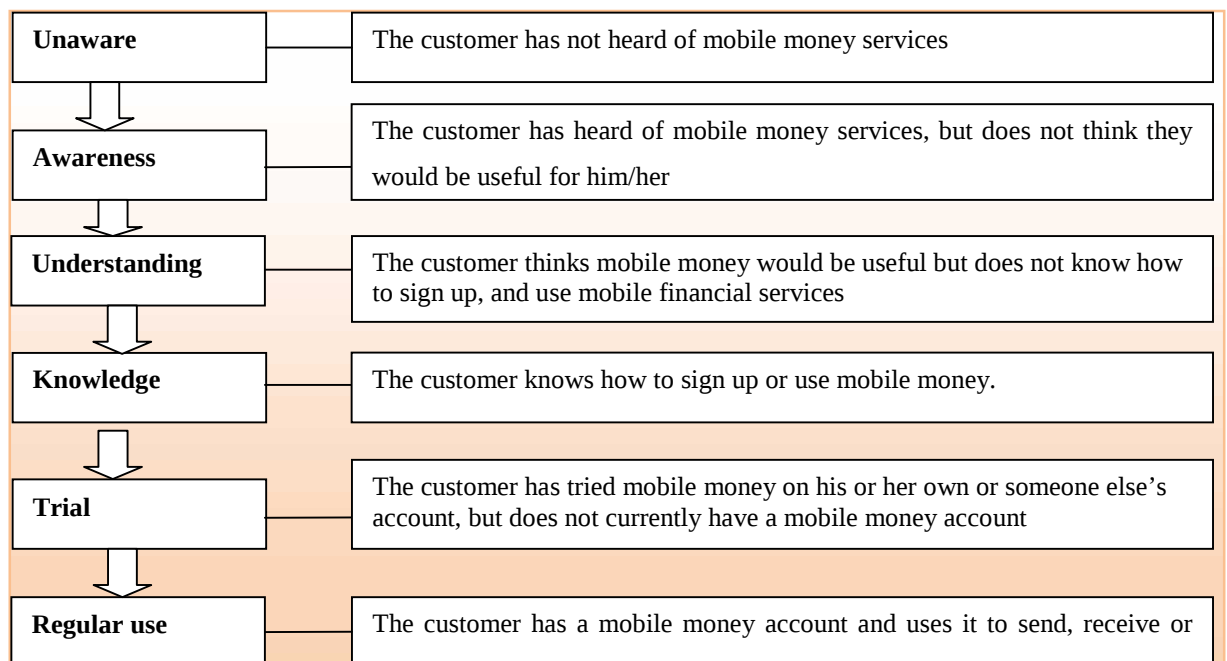
According to GMSA-mWomen (2013), there six stages of mobile money adoption by the unbanked. The six stage customer journey provides a useful way of understanding the opportunities and barriers in the pathway to the adoption of mobile financial service by the unbanked. The stages includes customer unaware of the service, awareness, understanding, knowledge, trial and regular use.

1. In the unaware stage, the customer has no information and has never heard of the service.
2. The awareness stage the customer has some information about mobile financial services but is not sure if these services are useful to him or not.
3. In the understanding stage the customer learns the usefulness of mobile financial services but does not know how to use the services.

4. In the knowledge stage the customer realises that using mobile financial services are ease to use and perceived is ease of using mobile financial services is developed through practices.
5. In the trial stage the customer develops trust on mobile financial services. The customer develops trust on technology; trust on interpersonal relationship and trust on distribution network. According to Tobbin and Kuwornu (2011) the adoption of mobile money is more likely to be adopted if the technology can be demonstrated to user or users be given an opportunity to try a new technology (trialability).
6. Regular use, customers becomes regular users after learning that mobile financial services are useful, ease to use, free of risk and that they can be trusted.

Figure 2.1 shows the mobile money customer journey for the unbanked according to GMSA.

Figure 2.1 GMSA Mobile money for the unbanked customers' progression journey



Source: GMSA-mWomen, (2013)

The study conducted by GMSA-mWomen, (2013) in Tanzania, Kenya, Papua New Guinea and Pakistan where the study found that customers' progression in the adoption journey was country specific and differentiated by market maturity levels. Customer's progression in Tanzania and Kenya were more advanced than that of Pakistan and Papua New Guinea. It was found that in Tanzania 25% of female and 21% of male were unaware of the services while in Kenya it was 9% for both male and female, Pakistan it was 70% female and 40% male, Papua New Guinea it was 30% for female and 28% for male.

The case of regular use in Tanzania it was 29% for female and 36% for male. This was contrary to Kenya which has 46% female and 50 male in regular use of mobile financial services. Regular use in Pakistan was 9% female and 9% for male and Papua New Guinea has 19% female and 22% male in regular use of mobile financial services. This result indicated that, mobile financial service adoption pattern is not the same for different countries and markets.

The study conducted by Intermedia (2013) in Tanzania identified that the difference in the understanding about how to mobile money, gender, income levels and residence (rural or urban) affected the adoption and use of mobile financial services. The potential for mobile financial service to contribute to financial inclusion in the country is greater because of the high use of mobile phone. According to the Financial Inclusion tracker survey (FITS) conducted by Intermedia (2013) in Tanzania which involved 2980 household found that customer satisfaction was an important factor for the adoption of mobile money. They also found that one third of the respondents were motivated by other individuals to adopt mobile money and other personal recommendation.

Many literature and models have been developed to study customer adoption and use new technology solution like internet banking, mobile banking and electronic commerce platforms using the technology acceptance model (TAM), the Extended TAM (TAM2), Unified Theory of use and acceptance of technology (UTAUT), Rogers's innovation adoption curve, and the theory of reasoned action. These models

and theories are used to study user's adoption behaviour and predicting user acceptance.

2.2.4 Early Studies on TAM and Mobile Financial Service Adoption

TAM has been extensively tested and validated and is a widely accepted model, which can be modified or extended using other theories or constructs (Venkatesh and Davis 2000; Omwansa et al 2012; Masinge, 2010). Alroaia, Hemati and Shahabi (2011) in their study on the application of TAM they argue that the model is widely accepted because of its brevity and conciseness of the model. Porter and Donthu (2006) identified that TAM explains more variance in attitude of customer adoption and a comparable percentage of variance in usage as compared with other models and that its constructs are more amendable to Operationalization and empirical testing than are the concepts of Rogers' (1995).

Several studies which have used the technology acceptance models (TAM) to study the adoption of mobile financial services. These studies used the original TAM variables and other variable which like perceived risk, trust and perceived cost of mobile financial services.

Munir and Idrus, (2013) used the original TAM model with perceived ease of use and perceived usefulness to study the acceptance of mobile financial services in Makassar City. Their findings revealed that perceived ease of use and perceived usefulness have significant influence on the adoption of mobile financial services. Perceived usefulness was found to have a greater influence on the adoption behaviour than perceived ease of use.

Sayid, Echchabi, and Aziz (2012) conducted a study in Somalia on mobile financial service adoption using the TAM. The model used the original variables of perceived ease of use and perceived usefulness including security, perceived risk and social influence. The study found perceived usefulness and social influence to be the only significant factors influencing the adoption of mobile financial services. Perceived ease of use, security and perceived risk were not significant in the adoption of mobile financial services. The finding on the perceived ease of use is inconsistent with many

studies conducted on the basis of TAM which have shown a significant influence on adoption (Dass & Pal, 2011).

Masinge (2010) used the model which included trust, perceived risk and perceived cost in studying the adoption of mobile banking in the bottom of the pyramid in South Africa. The study found that perceived ease of use and perceived usefulness has a strong positive influence on the adoption of mobile banking that the other constructs. Perceived cost and perceived risk were found to have a negative influence with mobile banking adoption. It was also revealed that trust has a negative relationship with perceived risk. The findings supported the findings of studies which used the constructs basing on the technology approaches.

Dass and Pal (2011) also used TAM in exploring the factors affecting the adoption of mobile financial service in the rural under-banked in India. Their model has seven constructs which were Demand for banking and financial services, Hardships faced in existing channels of banking, Perceived usefulness of MFS, Trust, Technology readiness, Ease of Use and Perceived financial cost. The study found that lack of trust, financial cost, and technology were significant barriers to mobile financial adoption in rural unbanked population.

Omwansa, Waema, and Lules, (2012) in their study of the M-Shwari (mobile banking service) adoption in Kenya which used the extended TAM they argue that the original model with only two constructs were mainly used in the field of information system (IS). They identified that the model were used in the organization context and not for everyday use like using to study mobile financial services. Because of this limitation they argued that it is necessary to include other variables which influence the adoption of mobile financial services. They extended the model to include perceived self efficacy, perceived credibility, perceived cost and perceived normative pressure. And they found that the all variables have a significant influence in mobile M-Shwari service in Kenya.

Micheni, Lule, and Muke, (2013) investigated the influence of transaction cost and facilitating condition on the adoption of mobile financial services in Kenya their study revealed that transaction cost was not significant in influencing the adoption of mobile financial services. Facilitating condition was significant in influencing the adoption of mobile financial services. The findings are contrary to the findings of Omwansa, Waema, and Lules, (2012) who found cost significant in influencing the adoption of mobile banking.

Aboelmaged and Gebba (2013) in the study on mobile financial service adoption they integrated TAM and the variables of the Theory of Planned Behaviour (TPB). The theory of planned behaviour assumes that individuals are rational decision maker (Li, 2010). Their decisions are influenced by three constructs which are perceived behaviour control, perceived subjective norms and attitude (Azjen 1991 in Li, 2010). Their combined model has five constructs which are perceived ease of use, perceived usefulness, perceived behaviour control, perceived subjective norms and attitude. Aboelmaged and Gebba, (2013) found that attitude; subjective norm and perceived usefulness had a significant influence on the mobile banking adoption while perceived ease of use and behavioural control indicated no significant impact on the adoption.

Chitungo and Munongo (2013) used the extended TAM in which they added other constructs in studying the mobile banking adoption in the unbanked rural Zimbabwe. They extended the original TAM by including relative advantages, personal innovativeness, social norms, perceived risk and costs. Their study found that relative advantages, personal innovativeness and social norms have significant positive influence on user's attitude. The result of Perceived risks and perceived costs revealed a significant negative influence on the adoption of mobile banking. The findings reveal that perceived risk and perceived cost deterred the adoption of the service and have negative relationship with the adoption of mobile financial services.

Lule (2008) in his study of mobile banking adoption in Kenya he included perceived credibility, perceived self efficacy, finance cost and perceived normative pressure in the original TAM model. The study also found that perceived credibility, perceived self efficacy, finance cost, perceived normative pressure, perceived usefulness and perceived ease of use to have a significant influence on the adoption of mobile financial services. Perceived self efficacy was found to have a weak influence on the adoption of mobile banking services. Amin, Baba, and Mohammed, (2007) using the same five constructs as used by Lule (2008) in Malaysia found perceived normative pressure to be a weak determinant of explaining the customer intention to use mobile financial services but the other variables was found to have significant influence on the adoption of mobile financial services. Moreover Amin, Baba, and Mohammed, (2007) found that perceived self efficacy to be stronger than the original TAM construct which in many studies have been found to be stronger than other constructs. The findings of Lule (2008) and Amin et al (2008) are different in the result of perceived normative pressure and perceived self efficacy. Lule (2008) found normative pressure significant factor in explaining the adoption of mobile money services while Amin et al (2008) found it insignificant in predicting the adoption of mobile financial services. Moreover Lule et al (2008) found perceived self efficacy insignificant while it was significant in the study by Amin et al (2008)

Dahlberg, Mallat, and Öörni, (2004) in their study of mobile payment solutions developed a trust enhanced technology enhanced model which included the original TAM model (Davis, 1989) and the integrated TAM model (Venkatesh et al, 2002). The integrated model included intrinsic motivation and extrinsic motivation. Extrinsic motivation describes an individual's personal gain associated with the use of a particular technology and it replaced perceived usefulness. Intrinsic value describes the perceived enjoyment associated to the use of a particular technology itself, different from possible performance outcome of the use. The new trust enhanced model included disposition to trust and perceived trust.

Yu (2012) used UTAUT to study the factors which influence individual adoption of mobile banking where also included other variables in his study. He included perceived credibility and perceived financial cost as factors which influences the behavioural intention to use mobile banking and as well as the effects of facilitating condition and perceived self efficacy on individual behaviour to use mobile financial services. Yu (2012) included age and gender as moderating variables. He identified that intention to adopt mobile banking was significantly impacted by social influence, perceived financial cost, performance expectancy, and perceived credibility, while the actual behaviour was significantly influenced by individual intention and facilitating condition. Perceived self efficacy did not have impact on actual adoption behaviour which is contrary to the findings of Amin et al (2008) and social influence was the most powerful factor in affecting the people's intention to use mobile banking.

Jeong and Yoon, (2013) in their study conducted in Singapore using Technology Acceptance Model (TAM), with five factors which influence consumer's behavioural intention to adopt mobile banking: perceived usefulness, perceived ease of use, perceived credibility, perceived self-efficacy, and perceived financial cost found all factors have a significant influence except perceived financial cost which is contrary to other studies like Masinge, (2010) and Chitungo and Munongo, (2013). Contrary to most of the studies Quan, Hao, and Jianxin, (2010) in their study in China they found that perceived Ease of use did not have a significant on impact on users' intention to adopt mobile Banking.

The study by Hamza and Shah, (2014) in Nigeria introduced perceived compatibility and social norms found social norms to be significant in predicting the adoption of mobile financial services together with usefulness and ease of use. Perceived compatibility was not significant in predicting the adoption of mobile payment. The study further identified if there were difference in the adoption between male and female. The result revealed no significant difference in adoption of mobile financial services between male and female.

Yan, (2009) in his included trust, peer influence and perceived price level in the original TAM model to study factors influencing the adoption of mobile payments in Malaysia. The result revealed that trust and peer influence have a significant influence in the adoption of mobile financial services. Perceived price level, Perceived usefulness and perceived ease of use was not a significant factor in predicting the adoption of mobile financial services. Peer pressure was the main factor influencing the adoption of mobile financial services with a beta coefficient greater than all constructs used in the study. The results do not support TAM which identifies perceived ease of use and perceived usefulness as main factors which influences the adoption of mobile financial services.

Li, Liu, and Ji, (2014) in their study found perceived ease of use and perceived usefulness insignificant in influencing the adoption of mobile financial services in China. Moreover their study found a significant influence of subjective norms, compatibility, individual innovation, system security and perceived behavioural control. Individual innovation was the most significant factor in predicting the adoption of mobile payment.

Tobbin and Kuwornu, (2011) investigated the adoption of mobile financial services in Ghana. Their model investigated the influence of relative advantage, ease of use, usefulness, trialability, risk and trust on the adoption of mobile financial services. Risk was the only factor which was not significant but other factors were significant factors influencing the adoption of mobile financial services.

The above literature shows that TAM methodologies are widely used to study technological adoption in various circumstances with additional variables. Most studies have found that TAM methodology works but has to be modified to fit in the particular environment of study and the nature of the service adopted. The literature review also shows that most mobile payment deployment are country specific in terms of the service type provided, regulation, pricing, customer services and geographical coverage. Variation in these aspects causes differences in the adoption of mobile financial services from one country.

Table 2.1 Summary of selected literature review;

Author (s)	Sample size	Constructs	Findings and conclusion
Hamza and Shah, (2014)	218 Nigeria	PU, PEU, Compatibility, SN	PU, PEU and SN were significant.
Li, Liu, and Ji, (2014)	263 Collected Data online	PU, PEU, subjective norms, compatibility, individual innovation, system security and perceived behavioural control	PU and PEU were not significant.
Chitungo and Munongo (2013)	275 Zimbabwe	Independent variables: PEU, PU, RA, PI, SN Dependent variable: IU or adoption	Significant influence between dependent variable and independent variables
Aboelmaged and Gebba (2013)	119 Dubai	Independent variables: Attitude, PEU, PU, BC, SN Dependent variable: Mobile banking adoption	PEO, Attitude, and SN were significant but PU and BC did not significant influence on mobile banking adoption
Marumbwa and Mutsikiwa, (2013)	272 Zimbabwe	PEU, PU, PT and RA.	All variables have a significant influence on the Adoption of Mobile Money Transfer services.
Jeong and Yoon, (2013)	165 Singapore	PU, PEU, Perceived Credibility, perceived Self-efficacy, and PC Dependent variable: Adoption of Mobile Banking	All variables have a significant impact on behavioural intention towards mobile banking usage except Perceived financial cost.
Micheni, Lule, and Muke, (2013)	250 Kenya	Transaction cost (TC) and Facilitating condition. (FC)	FC significant TC not significant
Yu (2012)	441 Taipei, Taiwan	Independent variables: Performance Expectancy, Effort Expectancy, SI, PC, PFC, Facilitating Conditions, Perceived Self-efficacy. Dependent variable: Behavioural Intention.	Social influence, Perceived financial cost, Performance expectancy, and Perceived credibility have significant influence on adoption but perceived self efficacy was not significant
Tobbin and Kuwornu, (2011)	288 Ghana	PU, PEU, PR PT, RA, PT, TC and Trial	Risk (PR) was not significant. Other constructs were significant.
Dass and Pal (2011)	Used findings from other studies	Combined analysis of adoption studies using TAM	Strong determinant perceived ease-of-use, perceived usefulness Perceived risk, relative benefits, perceived financial cost, attitude towards MFS, social influence
Dass and Pal (2011)	15 interviews and 10 Focus Discussion Group. India	Demand for banking and financial services, Hardships faced in existing channels of banking, Perceived usefulness of MFS, Trust, Technology readiness, Ease of Use and Perceived financial cost	Lack of trust, financial cost, and technology were significant barriers to mobile financial adoption in rural unbanked
Quan, Hao, and Jianxin, (2010)	228 China	Independent variables: PU, PEU, Perceived	All variables have a significant impact on adoption except

Author (s)	Sample size	Credibility, Perceived Variables/constructs	Perceived Ease of Use. Findings and conclusion
		behavioural control, PC Dependent variable: Adoption of Mobile Banking Service	
Masinge, (2010)	309 South Africa	Independent variables: PEU, PU, PR, PC, PT Dependent variable: Adoption of Mobile Banking	The constructs have a significant influence on the adoption of mobile banking and trust was found to have a negative correlation with perceived risk.
Jayasingh and Eze (2009).	781 Malaysia	Independent variables: PU, PEU, PC, SI, PI and Compatibility Dependent variable: Behavioural Intention	PU, PEU, PC, SI, and Compatibility have significant influence on the intention. Personal Innovativeness was not significant.
Yan, Md-Nor, Abu-Shenab, and Sutanonpaiboon, (2009)	120 Malaysia	PU, PEU, Trust, Peer influence and perceived price level and adoption of Mobile financial services	Peer pressure and Trust were significant. PU, PEU and price were insignificant.
Lee, (2009)	368 Taiwan	Independent variable: PEU, PU, PR, SN, Behavioural control and Perceived control Dependent variable: Attitude and intention to adopt internet banking.	Intention to use online banking is adversely affected mainly by the security/privacy risk, as well as financial risk and is positively affected mainly by perceived benefit, attitude and perceived usefulness.
Lule (2008)	395, Kenya	Independent variables: PEU, PU, SN, PFC, SE. Dependent variables: IU	Significant influence between the dependent variable and the independent variable
Amin, Baba, and Mohammed, (2007)	250, Malaysia	Independent variables: PEU, PU, SE, NP, PC Dependent variable: IU	Significant influence except normative pressure has weak influence on intention
Mallat, and Öörni, (2004)	46 (In focus group interviews)	Independent variables: PEU, PU, PT, DT IM Dependent variable IU	Model construction by literature review
Venkatesh and Davis (2000)	156 USA	Independent variables: PEU, PU, SN, SI Voluntariness, Image, Job Relevance, Output Quality Dependent variable: behavioural intention to adoption	Significant Influence between the dependent variable and the independent variables except social influence
Davis, (1989)	152 Toronto, Canada	Independent variables: PEU and PU Dependent variables: User Acceptance of Information Technology	Strong correlation between the dependent variable and independent variable but Perceived usefulness was found to have a stronger with user acceptance than PEO.

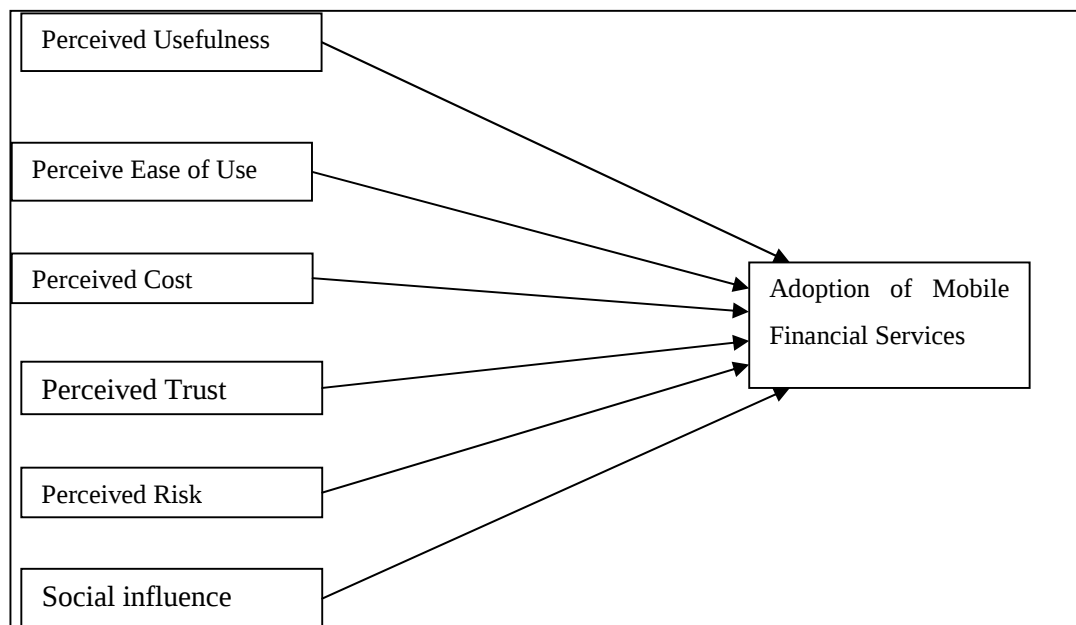
Notes: PEU; Perceived Ease of Use, PU; Perceived Usefulness, RA; Relative Advantage, PI; Personal Innovativeness, SN; Social Norms, PC; Perceived Credibility, PI; Personal Innovativeness, PFC;

perceived Financial Cost, SE; Self Efficacy, IU; intention to Use, PT; Perceived Trust, DT; Disposition Trust, IM; Intrinsic motivation, BC; Behavioural control, PR; Perceived Risk

2.3 Conceptual Framework and Research Hypothesis

From the literature review and for purpose of this study, the study framework consist of the factors influencing the adoption of mobile financial services based on TAM methodologies which are perceived usefulness, Perceived Ease of Use, Perceived Cost, Perceived trust, Perceived Risk and social influence as independent variable and adoption of mobile financial service as a dependent variable.

Figure2.2 Conceptual Framework indicating the relationship between the dependent variables and the independent variables



Source: Adopted and modified from Lee, 2009; Chitungo and Munongo 2013; and Masinge, 2010

From the above framework the following research model was developed;

$$y = c + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + \mu$$

Where y and x are the dependent variable and the independent variables respectively,

$b_1, b_2 \dots b_n$ are the coefficients of the regression line and c is the intercept of the line.

Then

y = the adoption of mobile financial services

x_1 = Perceived usefulness (PU)

x_2 = Perceived ease of use (PEU)

x_3 = Perceived Cost (PC)

x_4 = Perceived Trust (PT)

x_5 = Perceived Risk (PR)

x_6 = Social influence

Therefore the research model can be rewritten as

$$y = c + bPU + bPEU + bPC + bPT + bPR + bSI + \mu$$

2.3.1 Perceived usefulness

This is associated with productivity which comes from the use of technology (Amin et al 2007). According to Davis (1989) perceived usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance. Several studies have found that perceived usefulness had a significant influence on mobile financial service adoption (Aboelmaged and Gebba 2013; Chitungo and Munongo, 2013; Davis, 1989; Li, 2010; Sayid, Echchabi, and Aziz, 2012)). Based on these studies the following hypothesis is proposed;

H₁ Perceived usefulness have a positive effect on the adoption of mobile financial services

2.3.2 Perceived ease of use

Davis, (1989) defined perceived ease of use as the degree to which a person believes that using a particular system would be free of effort. The impact of perceived ease of use on a user's intention to adopt an innovation either directly or indirectly through perceived usefulness. Chitungo and Munongo, (2013) in their study on the adoption of mobile financial services in Zimbabwe they found that is perceived ease of use has a positive significant influence on the adoption of mobile financial service.

It has been extensively studied with perceived usefulness and both have been found to have a positive influence on the adoption of mobile banking and mobile financial services (Yu, 2012). The following hypothesis is proposed;

H₂ Perceived ease of use have a positive effect on the adoption of mobile financial services.

2.3.3 Perceived cost

Cost is defined as the extent to which a person believes that using mobile banking would cost money (Chitungo and Munongo, 2013). The cost may include the transactional cost in the form of service charges, mobile network charges for sending communication traffic (including SMS or data) and mobile device cost (Chitungo and Munongo, 2013). According to Lule, (2008), the cost benefit pattern is significant to both perceived usefulness and ease of use. Masinge, (2010) posit the low income people have a low purchasing power and are price sensitive. Moreover Micheni, Lule, and Muke, (2013) posit that if consumers perceive that the cost of mobile money is acceptable they will adopt it easier and then use it. Dass and Pal, (2011) found financial cost to have a negative influence on the adoption of mobile financial services. Furthermore, cost consideration may prevent people from adopting mobile financial services if it is high but if it is affordable it can be a motivation to faster adoption (Tobbin and Kuwornu, 2011). Based on the literature review the following hypothesis is proposed;

H₃ Perceived cost on mobile financial services will have a negative significant effect on the adoption of mobile financial service.

2.3.4 Perceived trust

Dass and Pal, (2011) defines trust as a psychological expectation that a trusted part will not behave opportunistically. The higher levels of trust in a service provider will therefore lead to a greater intention on the part of user to engage in mobile banking transactions (Masinge, 2010). Bångens and Söderberg, (2008) maintains that a financial system and its actors must be trusted and must act on the principles which promotes trust to customers. Dass and Pal, (2011) in their study on the adoption of mobile financial service in the rural unbanked they found that villagers preferred channels which can be trusted in order to conduct monetary transaction. Studies conducted have found perceived ease of use to have a positive influence on the

adoption of mobile financial services (Masinge, 2010; Amin, Baba, and Mohammed, 2007; Horne and Nickerson, 2013; Chitungo and Munongo, 2013; Lule, 2008).

H₄ Perceived trust on mobile financial services have a positive influence on the adoption of mobile financial services.

2.3.5 Perceived risk

Perceived risk is uncertainty about the outcome of the use of the innovation (Chitungo and Munongo, 2013). Lee, (2009) define perceived risk as a potential loss due to fraud or a hacker compromising the security of an online bank user. Fraud and hacker intrusion may lead to users' monetary loss and violate users' privacy (Lee, 2009). Lee (2009) identifies five facets of perceived risk which are financial risk, security or privacy risk, social risk, time risk and performance risk.

According to Lee, Financial risk is defined as the potential for monetary loss due to transaction error or account misuse which may create fear to users. Security risk is a potential loss due to fraud or a hacker compromising the security of an online account. Social risk refers to the possibility that using online system of financial service delivery may result in social disapproval of one's friends, family or work group. Time risk may refer to the loss of the time and inconvenience incurred due to the delays of receiving the payment due to system problems.

It is suggested that the adoption of mobile financial services creates concern that there may financial losses, password security, network errors, hacking and loss of personal information. It is therefore purported that perceived risk has a negative influence on mobile banking adoption.

H₅ Perceived risk have a significant negative influence on the adoption of mobile financial services

2.3.6 Social influence

Venkatesh and Davis, (2000) argue that people adopts new technology because other people who are familiar uses that technology. According Venkatesh and Davis, (2000) in TAM and UTAUT social influence includes subjective norms, normative pressure and image. In their model (TAM2) they theorized that social influence

affects the adoption because people need to connect to one another by using similar technologies. They maintained that Individuals often respond to social normative influences to establish or maintain a favourable image within a reference group. Sayid, Echchabi, and Aziz (2012) in Somalia found social influence to be the prime factor influencing the adoption of mobile in the model that used four construct. Hamza and Shah, (2014) in Nigeria found social norms to be significant in influencing the adoption of mobile financial services. Yu, (2012) using the Unified Theory of Acceptance and use of Technology (UTAUT) found social influence the strongest factor influencing the adoption of mobile banking in Taiwan. Moreover Dass and Pal, (2011) in their combined analysis of factor affecting mobile financial service adoption found social influence as prime factor influencing the adoption of mobile financial service. Social influence has been found be one of the factors with a positive influence on the adoption of mobile financial services (Yan, et al 2009; Mbele-Sibotshiwe, 2013;Bhatti, 2007).

Basing on findings of these studies the hypothesis for this variable will be;

H₆ Social influence has a positive influence on the adoption of mobile financial services

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The purpose of this chapter is to describe the research methods and approaches to be used in answering the research questions stated above. The chapter covers the research design, the research approach, study area, target population, sampling, research instrumentation, data collection techniques, and ethical considerations and data analysis procedures.

3.2 Research Methodology

Research methods are all those methods which are used by the researcher during the course of studying his research problem (Kothari, 2004). Research methodology is a way to systematically solve the research problem (Kothari, 2004). It includes the assumptions and values that serve a rationale for research and the standards or criteria the researcher uses for collecting and interpreting data and reaching at conclusions (Mitchell & Jolley, 2010). It includes a theory of how enquiry should precede the analysis of principles and procedures in a particular field of search and the researcher's assumptions about the nature of reality and the nature of knowing and knowledge (Lapan and deMarrais, 2004). According to Kothari (2004) in research methodology do not only include research methods but also consider the logic behind the methods used in the context of the research study and explain why they are used in a particular method or technique and why we are not using others so that research results are capable of being evaluated either by the researcher himself or by others.

3.3 Research design

This study used the quantitative research design. According to Creswell, (2009) quantitative research is a means for testing objective theories by examining the relationship among variables. In order to achieve the objective of this study, the research followed a quantitative research methodology in data collection and data analysis. The quantitative research was used to provide numerical measurement and

analysis of the adoption variables of mobile financial services. A research design is seen as the logic that links the data to be collected (and the conclusions to be drawn) to the initial questions of a study (Dawson, 2007). According to Vaus, (2001) research design refers to the structure of enquiry with the objective of minimizing the chance of drawing incorrect inferences from the data. He further argues that it is the logical task undertaken to ensure that the evidence collected enables us to answer question or to test theories unambiguously as possible. It is concerned with the type of data that will be collected and the means used to obtain them.

3.4 Study area

The study was conducted in Chamwino district in Dodoma region. This area was chosen because access to formal financial service in the district limited due to absence of formal financial services providers like banks savings and credit schemes (URT, 2012). Because of this limitation we believe that it can represent the unbanked population.

3.5 Study population

The target population of this study included users of mobile financial services in Chamwino district. According to Zikmund and Babin (2010), Population is any complete group whose members share some common set of characteristics.

3.6 Unit of analysis

The units of analysis for this study were users of mobile financial services with a mobile money account provided by telecom companies (Non-bank led model). It included the users of mobile financial services of all the companies providing mobile financial services which are Vodacom Tanzania (M-PESA), Tigo (Tigo-Pesa), Airtel Tanzania (Airtel Money) and Zantel (Ezy-Pesa). The unit of analysis is the thing or a person about which we collect information and from which we draw conclusion (Vaus, 2001).

3.7 Variables and their measurement

Measurement in this study involved the process of describing some properties of variables assigning numbers in a reliable and valid way for analysis of data. It is the process of giving operational definition of variables used in the study. Operationalization involves identifying scales that correspond to properties of the concept which indicates that a certain value on a scale corresponds to some true value of a concept or construct (Zikmund and Babin, 2010). According to Zikmund and Babin, (2010) a construct is term used for concepts that are measured with multiple variables or indicators. Each variable or indicator captures a piece of the construct and together the indicators produce a single measurement of the construct or a composite variable.

3.7.1 Items used to measure the constructs of this study

The theoretical constructs for this has operationalized using validated variables from similar prior research. The study used six independent constructs which are perceived ease of use, perceived usefulness, perceived risk, perceived trust, perceived cost and social influence to measure factors which influences the adoption of mobile financial services. Each construct has been measured by using three to six indicators or items. Zikmund and Babin, (2010) posit that the use of a single variable may not capture the complete meaning of the complex concept. Therefore this study used multiple variables to measure each concept in order to provide complete accounts of all concepts used. Confirmatory factor analysis was conducted to re-establish the construct validity of these instruments.

The original TAM construct of perceived usefulness and perceived ease of use were adopted from Davis (1989) and its extension by Venkatesh and Davis (2000). Perceived risk, perceived cost and trust were adopted from Masinge (2010) and Lee, (2009). Social influence was adopted from Jayasingh and Eze (2009). Therefore this study used six independent variables which are perceived usefulness, perceived ease of use, perceived cost, perceived trust, perceived risk and social influence. The dependent variable was mobile financial service adoption. The items used to

measure these variables are shown in table 3.1. The five point Likert scale ranging from 1(strongly disagree) to 5 (strongly agree) was used to measure the constructs. A Likert scale is composed of a series of four or more Likert-type items that are combined into a single composite score or variable during the data analysis process (Bernard, 2006). They are primarily used in questionnaires to obtain participants preferences or degree of agreement with a statement or set of statements.

3.7.2 Composite scale used in the study

The main construct used in this study was measured by using several items. These items were combined together to form a composite scale. The composite scale combines the feature of more than one scale where each scale represents an aspect of a common attitudinal domain (Bordens and Abbott, 2011). The common attitudinal domain represents a latent construct or a variable that is not directly observed. In this study PU, PEU, PC, PT, PR, SI and Adoption were the composite scale or latent variable. Therefore the composite scale of this study was obtained by summing and averaging the respondents' responses to the Likert scale items for the respective composite scale or latent variable.

Table 3.1 Variables or construct and their measurement item the sources

Constructs	Items	Based on
Perceived Usefulness	I think that using mobile financial services would enable me to accomplish my tasks more quickly.	Masinge, 2010; Jayasingh and Eze, 2009.
	I think that using mobile financial services would make it easier for me to carry out my tasks.	
	I think that mobile financial services are useful	
	Overall, I think that using mobile financial services is advantageous	
Perceived Ease of Use	I think that learning to use mobile financial services would be easy	Masinge, 2010; Venkatesh and Davis, 2000.
	I think that interaction with mobile financial services does not require a lot of mental effort.	
	I think that it is easy to mobile financial services to accomplish my banking tasks	
Perceived Cost	I think the equipment cost is expensive to use. Eg. mobile phone	Masinge, (2010)
	I think the access cost is expensive to use.	
	I think the transaction fee is expensive to use.	
Perceived Trust	Mobile financial services service providers have the skills and expertise to perform transactions in an expected manner	Masinge, (2010)
	mobile financial services service providers have access to the information needed to handle transactions appropriately	
	Mobile financial services providers are fair in their conduct of customer transactions.	
	Mobile financial services providers are open and receptive to customer needs.	
	Mobile financial services service providers make good-faith efforts to address most customer concerns	
	I believe mobile network providers are trustworthy.	
	I believe mobile financial service providers wireless infrastructure can be trusted	
Perceived Risk	Mobile banking services may not perform well because of network problems. (Performance risk (PR1))	Masinge, 2010; Lee, 2009
	Mobile banking services may not perform well and process payments incorrectly. (PR2)	
	When transferring money through mobile banking, I am afraid that I will lose money due to careless mistakes such as wrong input of account number and wrong input of the amount of money. (Financial risk (FR1))	
	When transaction errors occur, I worry that I cannot get compensation from banks. (FR2)	
	Using mobile financial services would lead to a loss of convenience for me because I would have to waste time fixing payments errors. (Time risk (TR1))	
	It would take me lots of time to learn how to use mobile banking services (TR2)	
	A network problem causes wastage of time. (TR3)	
	I would not feel totally safe providing personal privacy information over mobile banking. (Security Risk (SR1))	
	I'm worried about using mobile financial service because other people may be able to access my account (SR2)	
	I would not feel secure sending sensitive information across mobile financial services. (SR3)	

Constructs	Items	Based on
Social Influence	Most people who are important to me think I should use mobile financial services.	Jayasingh and Eze, (2009)
	My close friends think I should use mobile financial services	
	Most members of my family think I should use mobile money	
	My peers think I should use mobile financial services.	
Intention to use	I would use mobile financial services for my banking needs.	Lee, (2009) Aboelmaged & Gebba, (2013)
	Using the mobile financial services for handling my banking transactions is something I would do	
	I would see myself using the mobile financial services for handling my banking transactions	

3.8 Sample Design and Sampling Plan

Sample design is a definite plan for obtaining a sample for a given population (Kothari, 2004). It refers to the technique or procedure the researcher would adopt in selecting items for the sample (Lewin, 2005). Validity, reliability and feasibility of the information to be collected are important criteria for case study selection and methods.

3.8.1 Sampling technique

In this study non probability sampling technique was used to select respondents from the population. According to Zikmund et al, (2010) using a non probability sampling, the sample is selected basing on the personal judgement or convenience and the probability of any particular member of the population being chosen is unknown. Convenience and purposive or judgemental sampling was used to in order to have respondents who use mobile financial services. In convenience refers to the sampling procedure of obtaining respondents or units that are most conveniently available (Bernard, 2006). It was the appropriate method in order to obtain large number of completed questionnaire quickly and economically. In purposive sampling, you decide the purpose you want informants (or communities) to serve, and you go out to find some (Bernard, 2006).

3.8.2 Sample size

This study has a sample size of 206 respondents who filled and completed the questionnaire. According to Zikmund and Babin, (2007) when non probability

sampling is used an appropriate sample size can be identified on the basis of the sample sizes which were used in other studies, Resources, level of the desired precision, time, and sample size used in other studied influences the choice of the sample size. Zikmund and Babin, (2007) recommends that if there are two or more subgroup to be included in the sample there is judgemental rule of thumb of selecting the subgroup sample size should have the minimum of 100.

3.9 Characteristics of respondents and uses of mobile financial services

3.9.1 Sample size and response rate

This study used data collected from different division of Chamwino district. Approximately 250 questionnaires were distributed to respondents. A total of 212 questionnaire were received which represented 84.5% of the total questionnaires distributed. Out these questionnaires 6 were not included in the analysis because of incomplete data entry. The total of 206 questionnaires was used in the analysis of data.

3.9.2 Demographic Characteristics respondents

This part presents the information on the demographic characteristics of the sample used in this study. It includes gender, age, educational level, mobile financial service usage and respondents working status.

Table 3.2 Respondents Age and Gender

Gender	Age Group				Total	
	0-25	26-35	36-45	45+		
Male	23	42	27	19	111	53.8%
Female	25	33	26	11	95	45.11%
Total	48	75	53	30	206	
Percent	24%	34.5%	26.5%	15%	100%	

It was observed that 24 percent of respondents were between the age of 0-25, 34.5 percent in the age group 26-35, 26.5 percent between the age group of 36-45 and 15 percent in the age group of 45 and above. The highest age group was between the ages of 26 to 35 which were 34.5 percent, followed by the age group of 0 to 25. The mean age of the respondents was 35 years, the minimum age was 19 years and the maximum was 59 years, the standard deviation of the age distribution of respondents

was 10.32. The study included 111 male in the study and 95 female. In the group of male 23 respondents were in the age group of 0-25, 42 respondents in the age group of 26- 35, 27 in the age group of 36- 45 and 19 of the age above 46. In the group of female 25 respondents were in the age group of 0-25, 33 female respondents in the age group of 26-35, 26 respondents in the age group of 36-45 and 11 in the age group above the age of 46.

Table 3.3 Respondents' Education Level

Gender	Education Level			Total
	Primary	Secondary	University or College	
Male	36	47	28	111
Female	26	39	30	95
Total	62	86	58	206
	30%	41.74%	28.1%	100%

Respondents Education level showed that 62 of the respondents have primary level education of those 36 were male and 26 were female, 80 respondents have secondary education where 47 were male and 39 were female, 58 of the respondents have university or college education. Those with primary Education represented 30% of the total of respondents, secondary education 41.74% and university or College education represented 28.1% of the respondents of the study.

Table 3.4 Respondents working status

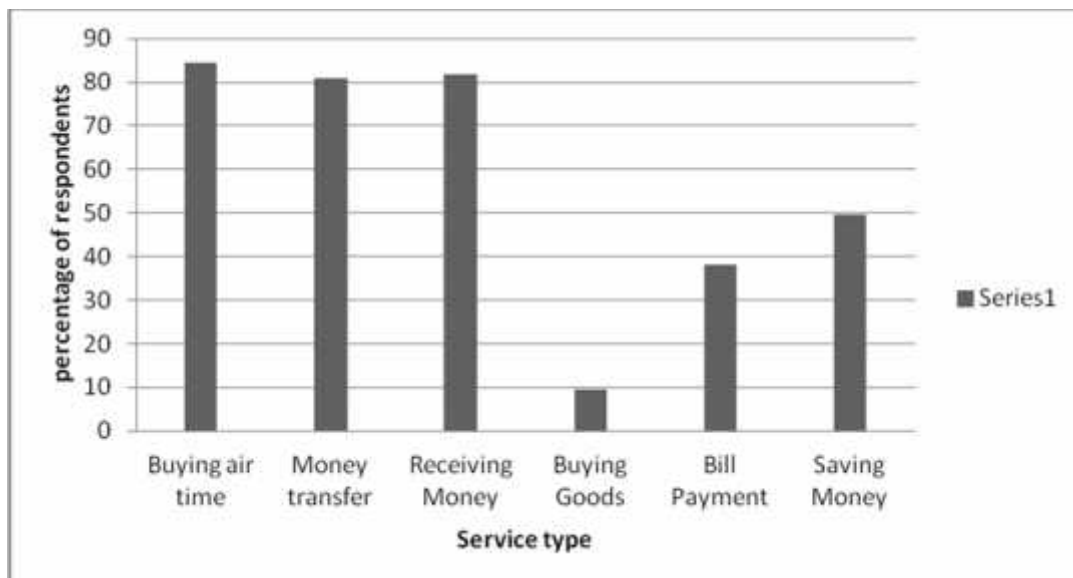
Gender	Working Status			Total
	Student	Employed	Self Employed	
Male	25	37	54	111
Female	21	25	44	95
Total	46	62	98	206
Percentage	22.3	30	47.6	100%

The majority of respondents were self employed (98%), followed by the Employed who were 62% and the last category were students 22.3%. Those who responded to be self employed 54 were male and 44 were women. The employed 37 were male 25 were female. In the category of students 25 were male and 21 were female.

3.9.3 Mobile Financial service usage

The respondents for this study were the users of mobile financial services. This study assessed mobile financial usage and the types of financial services used (Figure 4.1). The main categories of financial services used were money transfer/ payments, buying air time, receiving money, buying goods, bills payments and saving money. Buying airtime was a transaction with the highest usage that 84.4 percent (168) of the respondents sample. Money transfer was 80.9 percent, receiving money was 81.9 percent, saving money 49.7 percent, and bills payment 38.2% and buying goods was 9.5 percent. High usage of some financial services may be due to absence of formal financial services provided by formal financial services providers like banks. Buying goods has low reported usage because not all companies provide this service. Furthermore bill payments also have low number respondents because not all respondents have access to services in which payments can be done by mobile financial services.

Figure 4.1 Mobile Financial service usages



Note: Respondents were allowed to select more than one item; therefore respondents in one item are also included in other items.

Source: Author's computation from field data (2014)

3.10 Data Collection

3.10.1 Types and sources of data

The study used primary data which were collected from the field. Primary data are those collected fresh from the field (Lewin, 2005). According to Kothari, (2004) primary data are those which are collected afresh and for the first time and they are original in character.

3.10.2 Data collection methods

Data used in this study was collected by using a survey questionnaire which will be distributed to respondents in different wards of Chamwino district. Survey Questionnaire method provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population (Creswell, 2009). According to Winter and Dodou (2010) Likert scale questionnaire widely uses survey method. The study used both Self Administered questionnaires and Face to face.

Self administered Questionnaires are sent to respondents and respondents take the responsibility of reading and answering the question (Zikmund et al 2008). In this study self administered paper questionnaires were distributed by the researcher to respondents in different wards of Chamwino districts and later they were collected after being filled.

Some Questionnaires were administered face to face to respondents to people who needed more clarification and more information on some of the items in the questionnaires. Bernard, (2006) argue that a conversational style can produce a valid, reliable and accurate data when respondents need clarification on unclear and difficult concepts.

The questionnaires have three parts, the first part collected data about respondents' demographic data about Gender, Age, Education level, Occupation. The second part solicited data on mobile financial services uses. Third part has the five point Likert scale items used to measure the constructs of the study. The items have six groups

representing Perceived ease of use, Perceived usefulness, Perceived cost, Perceived Trust, Perceived risk, Social influence, and Behavioural intention to adopt and mobile financial service. Respondents were asked to give their opinion by using a five point Likert scale with ranges from 1= strongly disagree, 2= Disagree 3= neither disagree nor agree 4= Agree and 5= Strongly Agree.

3.11 Reliability and Validity of the measurement instruments

3.11.1 Reliability of the Study

The reliability of this study was established through the coefficient alpha. Alpha coefficient demonstrates whether or not the different items converge on the same point (Zikmund, et al 2010).

Reliability measures the consistency of the research instrument (Zikmund, et al 2010). According to Marczyk, DeMatteo, and Festinger, (2005), reliability is concerned with the consistency or stability of the score obtained from a measure or assessment technique over and across settings or condition. Mitchell and Jolley, (2010) puts forward that reliability does not guarantee validity but it is a prerequisite for validity and establish a ceiling on how validity can be.

Coefficient Alpha ranges in value from 0 meaning no reliability to 1 meaning complete reliability. According to Zikmund and Babin, (2007) scales with coefficient between 0.80 to 0.95 are considered to have very good reliability, scales with coefficient between 0.70 to 0.80 to have a good reliability, value between .060 to 0.70 indicates a fair reliability and below 0.60 the scale have poor reliability. The Cronbach's Alpha recommended in many studies is 0.70 or greater (Mitchell and Jolley, 2010). The reliability for all the items for each constructs was established and for the composite constructs used in the study by using SPSS 20. The reliability of the construct ranged from 0.703 to 0.793. This shows that our item uses in the study has a good reliability. The result of reliability analysis are shown in table 3.1

Table 3.5 Cronbach's Alpha Coefficient for the Main Constructs

Construct	Cronbach's Alpha	Remarks
Perceived Usefulness	0.703	Reliable
Perceives Ease of Use	0.782	Reliable
Perceived Cost	0.721	Reliable
Perceived Trust	0.745	Reliable
Perceived Risk	0.719	Reliable
Social Influence	0.793	Reliable
Adoption Behaviour	0.735	Reliable

Source: Authors Computation Using SPSS 20

3.11.2 Validity of the study

This study used multiple items to measure the constructs used in the study. Confirmatory Factor Analysis was used to establish if all the items were indeed measuring the same underlying construct or factor used in the study. Factor analysis was conducted by Structural Equation Modelling (SEM) by using SPSS Analysis of Moment Structure 22 (AMOS 22). Bernard, (2006) posits that if all items measure the same thing they must have the same variable in common. Validity is the accuracy of a measure or the extent to which a score truthfully represent a concept (Zikmund and Babin, 2007). It is concerned with what is measured and how well it is being measured (Marczyk, DeMatteo, and Festinger, 2005).

3.11.2.1 Confirmatory factor analysis

Confirmatory factor analysis is a type of structural equation modelling (SEM) the deals with specifically with the measurement model that is the relationship between the observed or the indicators and the latent variables or factors (Brown, 2006). It is hypothesis driven in the sense that there must be a theoretical background and expectations that explains the relationship between the observed variable and the latent variable (Bernard, 2006). The researcher must specify the relationship between the observed variables and the latent variable (ibid). Furthermore, Brown, (2006) posit that the relationship between the variables must be based on past evidence and theory. Factor analysis provides factor loading which are used to determine how the

independent variable forming the common factor or latent factor influences the common factor. Factor loading indicates correlation between the measured and the underlying factor (Bordens and Abbott, 2011).

Factor loadings range from -1 to 1. Factor loadings score of 0.70 and above are considered as very high but they can be accepted from +0.3 (Mitchell and Jolley, 2010). According to Bordens and Abbott, (2011) a factor loading with less than +0.3 cannot be interpreted as they do not correlate with the common factor.

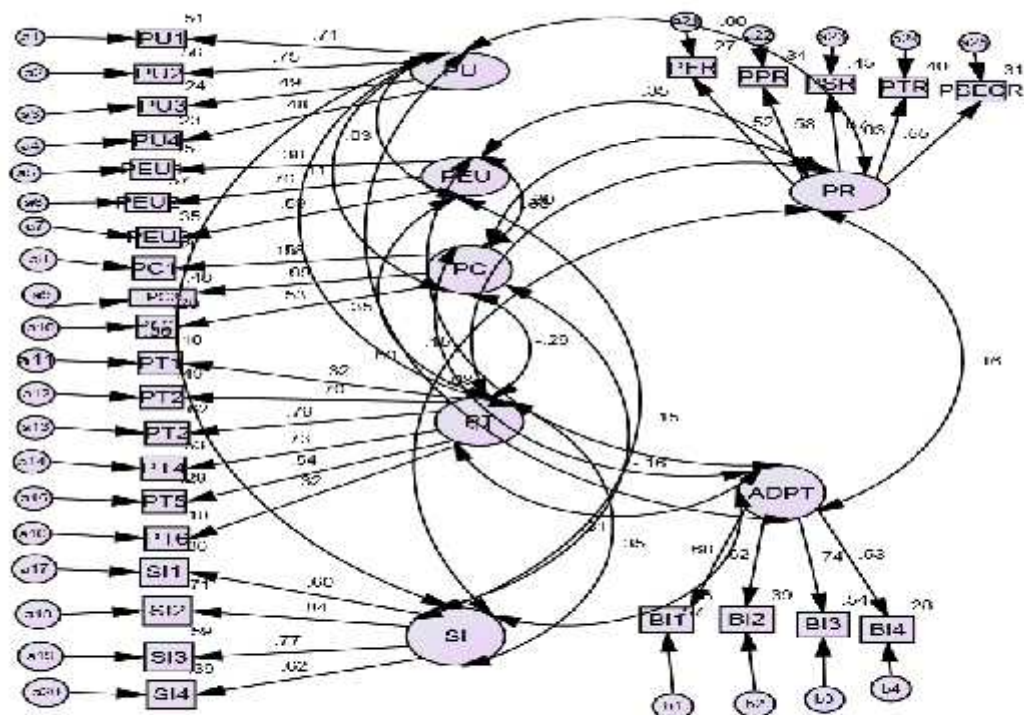
Structural Equation Modelling is a general term that is used to describe a large number of statistical models used to evaluate the validity of substantive theories with empirical data (Mitchell and Jolley, 2010). According to Mitchell and Jolley, (2010) it represents an extension of general linear modelling procedures such as ANOVA and Multiple regression analysis. SEM are can be used to measure or study the relationships among latent constructs that are indicated by multiple measures. SEM takes a confirmatory (hypothesis testing) approach to the multivariate analysis of a structural theory on the stipulated causal relationship among multiple variables (Lei and Wu, 2007). It also aims to determine whether the hypothesized theoretical model is consistent with the data collected to reflect the theory (Lei and Wu, 2007). Given the nature of the construct used in the study SEM was chosen because it has the feature required in the analysis of our data and it can be used to evaluate the measurement model by the fit indices. Latent construct or constructs which were not directly observed in this study were perceived usefulness (PU), perceived ease of use (PEU), Perceived cost (PC), Perceived trust (PT), Perceived risk (PR) Social influence (SI) and Adoption (ADPT)

According to Zikmund and Babin, (2010) confirmatory factor analysis is a good tool for assessing construct validity because it provides at test of how well the theory about the factor structure fits the actual observations. In this research confirmatory factor analysis is used to establish the construct validity of the measurement items.

This study used confirmatory factor analysis because there are the items used to measure the construct were adopted from previous studies which showed high factor loading which were within the acceptable range from +3. Furthermore the items

structure and relationship is strongly supported by theories and empirical studies conducted in the field of mobile banking using Technology Acceptance Models. According to Brown, (2006) when the items adopted from other studies have been modified they have to be retested in order to establish if they are still valid. We decided to cross validate the scales for all variables by using the current sample. The result of the confirmatory factor analysis in table 3.3 revealed that the items used in the study have a factor loading above 0.5 which is regarded by many as a cut off point, except four item have a factor loading of 0.31 to 0.493 (Mitchell and Jolley, 2010: Bernard, 2006). According to Bernard, (2006) items with factor loading from 0.3 can also be considered to be worth in the model. Therefore we can conclude that the items used has a good construct validity

Figure 3.2 Confirmatory Factor analysis (CFA) using SPSS Amos



Source: Authors computation using SPSS AMOS (Field data)

Table 3.6 Summary of the CFA Factor loading for each item used to measure the constructs

Construct	Item	Factor Loading
Perceived Usefulness	PU1	0.715
	PU2	0.715
	PU3	0.493
	PU4	0.476
Perceived Ease of Use	PEU1	0.384
	PEU2	0.757
	PEU3	0.592
Perceived Cost	PC1	0.585
	PC2	0.693
	PC3	0.528
Perceived Trust	PT1	0.319
	PT2	0.697
	PT3	0.788
	PT4	0.725
	PT5	0.542
	PT6	0.323
Social Influence	SI1	0.604
	SI2	0.841
	SI3	0.770
	SI4	0.625
Perceived Risk	PFR	0.521
	PPR	0.581
	PSR	0.668
	PTR	0.632
	PSEeR	0.554
Adoption	BI1	0.678
	BI2	0.625
	BI3	0.736
	BI4	0.530

Source; Authors Computation using SPSS AMOS (2014)

3.11 Ethical consideration

Before the study starts there are ethical issues to be considered especially when human participants are used. These include obtaining the institutional approval and obtaining advice from experienced researcher to determine whether the study should be done (Mitchell and Jolley, 2010). American Psychological Association (APA) identifies some ethical principles which has to be maintained like avoiding harm (s.3.04), maintaining privacy and confidentiality (s.4), informed consent (s.3.10), obtaining institutional approval (s.8.01) and to avoid deception in research (8.07) a few to mention.

Ethical issues were considered in order to avoid conducting unethical research, to avoid the possible risk to people who participated in the research and to avoid harm to participants.

The approval to conduct the research was obtained from Mzumbe University after the submission of the research proposal and the research proposal approval form was signed. Moreover the introduction letter was obtained from Mzumbe University. A permission to conduct a research in Chamwino district was obtained from Chamwino District council (Appendix II and III). The objective of the study was communicated to all respondents and was included in all questionnaires.

3.12 Data analysis methods

Descriptive statistics analysis was conducted on the demographics data and mobile financial service usage. Data collected by using the paper questionnaires was coded and recorded in the Statistical Package for Social Science (SPSS) for analysis. Percentage and means was computed on demographic and mobile financial service usage.

3.12.1 Hypothesis testing

The hypothesis was tested by using multiple regression analysis to examine if the independent variables predicted the dependent variable.

3.12.2 Multiple regression analysis

Multiple regressions analysis is an extension of simple regression which allows a metric dependent variable to be predicted by multiple independent variables (Mitchell and Jolley, 2010). According to Zikmund and Babin, (2007) regression analysis is the technique for measuring the linear association between a dependent and an independent variable. The regression analysis equation describes the nature of the relationship between two variables (Creswell, 2009).

Zikmund and Babin, (2010) posits that multiple regression is more powerful than ANOVA for the reason that a test of significance of a correlation coefficient is more

powerful than a t-test based on the median split. Furthermore they argue that multiple regression analysis uses each individual's value on the predictor rather than ANOVA trick of giving everyone in the group the same score. The researcher hypothesized that perceived usefulness, perceived ease of use, perceived trust, perceived risk, perceived cost and social influence to have influence on the adoption of mobile financial services.

3.12.3 Correlation analysis

Correlation analysis was done in order to establish of the variables were correlated or not. If variable are not correlated both simple regression and multiple regression can give the same result but if the variable are correlated the two methods cannot give the same result (Zikmund and Babin, 2007). The differences in the result arises because simple regression cannot capture the partial effects of one variable on other variables caused other variables (Zikmund and Babin, 2007). Therefore correlation analysis was conducted in order to help us choose the type of regression which is suitable for the estimation of our model.

Moreover correlation between variable are used to detect if there is a possibility of multicollinearity between the variables (Mitchell and Jolley, 2010). If there is high correlation between variables it may suggest the presence of multicollinearity. Multicollinearity in a regression analysis refers to how strongly the interrelated the independent variables in a model are. According to Bordens and Abbott, (2011) if two variables are highly correlated they may be measuring the same thing. The level correlation which can cause multicollinearity differs from one scholar to another where some indicate that the correlation coefficient of 0.7 and above may cause serious multicollinearity problem. Using variance inflation factor (VIF) Mitchell and Jolley, (2010) argue that VIF greater than 5 indicates that multicollinearity may cause distortions to equation estimates. VIF indicates the change in variance that is related with multicollinearity (ibid).

The problem of multicollinearity may make interpreting parameter estimate difficult or impossible (Zikmund and Babin, 2007). It may also cause the regression equation to underestimate the strength of a predictor variable (Mitchell and Jolley, 2010). Bordens and Abbott, (2011) recommends to eliminate the variables which are highly correlated with the other in the model.

3.12.4 Independent sample t-test

In order to obtain more understanding on the adoption behaviour between male and female an independent sample t-test was included in the analysis of data. The difference in the adoption behaviour between male and female was tested by using independent sample t-test. Independent samples t-test tests the differences between means taken from two independent samples or groups (Zikmund and Babin, 2007). Descriptive approach was used to describe the factor that influences perceived risk by analysing respondents' level of agreement or disagreement to the identified factors.

CHAPTER FOUR

RESEARCH FINDINGS

4.1 Introduction

This chapter presents the findings of the research and the statistical analysis specified in chapter three which discussed the research methodology used in this study. The chapter includes the analysis of demographic data about the respondents who participated in the study and the statistical analysis of the data collected for each objective of the study. The main research objective for this study was to assess factors which influence the adoption mobile financial service. The specific objectives of the study were; (1) to assess the influence of perceived on the adoption of mobile financial services in the unbanked population. (2) To assess the influence of perceived ease of use on the adoption of mobile financial services in the unbanked population. (3) To assess the influence of perceived risk and customers perception of different facets of risk on the adoption of mobile financial services. (4) To assess the influence of perceived cost on the adoption of mobile financial services in the unbanked population. (5) To assess the influence of perceived trust on the adoption of mobile financial services in the unbanked population. (6)To assess the influence of perceived social influence on the adoption of mobile financial services in unbanked population.

SPSS was used to compute descriptive statistics for all items and the main construct used in this study. The main construct for this study were seven where by six construct were independent construct and one was the dependent construct. The independent construct includes Perceived ease of use (PEU), perceived usefulness (PU), perceived cost (PC), perceived Trust (PT), perceived risk (PR), Social influence (SI). Table 4.1 indicates the descriptive statistics for the main construct or composite scale used in this study;

Table 4.1 Descriptive Statistics for the composite scales used in the analysis

	N	Minimum	Maximum	Mean	Std. Deviation
Perceived usefulness (PU)	206	1.00	5.00	4.3313	.60874
Perceived Ease of use (PEU)	206	1.00	5.00	3.0950	.97391
Perceived Cost (PC)	206	1.00	5.00	3.2150	1.02176
Perceived Trust (PT)	206	1.00	5.00	3.3542	.74140
Social Influence (SI)	206	1.00	5.00	3.7812	.84879
Perceived Risk (PR)	206	1.00	5.00	3.4400	.86542
Adoption	206	1.00	5.00	3.8825	.74933

Furthermore Pearson correlation analysis was conducted between the independent variables in order to establish if there is a relationship between the variables. It was also conducted between the independent variables and the dependent variable. In this study coefficient correlation (r) was used to determine if there were positive or negative relationships between the variables under study. A correlation analysis is utilized to examine if there is an association between two variables or whether there is an observed covariance between the two variable of interest (Howell, 2013). The correlation coefficient ranges between -1 and 1. The coefficient which is close to +1 or -1 indicates that there is a strong linear relationship between the two variables. The result of the correlation coefficient for this study are indicated in table 4.5

Table 4.2 Pearson Correlations

		PU	PEU	PC	PT	SI	PR	Adoption
PU	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	206						
PEU	Pearson Correlation	.048	1					
	Sig. (2-tailed)	.503						
	N	206	206					
PC	Pearson Correlation	-.106	.228**	1				
	Sig. (2-tailed)	.134	.001					
	N	206	206	206				
PT	Pearson Correlation	.215**	.200**	.211**	1			
	Sig. (2-tailed)	.002	.004	.003				
	N	206	206	206	206			
SI	Pearson Correlation	.268**	-.084	-.095	.267**	1		
	Sig. (2-tailed)	.000	.239	.182	.000			
	N	206	206	206	206	206		
PR	Pearson Correlation	-.021	.256**	.547**	-.263**	-.135	1	
	Sig. (2-tailed)	.773	.000	.000	.000	.056		
	N	206	206	206	206	206	206	
Adoption	Pearson Correlation	.454**	-.011	.294**	.253**	.464**	.148*	1
	Sig. (2-tailed)	.000	.877	.000	.000	.000	.036	
	N	206	206	206	206	206	206	206

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

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

Source: Authors computation using SPSS 20

Correlation between independent variables ranged between r -0.021 to r 0.547. The highest correlation between the independent variable was observed between perceived risks (PR) and perceived cost indicating a strong association between the variables. The result revealed that perceived usefulness has a significant positive correlation with perceived trust and social influence at the $p < 0.01$. Perceived ease of use has a significant correlation with perceived cost, perceived trust and perceived risk at the $p < 0.01$. Also perceived cost has a significant relationship with perceived trust and perceived risk.

The observed critical values (2-tailed) of the correlation between the dependent variable and the independent variable ranged from $r = -0.011$ to $r = 0.464$. The result in table 4.5 revealed that perceived usefulness and social influence has strong and significant positive relationship with the dependent variable with r 0.454 and 0.464

at $p < 0.01$ significance level respectively than the other independent variables. Perceived trust also showed a significant positive relationship the adoption of mobile financial services at the $p < 0.01$. Perceived cost showed a significant negative relationship with adoption at the $p < 0.01$ significance level. Perceived risk showed a significant negative relationship with the dependent variable at the $p < 0.05$ significance level. It was also revealed that the correlation between perceived ease of use and the adoption of mobile financial services was not significant. The result of the correlation analysis indicates that most of these variables have a influence on the adoption of mobile financial services. However the perceived ease of use was contrary to many of the findings of other studies which revealed an insignificant influence on the adoption of mobile financial services.

Multiple regression analysis was done to examine the predictability of the dependent variable with the independent variable. The dependent variable was the adoption of mobile financial services which was measured by four Likert scale items. Independent variables were Perceived ease of use (PEU), perceived usefulness (PU), perceived cost (PC), perceived trust (PT), perceived risk (PI) and social influence (SI). The reliability of all the constructs was established through Cronbach's Alpha coefficient. All the constructs have the good reliability ranging from 0.703 to 0.793 (table 3.1). The validity of the items used in this study was established by using confirmatory factor analysis (results in table 3.2). All the items have a factor loading of +3 and above which are acceptable (Brown, 2006; Bernard, 2006; Mitchell and Jolley, 2010).

The constructs were tested against the null hypothesis that the regression coefficient (β) of the regression equation is zero (Howell, 2013). The result of regression analysis are provided in table 4.6

Table 4.3 Regression analysis result (test for hypothesis)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Co linearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.128	0.430		2.625	0.009		
PU	0.392	0.074	0.318	5.322	0.000	0.884	1.131
PEU	0.048	0.046	0.062	1.040	0.300	0.896	1.116
PC	-0.185	0.050	-0.253	-3.710	0.000	0.681	1.468
PT	0.062	0.062	0.061	0.996	0.320	0.832	1.202
SI	0.309	0.053	0.350	5.812	0.000	0.875	1.143
PR	0.038	0.060	0.044	0.639	0.524	0.659	1.518
a. Dependent Variable: Mobile financial service Adoption							
Model Summary							
R	R Square		Adjusted R Square				
.624 ^a	0.389		0.371				

a. Predictors: (Constant), PR, PU, PEU, SI, PT, PC

R Square in the multiple regression analysis provides an index of the amount of variability in the dependent variable accounted for by the predictor variables (Bordens & Abbott, 2011). To know if the R squared is significant Mitchell and Jolley, (2010, p. 735) recommends to look the significance of an F test of ANOVA. If it is significant the probability of F should be less than 0.05. The adjusted R squared for our regression equation was 37.1%. This indicates that the six variables used in this study explain about 37.1% of the variation in the adoption of mobile financial services. The F test of ANOVA of this study was $F=20.255$, $p<0.01$.

The results for this study indicated no problem of multicollinearity because the VIF was less than 5 which is recommended (Mitchell and Jolley, 2010). Moreover the correlation coefficient between the independent variables was not so high to suggest the problem of multicollinearity in the model. According to Howell, (2013) when two predictors are highly correlated one has little to add over and above the other and only serves to increase the instability of the regression equation.

The regression analysis result reveals that mobile financial services adoption is predicted by Perceived usefulness ($\beta= 0.318$, $p< 0.01$), Perceived cost ($\beta= -0.253$, $p<0.01$) and Social influence ($\beta= 0.35$, $p<0.01$). Perceived ease of use, perceived trust and perceived risk had no significant influence on the adoption of mobile financial services.

4.2 Result for hypothesis 1 (Perceived usefulness)

Hypothesis one tested the influence of perceived usefulness on the adoption of mobile financial services. The result of the regression analysis revealed that, perceived usefulness have a significant positive influence on the adoption of mobile financial services. From the analysis perceived usefulness has $\beta = 0.318$, $p < 0.01$ which indicates a significant positive influence on the adoption of mobile financial services. Moreover the result of the regression analysis for this hypothesis are supported the result of the correlation analysis which revealed a significant relationship between perceived usefulness and the adoption of mobile financial services with $r = 0.454$ at $p < 0.01$ significance level.

4.3 Results for hypothesis 2 (Perceived ease of use)

Hypothesis 2 proposed that perceived ease of use has a significant positive influence on the adoption of mobile financial services. This hypothesis was not supported by the result from the analysis which revealed that perceived ease of use no significant influence on the adoption of mobile financial services. Perceived ease of use has a $\beta = 0.062$, $p = 0.300$. The p-value is greater than 0.05 which indicates an insignificant influence on the adoption of mobile financial services at $p = 0.05$ significance level.

4.4 Result for hypothesis 3 (Perceived cost)

The result in table 4.3 revealed that perceived cost (PC) has a significant negative influence on the adoption of mobile financial services at the $p < 0.01$ significance level with $\beta = -0.253$. This hypothesis proposed a significant negative influence of perceived cost on adoption and was supported by the findings of the study at the 0.01 significance level. Moreover the result of the correlation analysis supports this finding by predicting significant negative relationship between perceived cost and mobile financial services with $r = -0.294$, $p = 0.01$.

4.5 Result for hypothesis 4 (Perceived trust)

The result in table 4.3 revealed that perceived trust (PT) has no significant influence on the adoption of mobile financial services at the 0.05 significance level. The result

shows that perceived cost has $\beta=0.061$ and $p\text{-value}= 0.32$ which is greater than the 0.05 significance level indicating an insignificant influence on the adoption of mobile financial services. Moreover the correlation analysis shows a small association or relationship between perceived trust and dependent variable (adoption).

4.6 Result hypothesis 5 (Perceived risk)

The result in table 4.3 revealed that, perceived risk has no significant influence on the adoption of mobile financial services. The result shows that perceived risk has a beta coefficient of $\beta=0.044$, $p=0.524$ which is not significant at the 0.05 significance level because the $p\text{-value}$ is greater than 0.05. The result of the correlation analysis also indicates a weak negative relationship between perceived risk and the adoption of mobile financial services ($r= -0.148$). Therefore basing on the result of the regression analysis this hypothesis was not supported.

4.7 Result hypothesis 5 (Social influence)

The result in table 4.3 shows that social influence has a significant influence on the adoption of mobile financial services. The result indicates that social influence has $\beta= 0.35$, $p<0.01$. The $p\text{-value}$ is less than the 0.05 significance level indicating a significant influence on the adoption of mobile financial services. Its correlation coefficient also shows that it has a strong relationship with the adoption of mobile financial services with $r=0.464$ and it explains about 21.52% of the variability in the adoption of mobile financial services. Social influence was found to be the most significant factor in influencing the adoption of mobile financial services.

Table 4.4 Summary of Result for hypothesis test

Hypothesis		Beta	sig	Remarks
H ₁	Perceived usefulness have a positive influence on the adoption of mobile financial services (PU).	0.318	0.000	Supported
H ₂	Perceived ease of use has a positive influence on the adoption of mobile financial services (PEU).	0.062	0.300	Not supported
H ₃	Perceived cost have a negative significant influence on the adoption of mobile financial service (PC).	- 0.253	0.000	Supported
H ₄	Perceived trust on mobile financial services have a positive influence on the adoption of mobile financial services (PT).	0.061	0.320	Not supported
H ₅	Perceived risk have a negative influence on the adoption of mobile financial services (PR).	0.044	0.524	Not supported
H ₆	Social influence has a positive influence on the adoption of mobile financial services (SI).	0.350	0.000	Supported

The two groups of respondents for this study were male (N=111) and female (N=95). The independent sample t-test was conducted as an additional analysis to investigate if there are significant statistical differences between male and female users of mobile financial services in explaining the adoption of mobile financial service. Table 4.8 and table 4.9 present the group statistics and result of the independent sample t-test respectively.

Table 4.8 Group Statistics

	Sex	N	Mean	Std. Deviation	Std. Error Mean
BI	Male	111	3.8310	.70922	.06921
	Female	95	3.9395	.79117	.08117
PU	Male	111	4.3214	.56086	.05473
	Female	95	4.3421	.66048	.06776
PEU	Male	111	3.1302	.98655	.09628
	Female	95	3.0561	.96346	.09885
PC	Male	111	3.2603	.95181	.09289
	Female	95	3.1649	1.09682	.11253
PT	Male	111	3.4000	.70165	.06847
	Female	95	3.3035	.78362	.08040
SI	Male	111	3.7500	.78676	.07678
	Female	95	3.8158	.91545	.09392
PR	Male	111	3.4686	.80375	.07844
	Female	95	3.4084	.93213	.09563

Source: Authors computation, 2014

Table 4.9 Independent Samples t-Test result

		Levene's Test for		t-test for Equality of Means						
		Equality of								
		Variances								
		F	Sig.	T	df	Sig. (2-	Mean	Std. Error	95% Confidence	
						tailed)	Difference	Difference	Interval of the	
									Lower	Upper
BI	Equal variances assumed	.105	.746	1.023	198	.308	-.10852	.10609	-.31774	.10069
	Equal variances not assumed			1.017	189.727	.310	-.10852	.10667	-.31894	.10190
PU	Equal variances assumed	1.797	.182	-.239	198	.811	-.02068	.08640	-.19106	.14971
	Equal variances not assumed			-.237	185.354	.813	-.02068	.08711	-.19253	.15117
PEU	Equal variances assumed	.171	.680	.536	198	.593	.07402	.13815	-.19842	.34646
	Equal variances not assumed			.536	196.834	.592	.07402	.13799	-.19810	.34614
PC	Equal variances assumed	3.886	.051	.658	198	.511	.09541	.14489	-.19031	.38112
	Equal variances not assumed			.654	187.188	.514	.09541	.14592	-.19244	.38326
PT	Equal variances assumed	2.342	.127	.919	198	.359	.09649	.10502	-.11061	.30360
	Equal variances not assumed			.914	189.642	.362	.09649	.10560	-.11182	.30480
SI	Equal variances assumed	1.539	.216	-.546	198	.585	-.06579	.12040	-.30322	.17164
	Equal variances not assumed			-.542	186.382	.588	-.06579	.12131	-.30511	.17353
PR	Equal variances assumed	1.931	.166	.490	198	.625	.06015	.12278	-.18197	.30227
	Equal variances not assumed			.486	186.660	.627	.06015	.12369	-.18385	.30415

Source: Authors computation (2014)

The t-test result for mobile financial service adoption is $t=-1.023$, $p=0.308$. The p value for this construct is greater than 0.05, this means that there is no statistical difference in the means of adoption in mobile financial service between male and female. The t-test comparing the means of male and female shows that there no statistical difference between the means of the two groups ($t=-0.239$, $p=0.811$). The p-value is greater than 0.05. Perceived usefulness means is 4.3214 and means for female is 4.3421.

The t-test result of this variable comparing the means for male and female is $t=0.536$, $p=0.593$. The p-value is greater than 0.05, this show that there is no statistical difference in the means of the two groups at a significance level of 0.05. The means for male is 3.1302 and for female the means is 3.0561. The t-test result of this construct revealed that there is no statistical difference in the means of perceived cost between male and female ($t=0.658$, $p=0.514$). The p-value is greater than 0.05. The means for male is 3.2603 and means for female is 3.1649. This means male and female perception about cost is the same. The obtained t-test result of perceived trust is $t=0.919$ and $p=0.359$. The p-value is greater than 0.05. This means that there no significant difference between the means at 5%. The means for male is 3.4 and the means for female is 3.3035. The obtained t-test result of social influence also reveals that there no significant difference is the means for male female perception about social influences in the adoption of mobile financial services at 95% significance level ($t=-0.546$, $p=0.585$). The means for male is 3.8158 and the means for female is 3.4686. The obtained t-test result for perceived risk is $t=0.490$ $p<0.625$. The p-value is greater than 0.05 which means that there is no significant difference in the means if females and male at 95% significance level. The means for male is 3.4686 and the means for female is 3.4084.

Perceived risk was also analysed on the basis of each facet in order to identify which aspect of risk was highly considered by the users of mobile financial services. The factors influencing perceived risk were categorized in five categories, perceived financial risk, perceived performance risk, perceived social risk, perceived time risk

and perceived security risk. Respondents were asked to rate which factors highly influenced their perception about risk.

The five point Likert scale was aggregated in order to get three scales of Agree, Neutral and Disagree. Respondents with the strongly agree and agree were combined together and those with strongly disagree and disagree was also combined together to get the category of those who disagreed with the risk category.

Table 4.10 Type of perceived risk and respondents' perception means and percentages

	N	Mean	Disagree%	Neutral%	Agree%
PFR	206	3.0750	38.0	19.5	42.5
PPR	206	3.9100	15	11.5	73.5
PSR	206	3.3900	27.5	16.5	56
PTR	206	3.5500	22.5	15.5	62
PSECR	206	3.2750	33	14	53

Notes: PFR; Perceived financial risk, PPR; Perceived performance risk, PSR; Perceived social risk, PTR; Perceived time risk, PSECR; Perceived security.

The result indicates that 73.5% supported perceived performance risk and 15% did not support perceived performance risk. This facet of perceives was the most supported facet of perceived risk than the facets. It was also revealed that 62 percent of respondents supported the perceived time risk as factor contributing to total perceived risk and 22.5 percent did not support or disagreed with perceived time risk. The result also shown that 56 percent of respondents agreed on perceived social risk of using mobile financial services and 27.5 percent disagreed. Perceived security risk of using mobile financial services has 53 percent agreement and 33% disagreement. Perceived financial risk was the least supported facet of perceived risk with only 42.5 percent and 38 percent disagreement.

CHAPTER FIVE

DISCUSSION OF RESEARCH FINDINGS

5.1 Introduction

In the first part of this report (chapter one) the main objective of this was explained. The main objective of this study is to assess the factors influencing the adoption of mobile financial services by the unbanked population. Moreover this research assessed if there is significant difference in the adoption behaviour for mobile financial services between male and female. The research also assessed the main facets of perceived risk among the unbanked population by looking the respondents' agreement or disagreement with different aspects of perceived risk.

The literature review was used to develop hypotheses which were tested to investigate the factors which have a significant influence on mobile financial service adoption. The study has six research hypotheses which were developed on the basis of literature reviewed. These hypotheses were explored by using multiple regression analysis as specified in chapter three on research methodology.

Instruments used in this study were tested for their reliability and validity. The result of reliability test for the main constructs items was good and was established by using the Cronbach's Alpha (Result table 3.1). The construct validity of the items was established by using confirmatory factor analysis (CFA). We checked for the construct validity of the items in order to satisfy ourselves if the items were truly measuring the latent variables used in the study. The result shown that the items measured well the main constructs used in the study and factor loadings of the items were within the acceptable range of +0.3 and above (results in table 3.2). Therefore basing on the result of the reliability test and validity test we concluded that the items measured well the variables or constructs used in this study which investigated factors influencing the adoption of mobile financial services.

Therefore this part will cover the discussion of the result and the evaluation of the research hypotheses presented. Basing on the results of the study three hypotheses was supported and the other three were not supported.

5.2 Perceived usefulness

The result from the regression analysis (table 4.6) revealed that perceived usefulness have a significant influence on the adoption of mobile financial service at $p < 0.01$ significance level with $\beta = 0.318$. This findings supports the hypothesis proposed for this construct that perceived usefulness have a significant positive influence on the adoption of mobile financial services. The p-value is less than 0.05 which means that a null hypothesis that perceived usefulness has no significant influence can be rejected. Furthermore the correlation squared (r^2) for perceived usefulness alone indicates that 20% of the variability in the adoption of mobile financial service is explained by perceived usefulness indicating that it has a good predictive power to explain the variation in the adoption of mobile financial services.

The result are consistent with the theoretical perspective of technology acceptance model (TAM) proposed by Davis (1989) that perceived usefulness and ease of use are the prime factors which influences the adoption of new technology. This result supports the finding of other researches like Chitungo and Munongo, (2013) in Zimbabwe, Lule, (2008) in Kenya, Marumbwa and Mutsikiwa, (2013) in Zimbabwe and Dahlberg, Mallat, and Öörni, (2004). These studies found that perceived usefulness significant in predicting user adoption behaviour and it was tested with additional variables to the original technology acceptance model of Davis (1989). According to Davis, (1989, p. 320) perceived usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance. Davis (1989) posit that first people tend to use or not use an application to the extend they believe it will help them perform their job better and second if they believe that the system is useful they will used it. Therefore people do test the service and when they realise it to be useful they will start using the service.

This implies that if customers perceive mobile financial service to be useful they will adopt and use them. This findings also suggests that people adopts mobile financial services when they meet their needs. Therefore in this study the hypothesis that mobile perceived usefulness of mobile financial services has a significant influence on mobile financial services was supported.

To obtain the gender perspective on the adoption of mobile financial services we conducted a t- test to investigate if there are differences in the influence of the independent variable (PU) on the adoption of mobile financial services. The result obtained shows that there no significant difference in the influence of perceived usefulness on the adoption of mobile financial service between male and female ($t=-0.239$, $p=0.811$). The means for male is 4.3214 and the means for female is 4.3421. The means for the sample have a small difference which implies that the influence of perceived usefulness on adoption is not different between female and male.

This result is consistent with the finding of GMSA-m Women, (2013) who found that both male and female were nearly at the same level of understanding the usefulness of mobile financial services in the customer journey of adoption. Their findings indicated that for Tanzania 13% of male and 12% of female were all at the level of understanding the usefulness of mobile financial services. Moreover the finding also supports Hamza and Shah, (2014) who found no significant difference in the influence of perceived usefulness on the behaviour of male and female to adopt mobile financial services. This finding implies that the advantages and benefits of using mobile financial service are equal between male and female.

5.3 Perceived ease of use and mobile financial service adoption

The hypothesis proposed for this construct was that perceived ease of use has a significant positive influence on the adoption of mobile financial services. Perceived ease of use as explained by Davis (1989) is a degree to which a person believes that using a particular system will be free of effort (Davis, 1989, p. 320). From a theoretical and empirical perspective it has a positive influence on the adoption of mobile financial services.

The result for this hypothesis revealed that perceived ease of use has no significant influence on the adoption of mobile financial services with $\beta=0.062$, $p=0.30$. The p-value is greater than 0.05 which means that the hypothesis of a significant influence on the adoption of mobile financial services is rejected. Its correlation squared (r^2) also shows that only 0.086 of the variability in the adoption of mobile financial services is attributable to perceived ease of use of mobile financial services. This

suggests that perceived ease of use has a low predictive power in explaining user adoption of mobile financial services. The findings are consistent with the findings of Yan et al, (2009) in Malaysia and Sayid, Echchabi, and Aziz, (2012) in Somalia where they found that perceived ease of use has no significant influence of the adoption of mobile payment.

The result is not consistent with the theoretical perspective of technology acceptance model which identifies usefulness and ease of use as instrumental factors which influence the adoption of a new technology. The results for this hypothesis are also inconsistent or contrary with the empirical findings of other studies that have been reviewed. Many studies indicates that perceived ease of use has a significant positive influence on the adoption of mobile financial services (Marumbwa and Mutsikiwa, 2013; Masinge, 2010; Tobbin and Kuwornu, 2011; Chitungo and Munongo, 2013). All these studies on mobile financial services indicated that perceived ease of use has a significant influence on the adoption of mobile financial services.

This result may be due to the fact that mobile phone technologies and mobile financial services in Tanzania are still at its infant stages. The study GMSA-mWomen, (2013) identified that people realises ease of use of mobile financial service as they progress on the mobile financial adoption journey by gaining more understanding of the service. Furthermore the study by GMSA found that most people were in their earlier stages in the adoption journey. This may have caused peoples' comprehension on the processes of accessing and use of these services difficult to them. Masinge, (2010) identified that mobile phone, screen size and type of keypad can be considered to be contributing factors to ease of use. It may also be caused by insufficient understanding of the services and consumers experience. In these aspects the conclusion on the ease of use of services may not be appreciated by customers or users. The hypothesis for this construct was not supported.

Moreover the obtained result of a t-test for the difference in the influence of perceived ease of use on adoption between male and female revealed that there is no significant difference in the influence of PEU on adoption between male and female ($t=0.536$, $p=0.593$). The means for male is 3.1302 and the means for female is

3.0561. The means for male is relatively large than that of female but the difference it is not statistically significant. This implies that the influence of perceived ease of use on adoption is similar between genders and their perception about ease of use of mobile financial services is the same. This finding is contrary with the finding of Hamza and Shah, (2014) who found a significant difference in the influence of perceived ease of use on the adoption of mobile financial services.

5.4 Perceived cost and mobile financial service adoption

For this construct the research findings revealed that perceived risk was found to have a significant negative influence on the adoption of mobile financial services at $P < 0.01$ significance level with $\beta = -0.253$. The p-value less than 0.01 means that the hypothesis is supported by the findings of this study at $P = 0.01$ significance level. This finding implies that people's intention to adopt and use mobile financial service is negatively affected by the cost of access. Basing on the correlation analysis result its r^2 is 8.6% indicating that 8.6% of the variation in the adoption of mobile financial services is attributed to perceived cost. This finding indicates that high cost of mobile financial services is a barrier to mobile financial service adoption in the unbanked population.

The result support the findings of other studies which found that perceived cost to have a significant negative influence on the adoption of mobile financial services (Tobbin and Kuwornu, 2011; Marumbwa and Mutsikiwa, 2013; Dahlberg, Mallat, and Öörni, 2004; Dass and Pal, 2011). The study conducted by Cheong, Park, and Hwang, (2004) in Korea on mobile payment adoption, cost was classified into three category as sunk cost, continuous cost and move in cost they found that move in cost was significant but continuous cost and sunk cost were not significant. Furthermore Li, Liu, and Ji, (2014) taking use cost as a facet of perceived behavioural control found use cost to have a significant influence of the adoption of mobile payment system with a $\beta = -0.465$, $p < 0.01$ which is consistent with the finding of this study. This implies that people considered the entry cost than continuous cost and sunk cost.

However this finding is contrary to the findings of the study conducted by Micheni, Lule, and Muke, (2013) in Kenya on transaction cost and facilitating condition as indicators of mobile financial service adoption. The study found transaction cost to be insignificant in explain the adoption of mobile financial service. Also the study result on perceived cost do not support the conclusion reached by Jeong and Yoon, (2013) who found that perceived financial cost to have no significant influence on the adoption of mobile financial service. Jeong and Yoon, (2013) conclusion may have been caused by the fact that his sample included those users and non users of the service. This is because when the influence of perceived financial cost was investigated separately it was found that perceived cost for the group of users was significant but for non users it was not significant. This may have caused the overall perceived financial cost to be insignificant.

The finding of this study suggests that increasing the cost of mobile financial services can be a barrier to mobile financial service adoption. Most people with low incomes are price sensitive and their demands for services are negatively affected by the rise in the cost.

Moreover the t-test result for the difference in the influence of perceived cost on adoption between male and female revealed that there is no significant difference in the influence of PC on adoption of mobile financial services ($t=0.658$, $p=0.514$). The means for male (3.2603) is relatively high than that of female (3.1649) but the difference it is not statistically significant at 0.05. This implies that male and females are similarly influenced by perceived cost on the adoption of mobile financial services and their perception about the cost of mobile financial services are similar. The result is contrary with the findings of Yu, (2012) who found that men were more concerned with perceived financial cost than female to adopt mobile banking.

5.5 Perceived Trust and mobile financial services adoption

The hypothesis for this construct suggested that perceived trust have a significant influence on mobile financial service adoption. The result of the regression analysis revealed that perceived trust has no significant influence on the adoption of mobile financial services ($\beta=0.061$, $p=0.320$). However the correlation between perceived

trust and adoption was significant at $p=0.01$ with $r=0.253$. This correlation suggests that perceived trust have little influence on the adoption as predicted by $\beta=0.061$. The significance of the correlation was not supported by the result of the multiple regression analysis. According to Howell, (2013) the beta coefficient of the multiple regression equation (β) is not equal with correlation coefficient (r) as it is with the case of β of the simple regression equation which can be equal with r . The correlation coefficient may be significant but the beta coefficient of the multiple regression equation may be insignificant because multiple regression equation captures the partial effects caused by the correlation between the independent variables in the model. Furthermore perceived trust shows a negative correlation with perceived risk ($r= -0.236$, $p=0.01$) and a positive correlation with perceived with social influence ($r=0.276$, $p=0.01$) which may suggest that perceived risk is an impediment to users trust and social influence to be a factor that enhances users trust on mobile financial services.

The result of this study on this construct is consistent with the findings of Dass and Pal, (2011) who found trust not significant with very low coefficient ($\beta=0.04$) in India and the findings of Tobbin and Kuwornu, (2011) in Ghana ($\beta=0.19$). Tobbin and Kuwornu, (2011) expected trust to have high coefficient for perceived trust because most of the respondents in their study used some form of money transfer regularly with most of it being through banks or friends and family. Moreover Wiedemann, (2009) in German testing the hypothesis by using multiple regression analysis found that perceived trust have no significant influence on the adoption mobile payment system. Wiedemann, (2009) findings were supported by the study conducted in German and USA by Wiegard, Guhr, Loi, and Breitner, (2012) who argued that trust's weakness in predicting mobile payments adoption was because of the fact that m-payment is not very well known in German.

The results is not consistent with the findings of Li, Liu, and Ji, (2014) who found trust to have a significant influence of the adoption intention of mobile payment system ($\beta=0.59$ $p<0.01$). Moreover, studies by Chitungo and Munongo, (2013) and Marumbwa and Mutsikiwa, (2013) found perceived trust to have a significant influence on the adoption of mobile financial services. Marumbwa and Mutsikiwa,

(2013) found perceived trust to have a significant negative influence which is not consistent with the theoretical expectation and other empirical evidence that trust have a positive influence.

A further analysis of the difference between male and revealed that there is no significant difference in the influence of trust on adoption of mobile financial services ($t=0.919$, $p=0.359$). The p-value is greater than 0.05 which means that there is no significant difference in the influence of perceived trust on the adoption of mobile financial service at 95% significance level. The means for male is 3.4 and the means for female is 3.3035, but the difference is not statistically difference from zero at the 0.05 significance level. This indicates that males trust on mobile financial services is the same as that of female. Moreover the results suggest that mobile financial services are equally credible to both male and female.

5.6 Perceived risk and mobile financial service adoption

The hypothesis for this construct suggested that, perceived risk have a significant negative influence on the adoption of mobile financial services. The hypothesis is based on literature that uncertainty about the outcome of mobile technology can be an impediment to individual's adoption intention. The result of this research revealed that that perceived risk have no significant influence on the adoption of mobile financial services. The beta coefficient of perceived risk on adoption of mobile financial services was $\beta=0.044$, $p=0.524$ which is not significant to predict the adoption of mobile financial services. The correlation coefficient of perceived risk was significant at the $p=0.035$ with $r= -0.148$ which suggests a negative relationship between perceived risk and adoption of mobile financial services. Although, the correlation coefficient was significant, the correlation squared (r^2) suggests that the variability in mobile financial service adoption which is explained by or which can be attributed to perceived risk is very small ($r^2=2.19\%$). This means that it do not have a significant influence which can explain the variation in the adoption of mobile financial services.

This result is consistent or supports the findings Tobbin and Kuwornu, (2011) who conducted their study in Ghana where they found that perceived risk have no significant influence on the adoption of mobile financial service ($\beta=-0.02$, $p=0.69$). The findings of this study is not consistent with the findings of other studies which found a significant influence on the adoption of mobile financial services (Marumbwa and Mutsikiwa, 2013; Dass and Pal, 2011; Dass and Pal, 2011b; Dahlberg, Mallat, and Öörni, 2004).

Despite the susceptibility of mobile payment is risk it was surprising that our findings revealed that it has an insignificant influence on the adoption of mobile financial risk. It may be so because mobile financial service in Tanzania is still at its infant stage and the incidence of risk that has been reported may be few resulting in the low concern for risk in most of the users of mobile financial services. Efficient regulation by the Bank of Tanzania (BoT) and Tanzania Communication Regulatory Authority (TCRA) that has been acknowledged by many players in the mobile payment industry may be the factor for users trust in mobile financial services (Komba, 2013; BoT, 2010).

Further analysis was conducted to understand users' perception about each facet of perceived risk. Lee, (2009) in his study on the factors influencing the adoption banking identified five facets which are perceived performance risk, perceived time risk, perceived financial risk, perceived social risk and perceived security. This attempts to assess users' perception about these facets in the context of mobile financial services in the unbanked areas.

Performance risk according to Lee, (2009) is risk which may arise due to the errors or malfunction of the systems used in the delivery of mobile financial services. They include network problems and servers breakdowns which may result in losses and inconveniences to users of services. Lee (2009) posits that high frequency of problems associated with performance may cause users to disregard the usefulness of the service. In this study it was found that perceived performance risk has the highest user agreement than the other facets of risk.

The result in table 4.10 shows that 73.5 percent of our respondents agreed that there are risks associated with the performance of mobile financial services. 15 percent of respondents disagreed and 11.5 were neutral to regard performance to be a cause of perceived risk of mobile financial services. The means for performance risk was 3.91. This suggests that many users' faces problems with the performance of mobile financial service delivery systems.

According to Lee (2009) time risk refers to the loss of time and inconveniences which may arise due to delays of receiving money and delivery of money to other parties. Furthermore he maintains that to time conscious users time is an important consideration.

The result in table 4.10 indicates that agreement on perceived risk as a factor contributing to total perceived risk is 62 percent. Furthermore the result indicates that 22.5 percent did not agree time risk to be a factor contributing to total perceived risk influencing the adoption of mobile financial services. 15.5 percent were neutral if perceived time risk contributes to total perceived risk. The means of their responses on the Likert scale ranging from strongly disagree to strongly agree was 3.55. This also implies that mobile financial services have problems associated with delays in the delivery time.

Financial risk refers to the potential for monetary loss due to transaction errors or account misuse. The findings for this study revealed that many people did not consider it a source of risk. Compared with performance risk (73.5%) and time risk (62%) the level of agreement for financial risk is small. This result is consistent with the findings of Horne and Nickerson, (2013) who found that 37.6% did not support mobile payment to be safe than cash.

The result for this analysis revealed that 42.5 percent of all respondents of the study agreed financial risk as a factor which influenced perceived risk. 38 percent disagreed if financial risk is a risk of mobile financial services. 19.5 percent were neutral. This suggest that events of financial losses among the respondents of the study are few and users did not support is to the contributor of perceived risk.

The result in table 4.10 shows that 56 percent of the respondent for this study agreed social risk as a factor contributing to total perceived risk. 27.5 percent were in the position that it was not a significant factor to them and they disagreed. 16.5 percent were neutral about this category of risk. The means for perceived social risk was 3.39.

Result for this facet of perceived risk indicated that 53% percent of the respondents agreed that security or privacy risk was also a factor contributing to total perceived risk. Result s also indicates that 33 percent of the respondents did not agree if security or privacy risk is a concern mobile financial service adoption. This suggests some users have some security concerns about the use of mobile financial services.

5.7 Social influence and mobile financial service adoption

The hypothesis for this construct stated that social influence have a significant positive influence on the adoption of mobile financial services. The construct has been used in other studies with the same meaning as subjective norms, normative pressure and image (Venkatesh and Davis, 2000). Dass and Pal, (2011) uses subjective norms and social influence as one construct with the same meaning.

The result of this study revealed that social influence has a significant influence on the adoption of mobile financial service with $\beta=0.35$, $p<0.01$. The p-value is less than the 0.01 level of significance which means that social influence is significant in predicting. In this study social influence was found to be the most significant factor influencing mobile financial service. Its correlation coefficient also shows that it is strongly correlated with mobile financial service adoption with the $r= 0.464$, $p<0.01$. The correlation squared (r^2) indicates that social influence explains about 21.52% of the change in the variance of the adoption of mobile financial services. In the other way the r^2 means that the variability in the adoption of mobile financial services is directly predictable from the variability in social influence by 21.52%.

The findings of this study corroborates with the findings of Dass and Pal, (2011) who in their analysis of factors which were either strong determinant, potential determinant, weak determinant or insignificant determinant found that social

influence was in the category of strong determinant of mobile payment adoption. As revealed this study that social influence is the is the most powerful factor in affecting mobile payment adoption it was also found by Yu, (2012) to be the prime predictor of mobile financial service adoption. Sayid, Echchabi, and Aziz, (2012) in their study in Somalia using five construct to study mobile money adoption found that social influence has a significant positive influence on the adoption of mobile money services. Moreover Ya et al, (2009) found peer influence to be the most significant factor influencing the adoption of mobile payment. In their study, Ya et al, (2009) found that peer pressure was significant than perceived usefulness and perceived ease of use where both in many studies were found to be significant. The result of this study also supports the findings of Mbele-Sibotshiwe, (2013). Social influence findings also support the results of Bhatti, (2007), Li, Liu, and Ji, (2014) and Hamza and Shah, (2014) who used the construct as subjective norms.

The results for this study reveal that social influence is the strongest predictor of mobile financial service adoption. The variable has a $\beta = 0.35$, $p < 0.01$ which is large than all coefficient of other variable in the study. This is consistent with the findings from other studies where social influence has been found to be the prime factor influencing the adoption of mobile financial services. This result suggests that social networks among users forces people to make decision which a consistent with those social groups. Moreover, the finding indicates that the products offered by mobile financial service providers meet the needs of diverse groups in the society which may prompt them to influence one another.

The result obtained of the t-test of difference of social influence between male and female on the adoption of mobile financial services is ($t = -0.546$, $p = 0.585$). The p-value for the test is greater than 0.05, this shows that there is no significant different in the influence of perceived social influence on the adoption of mobile financial services. Though the means for male (3.8158) is greater than that of female (3.4686) the difference in the means of male and female is not significant. This implies that the influence of social influence is the same for male and female.

This result is consistent with the findings of GMSA-mWomen, (2013) that increased effort on female can improve male adoption as well because products that appeal to women's wants and needs are were resonate with both women and men. Moreover Yu, (2012) found that gender has no significant moderating effect on social influence on the adoption of mobile financial services.

This result is contrary with the finding of Hamza and Shah, (2014) who found a significant difference among gender in social norm or social influence. The result revealed that females were more influenced by social influence in adopting mobile payment system than male counterpart. Indicating that, the influence of social influence is more among women than among their men counterpart.

In this study out of the six constructs used in this study three construct were found to be significant predictor of mobile financial services (PU ($\beta = 0.318$, $p < 0.01$), PC($\beta = -0.253$, $p < 0.01$) and SI ($\beta = 0.35$, $p < 0.01$)). The other three variables were found to be insignificant in explaining the adoption of mobile financial services (PEU, PT and PR).

Following the idea of (Hamza & Shah, 2014) we made a further analysis to investigate if there is a difference in the general adoption intention of mobile financial services. The t-test result in table 4.9 for the difference in the means of male and female users of mobile financial services reveals that there is no significant statistical difference in the adoption of mobile financial services ($t = 0.536$, $p = 0.593$). This implies that male and female have the same attitude or perception towards the adoption of mobile financial services or the degree of adoption is similar among gender. The result also suggests that male and female have similar requirement or needs which can be fulfilled by mobile financial services.

This result is consistent with the findings of Hamza and Shah, (2014) who found no significant difference in the general adoption of mobile financial services in Nigeria between male and female. This result is also supports the finding of Li, Liu, and Ji, (2014) who found no significant difference between male and female in the use of

mobile payment services. Jack and Suri, (2011) also found that the mobile financial service usage is similar between gender in Kenya.

Furthermore the GSM Association report of survey conducted in Kenya, Tanzania, Pakistan, Indonesia and Papua New Guinea indicates that both female and male have similar adoption attitude, barriers and opportunities towards mobile financial service (GMSA-mWomen, 2013). According to GMSA-mWomen (2013) “women’s adoption tends to mirror that of men in each country and women are as likely as men to adopt mobile financial services once they are aware, understands and try them”.

CHAPTER SIX

SUMMARY, CONCLUSION AND POLICY IMPLICATION

6.1 Introduction

This chapter presents the summary of the findings of this study. The chapter also provides policy implication, suggestion for further research and the conclusion.

6.2 Research objective and the research Model

The main objective of this study was to investigate factors which influence the adoption of mobile financial services in the unbanked population. From literature review the research model was developed and used to investigate the factors which affect the adoption of mobile financial services. The Technology acceptance model was used as a basis of our research model development. The research model has six independent variables and one dependent variable which were perceived usefulness of mobile financial services, perceived ease of use of mobile financial services, Social influence/ subjective norms, perceived financial cost, perceived trust, and perceived risk of mobile financial services.

6.3 Summary of research findings

The findings from the study revealed that perceived usefulness has a significant positive influence on the adoption of mobile financial services in the unbanked. The result is consistent with many findings which from the literature that was reviewed. Studies conducted by using TAM as a basis most them found it to be significant in predicting adoption behaviour. Social influence was the strongest factor in explaining the adoption of mobile financial services which is consistent with many studies which included social influence (Sayid, Echchabi and Aziz, 2012; Yan, Md-Nor, Abu-Shenab and Sutanonpaiboon, 2009; Dass and Pal, 2011). The hypothesis for this construct was accepted at $p < 0.01$.

Perceived ease of use (PEU) was found to have no significant influence of the influence of mobile financial service. The finding for this study was contrary to some the findings of other studies. The construct have been widely studies with together

with perceived usefulness in the original TAM model and has been significant in predicting user adoption behaviour. The hypothesis for this construct was rejected.

The result revealed that perceived cost was significant in predicting the adoption of mobile financial services. The construct was found to have a significant negative influence on the adoption of mobile service. This result suggests that high cost can be barrier to adoption of mobile financial services and reducing the cost may support the adoption of the service.

The result revealed that social influence have a significant positive influence on the on the adoption. It was observed that social influence was the most important factor in predicting the adoption of mobile financial services in the unbanked. The result reflects the result of other studies which has included social influence and found it to be the most important factor in explain the adoption of mobile financial service (Yu, 2012; Sayid, Echchabi, and Aziz, 2012; Yan, et al 2009). The hypothesis was accepted at $p < 0.01$ significance level.

The result from the analysis revealed that perceived risk and perceived have an insignificant influence on the adoption of mobile financial services. The Pearson correlation coefficient shows a negative correlation between the two constructs which suggest that perceived risk may be a barrier to customer trust development.

Furthermore the independent t-test was conducted to investigate of there is a difference in the adoption of mobile financial services and if the differences in the influences of various factors affecting the adoption of mobile financial services. The result revealed that there are no significant difference in the adoption of mobile financial services between male and female. It was further revealed that there was also no significant difference in the influences of the predictors of mobile financial services between male and female.

The analysis of the facets of perceived risk it was revealed that performance risk have the highest level of respondents agreement (73.5%) indication a significant influence on total perceived risk. This implies that many users faced problems with the performance of mobile financial services. It was followed by perceived time risk

with 62%, perceived social risk 56%, perceived security risk 53% and perceived financial risk has the lowest level of respondent who agreed if it was a source of risk.

6.4 Conclusion

The study revealed that the adoption of mobile financial service in the unbanked is influenced by social influence, perceived usefulness and perceived cost. Social influence was a prime predictor of mobile financial services with $\beta=0.35$, $p<0.01$ followed by perceived usefulness with $\beta=0.318$, $p<0.01$. The findings on social influence from the study suggest that a social pressure plays a significant role in promoting mobile financial services adoption. Perceived cost was found to have a negative influence on financial service adoption with $\beta= -0.253$, $p<0.01$. This suggests that high cost on mobile financial services can discourage the adoption and use of these services. The study reveals that customers will accept mobile financial services which are useful, affordable in terms and products which are compatible with their social norms. The study also revealed that perceived ease of use, perceived trust and perceived risk to have no significant influence on the adoption the adoption of mobile financial services. This study contributes to the literature on the adoption of mobile financial services based on technology acceptance. Though perceived ease of use was found to be insignificant in predicting use behaviour it is still important for mobile financial service provider to offer services which are ease to access and use by the customers in the unbanked. Also the negative relationship between perceived risk and trust suggests that financial service providers have to address issues associated with risk in order to increase customers trust to increase the rate of mobile financial service adoption.

6.5 Practical Implications and recommendations

The findings of this study have both business and policy implication.

The business implication of these findings is related with product development, pricing, and marketing. The result indicates that perceived usefulness have a significant influence on the adoption which means that customers will adopt easily services which they perceive to be useful to their use. Providers of mobile financial services have to design useful products and educate users on the usefulness of

financial services as they progress in the customer journey of adoption. According to the Tanzania National Council for Financial Inclusion Framework, (2014) most financial products do not meet the needs of users and most financial service providers are offering generic products which are generic in nature. These generic products do not meet some of the user specific needs.

Perceived cost was found to have a significant negative influence on the adoption of mobile financial services this implies that increasing the access cost will reduce the rate and the speed of adoption. According to Micheni, Lule, and Muke, (2013) the cost benefit pattern is significant to both perceived usefulness and ease of use. This implies that high cost of access to these services affect users perception on the usefulness and ease of use. Therefore to businesses designing products that are affordable can increase the adoption rate and use of the services. Moreover financial service providers should consider cutting down the price of financial services to provide motivation for more users to adopt the service.

The strong influence of social influence on mobile financial service adoption shows the impact of social network in the society. The implication for this is that mobile financial services products should be designed from consumers' point of view or with customer focus. Financial services providers have to design products and marketing strategies which focus on connecting users and their shared values which they believe make them part of society. Furthermore the result found there no difference in adoption between male and female this implies that products that meets the needs of male can also meet the needs of female.

Moreover mobile financial service providers should address all issues associated the performance of mobile payment systems. Many respondents indicated concern about performance risk in the provision of mobile financial services. This implies that there are many aspects of mobile financial services which cause problems in using the MFS. Perceived risk may have negative impact on users trust on the integrity on mobile financial services systems. The technical aspect of mobile financial services must be considered carefully before the implementation and after the implementation in order to minimize the possibility of risk which may cause losses to users.

Financial inclusion policies emphasises the access of financial service at an affordable price, convenience and for all users. The result provides insights of how mobile financial services can be priced, designed and be delivered to the unbanked population. Tanzania National Council for Financial Inclusion Framework, (2014) identifies proximity, payment infrastructure, store of value infrastructure and information availability as core enablers of financial inclusion. The result on the perceived cost implies that these infrastructures should be support the provision of financial services at an affordable price and services which are useful.

6.6 Limitation of the study and Recommendations for further studies

This study was conducted in Chamwino district to represent the case of the unbanked population. The result may be limited for generalisation to other population because the demographics of people in different areas differ. The sample, responses and result of the study confined in one area may not be a representation of the beliefs and adoption patterns of all people in the unbanked areas. These may serve as a pilot study for understanding the adoption of mobile financial services in the unbanked. It's therefore recommended that further research to be conducted which will increase the sample size in different geographical location representing the unbanked population which may increase the external validity of the study.

This study also used a convenience sampling approach in order to get many respondents within the time frame and economically. According to Zikmund and Babin, (2010) respondents selected on convenience basis may not be representative because of the haphazard manner by which many of them are selected or because of self selection bias. Because of biasness and haphazard selection of result projecting result beyond the specific sample may be inappropriate. To minimize to effect of the sampling approach the researcher collected data from different wards and divisions of the district.

Mobile financial services are still in the initial stages of their development and customer understanding about these services is changing. Using a cross sectional type of a study may give results which will not be applicable in the future because customers' perception changes as they progress in the adoption journey. Therefore a

longitudinal research is recommended to be conducted in order to understand the influences of the adoption behaviour at different level of market maturity and points of time.

REFERENCES

- Aboelmaged, M. G., & Gebba, T. R. (2013). Mobile Banking Adoption: An Examination of Technology Acceptance Model and Theory of Planned Behavior. *International Journal of Business Research and Development* , 35-50.
- ACCION. (2012). *Financial Inclusion: What's the Vision?* Retrieved 09 09, 2013, from Center for Financial Inclusion:
www.centerforfinancialinclusion.org/publications-a-resources
- Aduda, J., & Kalunda, E. (2012). Financial Inclusion and Financial Sector Stability With Reference To Kenya: A Review of Literature. *Journal of Applied Finance & Banking* , 97-119.
- AFI (Alliance for Financial Inclusion). (2013). *A Quick Guide to the Maya declaration on financial inclusion*. Bangkok: Alliance for Financial Inclusion.
- AFI. (2012) (a). *Financial Inclusion Glossary*. Retrieved 10 8, 2013, from Alliance for financial inclusion: www.centerforfinancialinclusion.org/glossary.
- AFI. (2010). *Financial inclusion measurement for regulators: Survey design and implementation*. Bangkok: Alliance for Financial inclusion, Author.
- AFI. (2012) (b). *Mobile Financial Services: Regulatory Reporting*. Bangkok, Thailand: Alliance for Financial Inclusion (AFI) Mobile Financial Services Working Group (MFSWG).
- AFI. (2012) (c). Scaling up financial services through mobile technology. *The African Financial Inclusion Policy Forum*. Zanzibar: Allince for Financial Inclusion.

- Alexandre C and Eisenhart L. (2013). Mobile Money as an Engine of Financial Inclusion and Lynchpin of Financial Integrity. *Washington Journal of Law, Technology & Arts* , 8 (3), 285-302.
- Alonso J, Fernández de Lis S, Hoyo C, Carlos López-Moctezuma and Tuesta D. (2013, June). Mobile banking in Mexico as a mechanism for financial inclusion: recent developments and a closer look into the potential markets. *Working Papers; Number 13/20* . Mexico City, Mexico: BBVA Research.
- Alroaia Y V, Hemati M and Shahabi A. (2011). Modeling of Technology Acceptance Model Based on System Dynamics Approach. *JM International Journal of IT* , 1 (1), 1-11.
- Amin, H., Baba, R., & Mohammed, M. Z. (2007). An Analysis of Mobile Banking Acceptance by Malaysian Customers. *Sunway Academic Journal* , 1-12.
- Ardic O, Heimann M, Mylenko N. (2011). *Access to Financial Services and the financial inclusion agenda around the world: A Cross-Country Analysis with a New Data Set*. Washington DC: The World Bank Financial and Private Sector Development Consultative Group to Assist the Poor; Policy Research Working Paper 5537.
- Bångens, D. L., & Söderberg, B. (2008). *Mobile Banking- Financial Service for the Unbanked*. Stockholm: The Swedish Program for ICT in Developing Regions, SPIDER.
- Bernard, H. R. (2006). *Research Methods in Anthropology: Qualitative and Quantitative Approaches 4th Edition* . Lanham: Rowman and Littlefield Publishers, Inc.
- Bhatti, T. (2007). Exploring Factors Influencing the Adoption of Mobile Commerce. *Journal of Internet Banking and Commerce* , Vol 12 (No 3), 1-13.
- Bordens, K. S., & Abbott, B. B. (2011). *Research Design and Methods: A Process Approach* (8th Edition ed.). New York, USA: McGraw-Hill,.

- BoT. (2010, 9). *Network Learning in Action: Insights from the AFI Knowledge Exchange Programs, The Experience of the Bank of Tanzania*. Retrieved 9 23, 2013, from Alliance for Financial Inclusion: http://www.afi-global.org/sites/default/files/publications/2%20botz%20kx%20philippines_0.pdf
- Boyd, C. and Jacob, K. (2007). *Mobile financial service and the underbanked*. Chicago: The center for Financial innovation.
- Brooking. (2011). *Mobile Financial Services and Financial Inclusion*. Washington DC: Brookings: Africa Growth Initiative.
- Brown, T. A. (2006). *Confirmatory Factor Analysis for Applied Research*. (D. A. Kenny, Ed.) New York, USA: The Guilford Press (A Division of Guilford Publications, Inc).
- Chemonics International Inc. (2010, April). Enabling Mobile money interventions, Primer, Diagnostic Checklist and Model scope of work. *FS series #9*. Washington DC: United States Agency for International Development (USAID).
- Cheney, J. S. (2008). *An Examination of Mobile Banking and Mobile Payments: Building Adoption as Experience Goods?* Philadelphia: Payment Cards Center; Federal Reserve Bank of Philadelphia.
- Cheong, J. H., Park, M.-C., & Hwang, J. H. (2004). *Mobile Payment Adoption in Korea: Switching from Credit*. Retrieved May 16, 2014, from Die Zentraleinrichtung für Datenverarbeitung (ZEDAT): userpage.fu-berlin.de/~jmueller/its/conf/berlin04/.../Hwang_paper.pdf
- Child and Youth Financial International (CYFI) . (2012, April). *Children & Youth as Economic Citizens: Review of Research on Financial Capability, Financial*

- Inclusion, and Financial Education*. Retrieved October 2, 2013, from Child and Youth Finance International:
childfinanceinternational.org/index.php?option=com...task...
- Chitungo, S. K., & Munongo, S. (2013). Extending the Technology Acceptance Model to Mobile Banking Adoption in Rural Zimbabwe. *Journal of Business Administration and Education* , 3 (1), 51-79.
- Claessens, S. (2005). *Access to Financial Services: A Review of the Issues and Public Policy Objectives*. World Bank Policy Research Working Paper 3589.
- Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (3rd ed.). New Delhi, India: SAGE Publication Inc.
- Cull, R., Demirgüç-Kunt, A., & Lyman, T. (2012, May). *Financial Inclusion and Stability: What Does Research Show?* Retrieved 9 20, 2013, from CGAP: cgap@worldbank.org/financialinclusionstability
- Dahlberg, T., Mallat, N., & Öörni, A. (2004). *Trust Enhanced Technology Acceptance Model Consumer Acceptance of Mobile Payment Solution*. Retrieved October 19, 2013, from Cite seer: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.200.7189&rep=rep1&type=pdf>
- Dass, R., & Pal, S. (2011, January). A Meta Analysis on Adoption of Mobile Financial Services. *Working Paper Series No 2011-01-05* . Ahmedabad, India: Indian Institute of Management (IIMA).
- Dass, R., & Pal, S. (2011). *Exploring The Factors Affecting the Adoption of Mobile Financial Services Among the Rural Under-Banked*. Ahmedabad: Indian Institute of Management Ahmedabad.
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *Management Information Systems Research Center* , 13 (3), 319-340.

- Dawson, D. C. (2007). *A Practical Guide to Research Methods* (3 ed.). Oxford, United States: How To Content, Spring Hill House.
- Demirguc-Kunt, A., & Klapper, L. (2012). *Financial Inclusion Africa*. The Global Findex Database.” World Bank Policy Research Working Paper 6088.
- European Commission, . (2008). *Financial Services Provision and Prevention of Financial Exclusion*. European Commission; Author.
- Gardeva A and Rhyne E. (2011). *Opportunities and Obstacles to Financial Inclusion*. Center for Financial Inclusion: ACCION.
- Global Partnership for Financial Inclusion (GPFI). (2011). *The First G20 Global Partnership for Financial Inclusion (GPFI) Forum*. Alliance for Financial Inclusion (AFI).
- GMSA-mWomen. (2013). *Unlocking the Potential: Women and Mobile Financial Services in Emerging Markets*. Groupe Speciale Mobile (GSM).
- GPFI. (2010). *G-20 Principals of Innovative Financial Inclusion*. Bangkok: Allince for Financial inclusion.
- Hamza, A., & Shah, A. (2014). Gender and Mobile Payment System Adoption among Students of Tertiary Institutions in Nigeria. *International Journal of Computer and Information Technology* , Volume 03 (Issue 01), 13-20.
- Hannig, A., & Jansen, S. (2010). *Financial inclusion and financial stability:Current policy issues*,. Bangkok: ADBI working paper series, No. 259.
- Haushofer, J., & Shapiro, J. (2013, October 24). *Policy Brief: Impacts of Unconditional Cash Transfers*. Retrieved November 11, 2013, from Microfinance Gateway: <http://www.microfinancegateway.org/p/site/m/template.rc/1.9.63112/>

- Horne, D., & Nickerson, D. (2013). Understanding the Drivers of Mobile Payment Adoption: Comparing Kenya and Tanzania. *Gx White Paper* . Gx Intelligence.
- Howell, D. C. (2013). *Statistical Methods for Psychology* (8th Edition ed.). (J.-D. Hague, Ed.) Belmont: Wadsworth, Cengage Learning.
- IFC. (2011). *Financial Inclusion Data: Assessing the Landscape and Country-level Target Approaches*. Washington, D.C.: International Finance Corporation (IFC).
- Intermedia. (2013). *Mobole money: A path to financial inclusion*. Dar es Salaam: Internedia , Author.
- Jack, W., & Suri, T. (2011, January). Mobile Money: The Economics of M-PESA. *Working Paper 16721* . Massachusetts, United States of America: National Bureau of Economic Research.
- Jayasingh, S., & Eze, U. C. (2009). An Empirical Analysis of Consumer Behavioral Intention Toward Mobile Coupons in Malaysia. *International Journal of Business and Information* , 4 (2), 221-242.
- Jeong, B.-K., & Yoon, T. e. (2013). An Empirical Investigation on Consumer Acceptance of Mobile Banking Services. *Business and Management Research* , Vol. 2 (No 1), 31-40.
- Karen Ellis, A. L.-P. (2010). *Financial inclusion, household investment and growth in Kenya and Tanzania*. London UK: Overseas Development Institute (ODI).
- Kasprowicz P and Rhyne E. (2013). *Looking Through the Demographic Window: Implications for Financial Inclusion*. Center for Financial Inclusion; ACCION International.
- Keeler, R. (2012, October). Financial Deepening and M4P: Lessons from Kenya and Rwanda. *Development In Practice: Impact Paper 9* . (J. Garrido-Mirapeix, &

- A. Kanene, Eds.) Nairobi, Kenya: KPMG and International Development Assistance Services (IDAS).
- Kempson E and Whyley C. (1999). *Kept Out or Opted Out? Understanding and combating financial Exclusion*. Bristol: Policy Press.
- Klapper, L., & Demircuc-Kunt, A. (2012). *Measuring Financial Inclusion*. Global Findex Database: The World Bank Policy Research Working Paper.
- Komba, K. (2013, November 6). *Promoting Financial Inclusion with Mobile Phone Financial Service: Tanzania's Case*. Retrieved December 2, 2012, from Banco Central Do Brasil:
www.bc.gov.br/.../Tanzania_MFS%20DATA_MFS%20promotes%20Fin
- Kothari, C. R. (2004). *Research Methology: Methods and Techinique* . New Delh: New Age International (P) Limited, Publishers.
- Kumar, L., Balasubramanian, G., & Subramanian, R. (2012). Technology, Financial inclusion and Securities Markets. *NSE-IFMR, Financial inclusion Research initiative: NSE Working Paper Series* . NSE-IFMR.
- Lapan, S. D., & deMarrais, K. (Eds.). (2004). *Foundations for Research; Methods of Inquiry in Education and the Social Sciences*. Mahwah, NJ 07430: Lawrence Erlbaum Associates.
- Lee, M.-C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications* , Volume 8 (Issue 3), 130–141.
- Lei, P.-W., & Wu, Q. (2007). Introduction to Structural Equation Modeling: Issues and Practical Considerations. *Instructional Topic in Educational Measurement (ITEMS)* . Edmonton, Canada: National Council on Measurement in Education (NCME).

- Lewin, B. S. (2005). *Research Methods in the Social Sciences*. London: SAGE Publications.
- Li, J., Liu, J.-L., & Ji, H.-Y. (2014). Empirical Study of Influence Factors of Adaption Intention of Mobile Payment based on TAM Model in China. *International Journal of u- and e- Service, Science and Technology* , vii (1), 119-132.
- Li, L. (2010). A critical review of technology Acceptance of Literature. *Referred Research Paper* . Los Angeles, USA: Grambling State University.
- Lule, I. (2008). Application of Technology Acceptance Model in mobile Banking adoption in Kenya . *Thases and dissertaobn* . Nairobi, Kenya: University of Nairobi.
- Marczyk, G., DeMatteo, D., & Festinger, D. (2005). *Essentials of Research Design and Methodology*. New Jersey: John Wiley & Sons, Inc.
- Marr A and Schmied J. (2013). *Financial Inclusion and Poverty*. The University of Greenwich.
- Marumbwa, J., & Mutsikiwa, M. (2013). An Analysis of the Factors Influencing Consumers' Adoption of Mobile Money Transfer Services (MMTs) in Masvingo Urban, Zimbabwe. *British Journal of Economics, Management and Trade* , 3 (4), 498-512.
- Masinge, K. (2010, November 10). Factors influencing the adoption of mobile banking services at the Bottom of the Pyramid in South Africa. *Research Report* . Pretoria, South Africa: Gordon Institute of Business Science (GIBS), University of Pretoria.
- Mbele-Sibotshiwe, T. (2013). A Study of the Perceptions and Adoption of Mobile Payment Platforms by Entrepreneurs in Zimbabwe's Informal Economy. A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand . Johannesburg, South Africa.

- Mgimwa, W. (2012). Financial Innovations And Financial Inclusion In Tanzania. *The Sixteenth Conference of Financial Institutions* (pp. 4-7). Arusha: Bank of Tanzania.
- Micheni, E. M., Lule, I., & Muke, G. M. (2013). Transaction Costs and Facilitating Conditions as Indicators of the Adoption of Mobile Money Services in Kenya. *International Journal of Advanced Trends in Computer Science and Engineering (IJATCSE)* , 9-15.
- Mitchell, M. L., & Jolley, J. M. (2010). *Research Design Explained* (7th Edition ed.). Belmont, USA: Wadsworth, Cengage Learning.
- Munir A Rand Idrus M S. (2013). Acceptance of Mobile Banking Services in Makassar: A Technology Acceptance Model (TAM) Approach. *IOSR Journal of Business and Management* , 7 (6), 52-59.
- Mwaura, W. A. (2009). *Mobile banking in developing Countries*. Leeds Metropolitan University: Master Thesis.
- Ndulu, B. (2012). Financial Innovations And Financial Inclusion. *The Sixteenth Conference of Financial Institutions* (pp. 1-4). Arusha: Bank of Tanzania.
- Nyamsogoro, G. D. (2010). *Financial sustainability of rural microfinance institutions (MFIs) in Tanzania; PhD thesis.* , University of Greenwich.
- Omwansa, T., Waema, T., & Lules, I. (2012). Application of Technology Acceptance Model (TAM) in M-Banking Adoption in Kenya. *International Journal of Computing and ICT Research* , IV (1), 31-43.
- Ondiege, P. (2012). Fostering financial inclusion with mobile banking. *Investment Climate Assessment, African Competitiveness Reports and ICT innovations studies* . African Development Bank.

- Porter, C. C., & Donthu, N. (2006, June 19). Using the technology acceptance model to explain how attitudes determine Internet usage: The role of perceived access barriers and demographics. *Journal of Business Research* , 999-1007.
- Quan, S., Hao, C., & Jianxin, Y. (2010). Factors Influencing the Adoption of Mobile Service in China: An Integration of TAM. *Journal of Computers* , 5 (5), 799-806.
- Remenyi, J. (2011). *Microfinance: Poverty reduction and Millenium Development goal*. UN HABITAT. Nairobi: UN HABITAT.
- Sahrawat, R. (2010). *Financial Inclusion – From Obligation to Opportunity.cdr* - TCS. Retrieved october 3, 2013, from TATA Consultancy Services: http://www.tcs.com/SiteCollectionDocuments/White%20Papers/Government_Whitepaper_Financial_Inclusion_09_2010.pdf
- Saxena, A. (2007, 12 1). *Accelerating Financial Inclusion through Innovative Channels; 10 Obstacles for MFIs Launching Alternative Channels*. Retrieved 9 17, 2013, from ACCION International: www.accion.org/insight.
- Sayid, O., Echchabi, A., & Aziz, H. A. (2012). Investigating Mobile Money Acceptance in Somalia: An Empirical Study. *Pak. J. Commer. Soc. Sci.* , Vol. 6 (No 2), 269-281.
- Srijanani, D. (2012). Financial Inclusion: Taking Banking Services to the Common Man. *International Journal of Management & Business Studies* , 55-58.
- Stein, P., Randhawa, B., & Bilandzic, N. (2011). *Towards Universal access: Addressing the Global Challenge of Financial Inclusion*. Washington DC: International Finance Corporation.
- Tanzania National Council for Financial Inclusion. (2014). *National Financial Inclusion Framework: A Public-Private Stakeholders Initiative (2014-2016)*. DSM: BOT.

- Tobbin, P., & Kuwornu, J. K. (2011). Adoption of Mobile Money Transfer Technology: Structural Equation Modeling Approach. *European Journal of Business and Management* , III (7), 59-78.
- UNCDF. (2006). *Building inclusive financial Sectors for Development*. New York: United Nation.
- Urquizo, J. (2012). *The Financial Behavior of Rural resident: Findings from Five Latin American Countries*. Washington D.C.: ACCION International.
- URT. (2012). *Risk, Vulnerability and Capacity, Assessment Report for Chamwino District, Dodoma*. Dar es Salaam: Prime Ministers Office, Regional administration and Local Government.
- Vaus, D. d. (2001). *Research Design in Social Research*. London: SAGE Publication Ltd.
- Venkatesh, v., & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science/Vol. 46, No. 2, February 2000* , 46 (2), 186-204.
- Wangwe, S. (2004). *Innovation in Rural Finance in Tanzania*. Arusha: Daima Associates Ltd.
- WB. (2008). *Access to Finance and Development: Theory and Measurement*. Retrieved 10 01, 2013, from World Bank: siteresources.worldbank.org/INTFINFORALL/Resources/.../FFA_ch01.p.
- Wiedemann, D. G. (2009). What Influences Consumers' Intention to Use Mobile Payments? Augsburg, Germany: Mobile Commerce Working Group, Chair of Business Informatics and Systems Engineering, University of Augsburg.

- Wiegard, R.-B., Guhr, N., Loi, T., & Breitner, M. H. (2012). Investigating Technology Acceptance of Mobile Payment in Germany and the USA. *Multikonferenz Wirtschaftsinformatik 2012 (MKWI'12)* (pp. 1-10). Hannover: Digitale Bibliothek Braunschweig.
- Winter J C F and Dodou D. (2010). Five-Point Likert Items: t test versus Mann-Whitney-Wilcoxon. *Practical Assessment, Research & Evaluation.* , 15 (11).
- World Bank (WB). (2012). *Financial Inclusion Strategies Referenca Framework*. Washington DC: World Bank.
- World Economic Forum. (2011). *The mobile financial service development report*. Washington D C: World Economic Forum USA Inc.
- Yan, A. W., Md-Nor, k., Abu-Shenab, E., & Sutanonpaiboon, J. (2009). Factors that Affect Mobile Telephone Users to Use Mobile Payment Solution. *Int. Journal of Economics and Management* , 3 (1), 37-49.
- Yu, C.-S. (2012). Factors Affecting Individuals to Adopt Mobile Banking:Empirical Evidence from the Utaut Model. *Journal of Electronic Commerce Research* , 13 (2), 104-121.
- Zikmund, W. G., & Babin, B. J. (2010). *Essentials of Marketing Research* (4th Edition ed.). Natorp Boulevard, United states of America (USA): South-Western CENGAGE Learning.
- Zikmund, W. G., & Babin, B. J. (2007). *Exploring Marketing Research* (Ninth Edition ed.). Natorp Boulevard, USA: Thomson South-Western.
- Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2008). *Business Research Method*. South Western, United States America (USA): Thomson.

APPENDICES

Appendix I

QUESTIONNAIRE

My name is Aulelius Lema, a Master student from Mzumbe University. I am conducting research on **The adoption and use of mobile financial services** as a requirement for partial fulfilment for the award of a Master science in Accounting and Finance. I kindly ask for your assistance by filling out this questionnaire. Please be assured that the information you provide is for academic purpose only and that your identity will be treated as highly confidential. Your support and participation in this study will be highly appreciated.

Part I

Demographic Data

SN	Demographic Data	Subcategory	Mark where applicable (√)
1	Identification Number		
2	Sex	Male	
		Female	
3	Age		Years
4	Work/Occupation	Student	
		Employed	
		Self employed	
		Retired	
5	Education level	Primary education	
		Secondary education	
		University or college level education	

Part II

Mobile financial services use

6	What transaction do you conduct with mobile financial services? (tick whatever is appropriate)	Buy airtime	
		Transfer money	
		Receiving money and cash withdraw	
		Buying goods	
		Paying bills like electricity, water	
		Saving money	
		Paying insurance	

PART III

Five point Likert scale Questionnaire

Please respond to the following question by cycling the choice indicating the level of agreement from 1, strongly disagree, 2. Disagree 3. Neither agree nor Disagree 4 Agree, 5. Strongly agree;

7 _{PU}	I think that using mobile financial services would enable me to accomplish my tasks more quickly.	1	2	3	4	5
8	I think that using mobile financial services would make it easier for me to carry out my tasks.	1	2	3	4	5
9	I think that mobile financial services are useful	1	2	3	4	5
10	Overall, I think that using mobile financial services is advantageous	1	2	3	4	5
11 _{PE} U	I think that learning to use mobile financial services would be easy	1	2	3	4	5
12	I think that interaction with mobile financial services does not require a lot of mental effort.	1	2	3	4	5
13	I think that it is easy to mobile financial services to accomplish my banking tasks	1	2	3	4	5
14 _{PC}	I think the equipment cost is expensive to use. E.g. mobile phone.	1	2	3	4	5
15	I think it is expensive to access and use mobile money.	1	2	3	4	5
16	I think the transaction fee is expensive to use.	1	2	3	4	5
17 _{PT}	Mobile financial services service providers have the skills and expertise to perform transactions in an expected manner	1	2	3	4	5
18	Mobile financial services providers are fair in their conduct of customer transactions.	1	2	3	4	5
19	Mobile financial services providers are open and receptive to customer needs.	1	2	3	4	5
20	Mobile financial services service providers make good-faith efforts to address most customer concerns	1	2	3	4	5
21	I believe mobile network providers are trustworthy.	1	2	3	4	5
22	I believe mobile financial service providers' wireless infrastructure can be trusted.	1	2	3	4	5
23 _{PR}	Mobile money may not perform well because of network problems.	1	2	3	4	5
24	Mobile money may not perform well and process payments incorrectly.	1	2	3	4	5
25_	When transferring money through mobile banking, I am afraid that I will lose money due to careless mistakes such as wrong input of account number and wrong input of the amount of money.	1	2	3	4	5
26	When transaction errors occur, I worry that I cannot get compensation from financial service providers.	1	2	3	4	5
27_	Fixing payment errors may lead to a waste of time	1	2	3	4	5

28	It would take me lots of time to learn how to use mobile money services.	1	2	3	4	5
29	A network problem causes wastage of time.	1	2	3	4	5
30_	I would not feel totally safe providing personal privacy information over mobile money systems.	1	2	3	4	5
31	I'm worried about using mobile financial service because other people may be able to access my account.	1	2	3	4	5
32	I would not feel secure sending sensitive information across mobile financial services.	1	2	3	4	5
33 _{SI}	Most people who are important to me think I should use mobile financial services.	1	2	3	4	5
34	My close friends think I should use mobile financial services	1	2	3	4	5
35	Most members of my family think I should use mobile money	1	2	3	4	5
36	My peers think I should use mobile financial services.	1	2	3	4	5
37 _{BI}	I would use mobile financial services for my banking needs.	1	2	3	4	5
38	Using the mobile financial services for handling my banking transactions is something I would do	1	2	3	4	5
39	I will regularly continue using mobile money in the future.	1	2	3	4	5
40	I will increase the number of transaction conducted by mobile money.	1	2	3	4	5
41	The risk of financial loss is high when using mobile financial services.	1	2	3	4	5
42	Mobile financial services may not perform well because of slow network speed, the servers' being down or because they are undergoing maintenance.	1	2	3	4	5
43	When using mobile financial services if something went wrong with online transactions, my friends, family and colleagues would not trust me.	1	2	3	4	5
44	I would have to waste a lot of time fixing payments errors and network problems.	1	2	3	4	5
45	I'm worried to use online banking because other people may be able to access my account.	1	2	3	4	5

Appendix II

Research Proposal Approval Form

MZUMBE UNIVERSITY	
SCHOOL OF BUSINESS	
RESEARCH PROPOSAL APPROVAL FORM	
1.	Name of Candidate: (Surname) <u>LEMA</u> (Initials) <u>A</u>
2.	Programme of Study: _____
3.	TITLE OF THESES PROPOSAL <u>FACTORS INFLUENCING THE ADDITION OF MOBILE FINANCIAL SERVICES IN THE UNBANKED POPULATION. THE CASE OF CHAMUSCA DISTRICT</u>
4.	Approved/Not Approved _____ Comment if not Approved _____
NAME OF MAJOR SUPERVISOR: <u>S. G. MSAIDI</u>	
SIGNATURE: <u>[Signature]</u>	
5.	HOD – MSc. APPROVED/NOT APPROVED _____
HOD – SIGNATURE <u>[Signature]</u> DATE: <u>19/08/14</u>	

Appendix III

Permit Letter from Chamwino District Council

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA WAZIRI MKUU
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

MKOA WA DODOMA
Simu Na.: 026-2320044



Ofisi ya Mkuu wa Wilaya,
Chamwino,
S.L.P. 278,
DODOMA.

Unapojibu tafadhali taja:

Kumb. Na. AB. 134/468/02/7

24 April, 2014

KWA YEYOTE ANAYEHUSIKA

YAH: **AULELIUS LEMA**

Tafadhali husika na kichwa cha habari hapo juu.
Mtajwa hapo juu ni Mwanafunzi wa Chuo Kikuu cha Mzumbe Shahada ya
Uzamili (Msc Accounting and Finance).

Mtajwa hapo juu ameruhusiwa kufanya utafiti kwenye Wilaya ya
Chamwino kwa ajili ya masomo kuhusu matumizi ya Huduma za kifedha
zinazotolewa kwa njia ya simu za mkononi.

Tafadhali naomba apewe ushirikiano pale atakapohitaji.

J. Kilasara

KATIBU TAWALA WILAYA
CHAMWINO

KATIBU TAWALA (W)
CHAMWINO