THE EFFECT OF MOBILE BANKING ON SAVING CULTURE - A CASE OF RESIDENTS OF MOLO TOWN

BY:

NG'ANG'A JOYCE MUMBI

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DECLARATION

This research project is my original work and has not been submitted for examination in any other university

Signature…… Date…….

JOYCE MUMBI NG'ANG'A

D61/70473/2009

This research project has been submitted for examination with my approval as the University Supervisor

Signature …… Date……

MR.HERICK ONDIGO

LECTURER, DEPARTMENT OF FINANCE AND ACCOUNTING

SCHOOL OF BUSINESS

UNIVERSITY OF NAIROBI

DEDICATION

I dedicate this research project to my dearest father Mr. Francis Nganga, my dearest mother Mrs. Teresia Nganga, my brothers Njuguna and Sammy and my
lovely son Jayson

I love you all tremendously.

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First and foremost I thank the Almighty God for his guidance, providence and protection from the beginning of this program until now. I also thank Him for giving me good health and helping me to get finances for this course.

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ABSTRACT

Mobile banking is a provision of banking services using handheld devices such as mobile phones and personal digital assistants. Mobile banking is relatively a new technology which is still being adopted at a rate. With the improvement of mobile technologies and devices, mobile banking users are able to conduct banking services at any place and any time.

The objective of this study was to determine the effect of mobile banking on the saving culture among residents of Molo town. 300 respondents were selected from a representative sample of 542,103 residents of Molo town. Questionnaires were used to collect the primary data which was supplemented with some secondary data from Safaricom-a mobile phone service provider and also internet.

The average amount saved in the phone was then regressed against the three variables namely challenges faced while using mobile banking, level of education and place of saving. The results of the study were analyzed using Statistical package for social studies (SPSS Version 19) where different data were analyzed in form of tables, graphs and pie charts.

The study found out that indeed mobile banking had had a huge effect on the saving culture among residents of Molo town. Also from the study, findings were discovered that could contribute to improving the mobile banking services. The study also revealed that the variables in the equation had a significant influence on the average amount saved in $p < 0.05$ phone since

The study concludes that mobile banking has an effect on the saving culture. Finally, the study recommends the need for further studies on mobile banking as mobile banking still remains an area that a lot need to be exploited.

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LIST OF ABBREVIATIONS

ATM - Automated Teller Machine

CGAP - Consultative Group to Assist the Poor

FDI - Foreign Direct Investment

GDP - Gross Domestic Product

ICTD - Information and Telecommunication Technology

KYC - Know Your Customer

PIN - Personal Identification Number

SMS - Short Message Services

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Kenya has undergone a remarkable information and communications technology (ICT) revolution. At the close of the 1990s, less than 3 percent of Kenyan households owned a telephone, and fewer than 1 in 1,000 Kenyan adults had mobile phone service. By the end of 2011, 93 percent of Kenyan households owned a mobile phone. (Demombynes and Thegeya, 2010).

Banking can simply be expressed as the business of keeping, lending, exchanging and issuing money (Barnhart & Barnhart, 2000). Banking today is undergoing a radical transformation which include; new products, new players, new channels are appearing daily. This transformation is taking place across all sectors of the banking industry. Information technology is one of the major issues on any bank chief executive's agenda, thrust into prominence by the massive and increasing magnitude of its costs at a time when competitive pressure has never been greater, (Coleman, 2008).

According to Koivu (2002), a good banking environment is one of the factors that are essential for economic growth. With the ever dynamic environment, the banking sector has found itself not in a position to resist the emerging technological indulgence. The need for convenient ways of accessing financial resources beyond the conventional norms has seen the recurrent expansion and modernization of banking patterns.

1.1.1 Mobile Banking

One such technological advancement is mobile banking. The terms Mobile Phone banking and mobile banking (M-Banking) are used interchangeably. The term M-Banking is used to denote the access to banking services and facilities offered by financial institutions such as account-based savings, payment transactions and other products by use of an electronic mobile device. It may also collectively refer to a set of applications that enable people to use their mobile telephones to manipulate their bank accounts, store value in an account linked to

their handsets, transfer funds; *m-banking* or even access credit or insurance products. This paper uses the compound term *m-banking/mpayments systems* to refer to the most common features (Karjaluoto, 2002)

Mobile money systems consist of electronic money accounts that can be accessed via mobile telephones. They are often likened to simple bank accounts, although a basic mobile money system does not pay interest or provide loans. Each of the mobile service providers in Kenya currently has a mobile money service. Safaricom M-PESA was introduced in March 2007, Zain‘s Zap (now known as Airtel Money) was initiated in February 2009, yu Cash started in December 2009, and Orange‘s Orange Money was launched in November 2010

M-PESA is an innovative agent-assisted, mobile phone-based person-to- person payment and money transfer system. M-PESA literally means “mobile money”; *pesa* is the Swahili word for money or cash. It is marketed as a quick, easy, safe and a low cost way to transfer amounts of money from one person to another, transfers from individuals to businesses and cash withdrawals. It is indeed the most sophisticated and best known in the world.
Users can store money on their mobile phones in an electronic account and can deposit or withdraw money in the form of hard currency at one of M-PESA’s numerous agent locations. They can also send and receive money from other users and in some cases can pay bills (e.g. electricity) directly to a participating company through M-PESA’s pay bill. One can also pay shopping and even pay hospital bills.(Safaricom.co.ke.)

Safaricom, Kenya’s largest mobile phone operator, launched M-PESA in March 2007 and since then, M-PESA has picked up remarkably quickly, covering the majority of geographic areas of the country. Within four months of its operation, over 250,000 clients, set as a target for year one, became customers (Hughes and Lonie, 2007). About 1 million registered with M-PESA by the end of the first year. By August 2009, about 2.5 years after startup, over 7.7 million Kenyans had become registered users of M-PESA, far exceeding the projections. As of January 2012, the number had risen to 15.2 million. Today, around KSH 2 billion daily M-pesa transactions. There was also a phenomenal growth in the number of agents, from 7,000 in March 2009 to almost 35,000 by January 2012. These agents are located throughout the county.

Only a small fraction of Kenyans are banked, and given the high costs of transferring money by non-bank means, M-PESA promises to deliver a wide range of financial and cash-management services to a broad swath of people. Around 40% of adult Kenyans now use M-PESA since its introduction in 2007. By employing simple SMS technology and the established communication network of the dominant cell phone company, Safaricom, M-PESA allows for significant sums of money to be stored in phone-based accounts and sent to other users around the country. Deposits and withdrawals can be made through "agents." In 2008, Suri, helped to lead a survey of 3,000 households, almost half of which were M-PESA users and agents.(Sarker, 2006)

M-PESA is that rare product that appears to be valued both by those with better opportunities and higher incomes, as well as by the less advantaged and the vulnerable. It is by no means used universally.

1.1.2 Mobile Savings

M-PESA, the first mobile money system in Kenya, was originally developed primarily as a money transfer device and was attractive because it allowed people to send remittances across distance at low cost. The system has become popular for other uses, including storing credit. The term ―mobile savings has been used to describe this phenomenon

There are two types of mobile savings; *Basic mobile savings* which is simply the use of a standard mobile money system such as M-PESA to store funds. Basic mobile savings do not earn interest. The other type of mobile saving is the *Bank-integrated mobile savings.* This term refers to access to an account via mobile phone that offers financial services beyond basic money storage and transfer. Such an account might, for example, pay interest and allow access to loans or insurance

1.1.3 The Relationship between Mobile Banking and Savings

Bank-integrated mobile savings approaches have received a great deal of attention as a way to provide banking services to the poor. They have the advantage of offering access to basic banking services without requiring proximity to a physical bank branch. Instead, with a bank-integrated mobile savings account, basic banking services can be accessed via a network of

mobile phone agents, which in Kenya outnumber the number of bank branches by a factor of 100 to 1 (Mas and Radcliffe 2010).

Mobile savings products have increased rapidly: as of December 2010, there were at least seven systems offering some type of bank account access via mobile phone.4 Most of these are essentially access to a traditional account via a mobile phone and require the customer first to establish a traditional account at a physical bank. We term these *partially* integrated mobile savings systems. Separately, M-KESHO, a joint venture between Equity Bank and Safaricom, can be considered a *fully* integrated mobile savings system, as it does not require a traditional bank account: customers can sign up via Safaricom agents. M-KESHO had 613,000 subscribers in the six months after its launch. The market has since rapidly expanded as more banks have structured agreements with the mobile service providers. Bank-mobile service provider partnerships are not exclusive, and banks are seeking agreements with multiple mobile service providers with the ultimate aim of providing universal access to their diverse client account bases. Additionally, banks are beginning to build their own agent networks in order to assume a more competitive bargaining position in accessing mobile service platforms.

Partially and fully integrated savings present different types of contracts among the partnering bank and mobile service provider. A partially integrated product clearly delineates the role of the bank, which provides and owns banking services, and the mobile service provider, which provides the mobile telephony infrastructure and controls the agent network. The bank compensates the mobile service provider for access to the network and enjoys the remaining

1.1.4 History of Molo Town

Molo is a town in Nakuru County and has population of 542,103. A male population of 271,954 and a female population of 270,149(2009 census). It is along the Mau Forest which runs on the Mau Escarpment. The town was a settlement established primarily because of its fertility and vast vegetation.

According to the Kenyan National Potato Policy, Molo is the second largest producer of potatoes in Kenya. The main economic activities in Molo are Agriculture, livestock, trade and

commerce. It is also involved in different industrial activities. This include Tim sales (Head office), Keringet Water company Ltd, Kenya Malting Ltd, Agricultural Finance Corporation ,Agricultural Finance Corporation, Cold Storage Project and Agricultural Research Institute.

Molo town is considered appropriate for the study because of the economic and industrial activities that are found in the area. It is also a cosmopolitan area with a population 542,103.

1.2 Research Problem

The spread of mobile phones across the developing world is one of the most remarkable technology stories of the past decade. Buoyed by prepay cards and inexpensive handsets, hundreds of millions of first-time telephone owners have made voice calls and text messages part of their daily lives. (Castells, M. 2006). However, many of these same new mobile users live in informal and/or cash economies, without access to financial services that others take for granted. Indeed, across the developing world, there are probably more people with mobile handsets than with bank accounts.

Porteous, 2006) Various initiatives use mobile phones to provide financial services to "the unbanked." These services take a variety of forms—including long-distance remittances, micropayments, and informal airtime bartering schemes—and go by various names, including mobile banking, mobile transfers, and mobile payments. Taken together, they are no longer merely pilots; in Kenya, the Philippines, South Africa, and, these services are broadly available and increasingly popular (Castells, M. 2006).

In Kenya few studies have been undertaken to assess the effect of mobile banking on savings. Qualitative work by Morawczynski (2009) suggests that incomes of rural mobile money transfer recipients have increased due to remittances, which have also led to higher savings by households. These results are based on an ethnographic study conducted in Kibera, a slum in Kenya, in 2007.

Most studies however have focused on the impact of mobile banking on the GDP growth. One of the studies indicate that rise of ten mobile phones per 100 people boosts GDP growth by 0.6% (Waverman, Meschi & Fuss 2005) Another study reports that the impact of mobile phone penetration is positively linked to Foreign Direct Investment (FDI) and that this impact has grown more significant in recent years, with a 1% increase in mobile penetration rates

associated with 0.5-0.6% higher rates of FDI and GDP. One aspect of mobile phones in the developing world that is being looked at with some anticipation is the introduction of mobile financial services and transactions. While users are employing the mobile banking systems to make payments for things such as airtime and pre-paid electricity, many are using them for sending remittances back to friends and relatives in their rural villages. (Burt, 2002).

Molo town being an economic and industrial town, the residents of this town are involved in mobile banking services. This is evidenced by the many mobile money agents that are found in the area. They include M-Pesa agents, Airtel money agents, Yu money. The area also has different banks such as and not limited to, Equity Bank, Family Bank, Standard Charted and National Bank.

Other studies have also being done by Owen, John and Anna (2006) for South Africa and Philippines. It asserts that mobile banking services are valued by poor people who find it more affordable than operating a bank account. The study also asserts that mobile banking services must create awareness of their services. In Kenya, there have been an inadequate number of studies to determine if indeed mobile banking has any effect on savings. The question that this study will seek to answer thus is, does mobile banking affect savings culture among residents in Molo town?

1.3 Objective of the Study

To determine the effect of mobile banking on the saving culture among residents of Molo town.

1.4 Value of the Study

The study will be of importance to the following parties;

Government Economic Policy Makers

The findings of this study will be of importance to economic policy makers. Savings being an important economic variable needs to be mobilized in order to create capital for undertaking investments. The mobilization of savings requires a sound policy and it is clear that the findings of this study should be helpful in defining such a policy

Academia

The study will also be important to other scholars and researchers interested in learning more about the effect of mobile banking on the savings. It will build up a body of knowledge that will be useful to both current and future scholars

Managers of Financial Institutions

Managers of financial institutions will find the study immensely important particularly because commercial banks are the main mobilizes of savings through deposit funds. They will be keen to know the findings of the study not only because a positive effect of mobile banking on savings competes with their efforts to mobilize savings, but also to use the findings to tailor their products in such a way that they can partner with mobile companies to mobilize even further deposits from clients they were previously unable to reach

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter conducts a review of the literature on mobile banking. From this review the theoretical framework has been developed upon which this study is built. The chapter further discusses the literature on mobile banking as studied by other scholars.

2.2 Theoretical Review

According to Ravallion,(2009), a wide spectrum of mobile banking models is evolving .However no matter what business model, if mobile banking is being used to attract low income population in often rural locations, the business model will depend on the banking agent.

The models of branchless banking can be classified into three broad categories:

2.2.1 Bank-Focused Model

In this model the technological physical infrastructure of a mobile operator is used to provide some basic banking services like balance enquiry, fund transfer, payments for goods and services at merchant outlets using bank account. This is done through ATM, Debit card and Phone SMS Most of these services are already being provided by banks and are covered under existing regulations. Evidence suggests that this type of activity is already gearing up in Kenya (Anyasi, 1989).

2.2.2 Bank-Led Model

In this model, agents like mobile operators and retail outlets generally play a significant role in provision of banking services to end customers. This model is, therefore, prone to agent-related risks. These agent-related risks can be mitigated by making banks fully liable for actions of their agents and by giving regulators power to review agents' record of bank-related transactions. Beauty of this model is that it can be implemented incrementally starting from most basic activities and gradually adding more and more activities as market participants as well as regulators become more experienced.

2.2.3 Nonbank-Led Model

In this model, customers do not deal with a bank, nor do they maintain a bank account. Instead, customers deal with a Non-Bank firm, either a mobile network operator or prepaid card issuer and retail agents serve as the point of customer contact. Customers exchange their cash for e-money stored in a virtual e-money account on the non-bank's server, which is not linked to a bank account in the individual's name. This model is riskier as the regulatory environment in which these non-banks operate for example in Pakistan does not give much importance to issues related to customer identification, which may lead to significant risks. Bringing in a culture of know your customer (KYC) to this segment will be a major challenge. Further the non-banks are not much regulated in areas of transparent documentation and record keeping which is a prerequisite for a safe financial system.

2.3 M-Banking and M-Payments Systems in the Developing World

The terms *m-banking*, *m-payments*, *m-transfers*, *m-payments*, and *m-finances* refer collectively to a set of applications that enable people to use their mobile telephones to manipulate their bank accounts, store value in an account linked to their handsets, transfer funds. Mobile commerce is different. According to Forrester, he defined mobile commerce as the use of handheld devices to carry out transactions and also interact

The proliferation of mobile money in Kenya has generated research attempting to explain the roots of the phenomenon and to understand its effects. Kimenyi and Ndung'u (2009) attribute the rapid growth in mobile money in Kenya to four factors: a conducive legal and tax environment, private-public policy dialogue, strategic and prudent macroeconomic policies, and a guarantee of the existence of a contestable market discouraging dominance by initial entrants. Comninos et al. (2008) argue that the initial success of Kenya‘s mobile money transfer industry can be attributed to the high demand for remittances generated by rural/urban migration, while its rapid scaling is due to the mobile providers‘ growth strategy.

By complementing services offered by the banking system, such as checkbooks, ATMs, voicemail/landline interfaces, smart cards, point-of-sale networks, and internet resources, the mobile platform offers a convenient additional method for managing money without handling cash (Karjaluoto, 2002). For users in the developing world, on the other hand, the appeal of

these m-banking/m-payments systems may be less about convenience and more about accessibility and affordability (Cracknell, 2004). An exploration is underway between banks, mobile operators, hardware and software providers, regulatory agencies, donors, and users to determine the shape of m-banking/m-payments services in the developing world (Ivatury, 2004; Ivatury & Pickens, 2006; Porteous, 2006).

Mobile phone operators have identified m-banking/m-payments systems as a potential service to offer customers, increasing loyalty while generating fees and messaging charges. Financial institutions, which have had difficulty providing profitable services through traditional channels to poor clients, see m-banking/m-payments as a form of "branchless banking" (Ivatury & Mas, 2008), which lowers the costs of serving low-income customers. Government regulators see a similar appeal but are working out the legal implications of the technologies, particularly concerning security and taxation.

Porteous (2006) note that there are two aspects to mobile banking. These include Additive aspect and the transformational aspect. Additive aspects are those in which the mobile phone is merely another channel to an existing bank account. Mobile banking is additive when it merely adds to the range of choices or enhances the convenience of existing customers of mainstream financial institutions. Transformational characteristics arise when the financial product linked to the use of the phone is targeted at persons who do not hold formal bank accounts with the conventional banking institutions. It is the second aspect of mobile banking that this study will concentrate on. The transformational mobile banking is made available by mobile phone service providers as part of their value added services. It is embedded among other services within the service providers menu. The perceived difference between mobile service providers mainly lies on the pricing strategy, quality and scope of services.. (Porteous, 2006)

There is no universal form of m-banking; rather, purposes and structures vary from country to country. The systems offer a variety of financial functions, including micropayments to merchants, bill-payments to utilities and long-distance remittances. Currently, different institutional and business models deliver these systems. Some are offered entirely by banks, others entirely by telecommunications providers, and still others involve a partnership between a bank and a telecommunications provider (Porteous, 2006).

Regulatory factors, which can vary dramatically from country to country, play a strong role in determining which services can be delivered via which institutional arrangements (Mortimer Schutts, 2007). Most m-banking/m-payments systems in the developing world enable users to do three things: (a) Store value (currency) in an account accessible via the handset. If the user already has *m-banking* a bank account, this is generally a question of linking to a bank account. If the user does not have an account, then the process creates a bank account for her. (b) Convert cash in and out of the stored value account. If the account is linked to a bank account, then users can visit banks to cash-in and cash-out. In many cases, users can also visit the mobile service providers' retail stores. In the most flexible services, a user can visit a corner kiosk or grocery store perhaps the same one where he or she purchases airtime and transact with an independent retailer working as an agent for the transaction system. (c) Transfer stored value between accounts. Users can generally transfer funds between accounts linked to two mobile phones, by using a set of SMS messages (or menu commands) and PIN numbers. (Safaricom website.

The new services offer a way to move money from place to place and present an alternative to the payment systems offered by banks, remittance firms, pawn shops, etc. The uptake of m-banking/m-payments systems has been particularly strong in the Philippines, this is according to study done by Owen,John and Bantug (2006).The study asserts small and medium sized businesses make up 99.6% of the total business and most have no access to financial services, the Philippines Central Bank came to their aid and ensured a regulatory that made this organization engage in banking services. They created a group to supervise the development of the mobile Banking. Over 3 million customers use the system offered by mobile operators Smart and Globe i.e Smart Money and Globe G-Cash respectively. Mobile banking services help in expanding the reach of the microfinance(Celent,2007)

The practitioner community may frame the discussion as being about "Transformational" M-payments (Gamos, 2008); the popular press describes a "leap from the world of cash to cellular banking" (The Economist, 2006); and researchers speak about the potential of mcommerce to "close the digital divide" (Dholakia & Kshetri, 2004). There are a variety of perspectives from which to view the technology, and as Maurer (2008), illustrates the assumptions associated with an embrace of an "empowerment" or "market share story", for example, will impact the claims and research programs of those interested in the technology.

2.4 Mobile Savings

M-PESA, the first mobile money system in Kenya, was originally developed primarily as a money transfer device and was attractive because it allowed people to send remittances across distance at low cost. The system has become popular for other uses, including storing credit. The term mobile savings has been used to describe this phenomenon.

Bank-integrated mobile savings approaches have received a great deal of attention as a way to provide banking services to the poor. They have the advantage of offering access to basic banking services without requiring proximity to a physical bank branch. Instead, with a bank-integrated mobile savings account, basic banking services can be accessed via a network of mobile phone agents, which in Kenya outnumber the number of bank branches by a factor of 100 to 1 (Mas and Radcliffe 2010).

Mobile savings products have increased rapidly: as of December 2010, there were at least seven systems offering some type of bank account access via mobile phone. Most of these are essentially access to a traditional account via a mobile phone and require the customer first to establish a traditional account at a physical bank. We term these *partially* integrated mobile savings systems. Separately, M-KESHO, a joint venture between Equity Bank and Safaricom, can be considered a *fully* integrated mobile savings system, as it does not require a traditional bank account: customers can sign up via Safaricom agents. M-KESHO had 613,000 subscribers in the six months after its launch. The market has since rapidly expanded as more banks have structured agreements with the mobile service providers. Bank-mobile service provider partnerships are not exclusive, and banks are seeking agreements with multiple mobile service providers with the ultimate aim of providing universal access to their diverse client account bases. Additionally, banks are beginning to build their own agent networks in order to assume a more competitive bargaining position in accessing mobile service platforms

Partially and fully integrated savings present different types of contracts among the partnering bank and mobile service provider. A partially integrated product clearly delineates the role of the bank, which provides and owns banking services, and the mobile service provider, which provides the mobile telephony infrastructure and controls the agent network. The bank compensates the mobile service provider for access to the network and enjoys the

remaining profits. This type of contract more closely resembles a debt contract between the parties. A fully integrated solution may not draw the same distinction between bank and mobile service provider. In this case, the distribution of surplus depends on the relative bargaining power of the bank and mobile service provider. This type of contract more closely resembles an equity contract between the parties. Equity-like contracts are likely to be more complex and therefore more difficult to negotiate than debt-like contracts, thereby presenting a potential hurdle towards the goal of increasing access.

The young urban citizens who are better educated and earn higher incomes send money to their rural folks through their mobile phones. Due to the increasing penetration of mobile phones even into poor communities, mobile payment schemes could bring formal financial services to the "unbanked". However, because poverty for the most part also correlates with low levels of formal education, there are questions as to whether electronic access to complex financial services is enough bridge between poverty and financial freedom.

Unbanked people, who are by far the majority in most developing countries, are in fact a heterogeneous group, including people who may have adequate income but from an informal source, as well as poor, and rural dwellers

One view is that mobile technology is just another, although highly innovative, access channel; an alternative is that mobile telecommunications networks are becoming the 'front office' for financial services leaving the existing banks as providers of back office functions. But there is also another view which seeks to define the competitive advantages of the banking and mobile finance business models and then explore the ways in which these could give rise to new market structures within which the existing portfolio of financial services (savings, credits and transactions) can be unbundled.

There are a number of mobile transaction initiatives in the developed and developing world. Most are bank-led and largely provide an information and transaction channel which complements existing bank access channels such as branches, telephone banking and online services. There are, however, significant examples of innovative mobile transaction schemes that hint at a radical transformation of the financial market landscape in that the business model addresses those without existing bank accounts. Examples which are often cited include Wizzit a mobile banking provider in South Africa where a study done by CGAP,

2006 found out that a Wizzit low income customers use it for its convenience, availability and affordability Globe in the Philippines and M-PESA in Kenya. In addition there are mobile financial transaction models which make innovative use of existing widely-diffused financial service platforms, such as Visa, in order to deliver transaction services to under-served market segments. Interestingly, the most innovative of these mobile banking models, and those with the greatest potential to bring significant benefits to consumers, are those addressing the needs of developing markets, which hitherto have been the most complex in which to increase access to finance.

In Kenya, however studies done on economic impact of mobile banking are very few.
According to Morawczynski,2009 more remittances are made from urban to rural areas, this accounts for 70% of their total household income. The study also suggests that the Mpesa users are sometimes unable to enjoy the services due to network congestion since it also uses same technology as the one that supports the text messages and low floats among the agents.

2.5 Empirical Review

A study done by CGAP, (2006) indicates that in South Africa, people use Wizzit ("the bank in your pocket")Most of the WIZZIT users are lower income earners this is because the services offered are more affordable than the ones offered by banks. The study also shows that mobile banking providers should enhance awareness of their services.
In Kenya, around one million users registered with Safaricom M-Pesa system within a year of its nationwide rollout (Ivatury & Mas, 2008; Vaughan, 2007).

Two studies from the economic development/practitioner literature (Ivatury & Pickens, 2006; Porteous, 2007) suggested that mobile banking users in Africa are wealthier and better educated than the average African with a bank account, let alone the average unbanked African.

Studies of the impact of M-banking in the developing world are also scarce because this system are new. Jack and Suri (2011) report results of a 2009 survey of Kenyan households that use M-PESA. They find that M-PESA reached nearly 40 percent of the Kenyan adult population after only two years of operation. While M-PESA was initially adopted mostly by wealthier households, adoption by less wealthy households was also increasing. Jack and Suri

also find an increase in the use of M-PESA by the unbanked population. However, their findings suggest that not owning a mobile phone is a major constraint to the adoption of M-PESA. They also find that M-PESA users with a bank account are much more likely to save on M-PESA than M-PESA users without a bank account. The majority of users cite ease of use and safety as the major reasons for saving on M-PESA.

A study by Global Africa (2008), indicates lack of financial information, weak property rights and small markets increase the average interest rate spread in Africa to 8%, much higher than the world average of 4.8%. Kenya's financial sector is probably the most advanced in East Africa, yet only 55% to 60% of the population has access to financial services.'

A recent *Micro Save* briefing note (Wright et al, 2006) lists the elements of transaction banking which constitute a suitable value proposition for poor customers as; a safe place to keep money, the ability to deposit and withdrawal cash at convenient locations (since cash is still pervasive) at a reasonable fee, and the ability to transfer money – to make payments and to remit money to friends and relatives.

Scholarly research on the adoption and economic impacts of m-banking systems in the developing world is scarce (Maurer, 2008). Even less attention has been paid to the social, economic, and cultural contexts surrounding the use of these systems. In other countries such us Philippines and South Africa the studies have been done but in Kenya the studies are very few.

Aduka (2010) carried out studies on the Effect of Mobile banking on selected macroeconomic factors in Kenya. He used a sample of 44 registered commercial banks and analyzed data using multiple regression model. He Found out that with increased improvement and awareness of technology so did the customers registered for mobile banking increased. The study also found out that mobile banking is positively correlated to investment and saving but inflation increased from 2007-2008 and decreased from 2008-2009 meaning it is inversely related to no of customer in mobile banking.

Nyaga (2010) did a study on Challenges faced by Safaricom (M-pesa) Ltd in international money transfer. He used purposive sampling procedures and used interview method to

collect the data. The research found out that mobile banking notably M-pesa by safaricom play a crucial role in international money transfer. This is because it is more accessible, convenient and secure.

Nderitu (2010) studied the impact of mobile banking on economic performance Mpesa in the Kenya society. He conducted a random survey of Mpesa users. The study found out that Mpesa is the most preferred and dominant money transfer service in Kenya and it has huge impact in the number and average amount of person to person money transfer. It also has a significant economic impact to many low to medium income Kenyans.

2.6 Summary of Literature Review

Uptake of mobile phones in Kenya has been unprecedented. Of vital significance is the rapid absorption of mobile based banking services. This trend of continued reliance on mobile devices to execute monetary transactions is steadily gaining momentum. In an effort to gauge the implications of this mobile phone phenomena, this study sets out to bring to light the critical issues arising from the emergent mobile technology innovations. Although a number of studies have been done mobile banking in Kenya, none of the studies has focused on the effect of mobile banking on saving culture. There is need to fill this research gap. Hence this study seeks to answer the question “what is effect of mobile banking on the saving culture of the residents of Molo town?”

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methodology that was adopted while carrying out the research. It discusses the research design, the target population, sample size, data collection procedures and data analysis method to be used.

3.2 Research Design

Research design refers to the approach used to collect data. A descriptive survey research will be used to carry out the study. Pinsonneault and Kraemer (1993) defined a survey as a "means for gathering information about the characteristics, actions, or opinions of a large group of people". Descriptive surveys are used to develop a snapshot of a particular phenomena of interest as it involves large samples. It involves elements of comparison and of relationship of one kind or the other and also it establishes associations between variables. It helps to describe characteristics of certain items and also estimate proportion of people who behave in a certain way. The design was been chosen because it enables the researcher to generalize the findings to a larger population. The method was also useful as this study aimed at discovering the association between mobile banking and saving among residents of Molo town.

3.3 Population

Babbie (1992) defines population as the entire group of individuals, events or objects having common observable characteristics. The target population of this study was all the residents of Molo town who according to the 2009 Census the population size is estimated to be 542,103.

3.4 Sample

According to Mugenda & Mugenda (2003), sampling is the process of selecting a number of individuals for a study in such a way that the individuals selected represent the large group from which they are selected. The reasons for sampling are lower cost, greater accuracy of results, and greater speed of data collection and availability of population elements.

The sample size was 300 randomly selected residents who own mobile phones and use their phones to transact financially. The researcher settled on 300 respondents as they were easy to analyze hence yielding accurate conclusion as opposed to analyzing the entire population. Additionally, such a sample was cheap and less time consuming especially when collecting data.

3.5 Data Collection

The research used primary data in the study. Primary data was collected by use of structured questionnaires. Simple random technique was used so as to avoid bias when collecting data from the residential areas in Molo town.

The researcher undertook to self-administer the questionnaires to the target respondents at their premises and then collected them at a later agreed date. The free respondents reply was of their own will since there was no interviewer to influence them. This was one of the ways to avoid biases and in particular the interviewer bias. The data collected using the questionnaires were then tested for completeness.

3.5.1 Data Reliability and Validity

Validity is the degree in which the samples of test items represent the content the tests designed to measure. To establish the validity of research instrument used, the opinions of the experts in the field of the study specifically the supervisor facilitating the necessary revision, were used.

Reliability refers to the consistency of measurement; it is frequently assessed by using the test-retest reliability method. Reliability is increased by including many similar items on a measure. It was enhanced through a pilot study that was done on 5 random respondents to ensure data collected was reliable. It was edited for any mistakes in the question then the final questionnaire was prepared to use to collect data for analysis.

3.6 Data Analysis

The data was first edited for accuracy and completeness then the responses was coded and analyzed using SPPS (Statistical Package for Social Sciences) Version 19. Tables, pie charts and graphs were used to present the data for ease of understanding and interpretations.

3.6.1 Analytical Model

The study used Multiple Regression Model to analyze the effect of Mobile Banking on the saving culture among residents of Molo town. The model was chosen in the study because it helps one understand how the typical value of the dependent variable changes when any one of the independent variable is varied, while the other independent variables are held fixed.

The model also helps understand which among the independent variable are related to the dependent variable and to explore the forms of this relationship.

Model

$Y= \beta_0+\beta_1X_1+\beta_2 X_2+ \beta_3 X3+e$

Where:

Y = Average amount saved in the phone.

X_1= level of education

X_2= place of saving

X_3=challenges faced while using mobile banking

β_0 = constant term

$\beta_{1, 2,=}$ beta coefficients of the independent variables

e = standard error

The model treated average amount saved in the phone as the dependent variable while the independent variables are challenges faced while using mobile banking, level of education and place of saving.

Average amount saved in the phone was measured by the frequency of saving and where most residents of Molo save their money. Level of education was measured by assessing the level of education that the residents Molo posses. Place of saving was measured by doing an assessment of where most of the residents prefer saving their money. Challenges faced while using mobile banking was measured by assessing the extent as to which the residents of Molo face various difficulties while using mobile banking services.

Given that this was a descriptive design, data analysis of the effect of mobile banking on the saving culture was done using correlation coefficient (R) and coefficient of determination ‘(R square) to establish the nature and strength of relationship while test of significance was undertaken to analyze the magnitude of the relationship. The analysis of quantitative data was carried out using SPSS version 19 and presented inform of tables, graphs and pie charts

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

The chapter presents data analysis, findings and discussion of the study in line with the research objective. The objective of the study was to investigate the effect of mobile banking on the saving culture among residents of Molo town. The data was analyzed, summarized and presented in form of tables, graphs and pie charts.

4.2 Data Analysis

The response from the questionnaires was then analyzed and the effect of mobile banking on the saving culture was then formulated from the statistics gathered. Descriptive statistics was used to describe the basic features of the data in the study. This provided simple summaries about the sample used in the study.

4.3 Finding

4.3.1 Number of Respondents

A total of 300 questionnaires were issued out. The completed questionnaires were edited for completeness and consistency. Of the 300 questionnaires issued, only 287 were returned and correctly filled.

4.3.2 Demographic Information of the Respondents

The demographic information considered in the study is:

a) **Age of the Respondents**

The purpose of this analysis was to establish if there is a significant difference in the adoption of mobile banking services between users of different age.

Table 4.1: Age of the Respondents

Age	Percentage
Below 18	0.7
18-28	34.8
29-39	46.7
39-49	11.1
Above 50	6.7
Total	100.0

Source: Research Findings

The above table shows that the mobile banking services are mostly manned by people of between 29-39 years. However that majority of mobile banking services range between 18 to 50 years old. This demonstrates that the mobile banking services are equally popular among users of widely varying ages from as young as 18 years to as old as 50 years.

b) **Level of Education of the Respondents**

The purpose of this analysis was to establish if there is a significant difference in the adoption of mobile banking services between users of different level of education.

Table 4.2: Level of Education of the Respondents

Level of Education	Frequency	Percentage
Primary school	17	6
Secondary school	41	14.2
College diploma	142	49.5
Undergraduate	66	23
Post graduate	21	7.3
Total	287	100

Source: Research Findings

The above finding show that most of those interviewed have a college diploma with a percentage of 49.5%.However most of mobile banking services users have level of education of secondary school, college and undergraduate.

4.3.3 Account Mainly Operated by the Respondents

Table 4.3: Account Mainly Operated by the Respondents

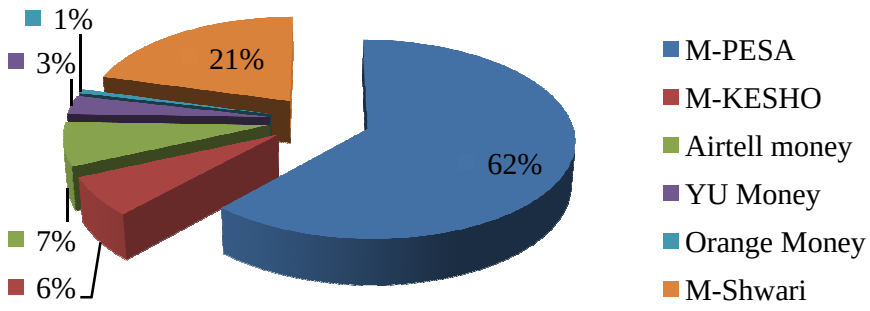
	Frequency	Percent	Valid Percent
Mobile banking services	166	57.8	58.5
Bank account	118	41.1	41.5
Total	284	99.0	100.0
System	3	1.0	
	287	100.0	

Source Research Findings

The above finding shows that majority of the respondents operate the account of Mobile banking services mostly as compared to bank acc. Those that operate mobile banking services account for 58% while those that use operate their bank account more often are 42%

4.3.4 Mobile Service Registered by the Respondents

Figure 4.1 Mobile Service registered by the Respondents



Source: Research Findings

The above finding shows that majority of those interviewed operate the M-Pesa account compared to those that operate other mobile services. M-Pesa account for 62% while the lowest is orange money with 1%.

4.3.5 Extent Mobile Banking has Improved Respondents Saving Behavior and avoided overspending

Table 4.4 Extent Mobile Banking has Improved Respondents Saving Behavior and helped avoid overspending

	Frequency							
	No extent at all	Little extent	Moderate	Great extent	Very great extent	Total Scores (fx)	weighted average scores	Std dev
Extent to which mobile banking has Improved respondents saving behavior(x)	19	55	69	88	54	958	191.6	25.3
Extent to which Saving in Phone help respondents avoid overspending(x)	30	59	93	67	37	880	176	25.1
Weights(f)	1	2	3	4	5			

Source: Research Findings

The above finding shows that majority of Molo town resident agree that mobile banking has indeed helped them improve their saving behavior. Ranking the two weighted average scores in this case 191.6 is the highest score for the extent to which mobile banking has improved respondents saving behavior.

This simply implies that more people agree to the statement that mobile banking has improved their saving habits

4.3.6 Regression Findings

The total amount saved in the phone was regressed against the three independent variables namely; place of saving, challenges faced while using mobile money and the level of education.

i) Regression coefficients for the independent variables

Table 4.5 Regression Coefficients for the Independent Variables

Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	.988	.024		.000
	where do you save your money	-.173	.040	-.262	.000
2	(Constant)	1.018	.025		.000
	where do you save your money	-.164	.040	-.248	.000
	level of education	-.111	.036	-.185	.002
3	(Constant)	.969	.035		.000
	Where do you save your money	-.143	.041	-.216	.001
	Level of education	-.116	.036	-.194	.001
	Challenges while using mobile money	.115	.056	.128	.039

a. Dependent Variable: average amount saved in the phone

Source: Research Findings

Note: Standardized coefficients are used to formulate the equation.

Y=a+x1+x2+x3

Significant equation:

Average amount saved in the phone = -.216*place of saving+-.194* level of education+.128*challenges

The above equation is significant since P-values of the variables are less than 0.05

ii) Correlation of the Major Variables

Table 4.6 Correlation of the Major Variables

		Average amount saved in the phone	Where do you save your money	Level of education	challenges while using mobile money
Pearson Correlation	Average amount saved in the phone	1.000	-.262	-.205	.171
	Where do you save your money	-.262	1.000	.078	-.243
	Level of education	-.205	.078	1.000	.048
	Challenges while using mobile money	.171	-.243	.048	1.000
Sig. (1-tailed)	Average amount saved in the phone	.	.000	.001	.003
	Where do you save your money	.000	.	.110	.000
	Level of education	.001	.110	.	.226
	Challenges while using mobile money	.003	.000	.226	.

Source: Research Findings

The independent variables however have a significant association with the average amount saved in the phone because $p<0.05$

iii) Model Summary

Table 4.7 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.262[a]	.069	.065	.26828	.069	18.362	1	249	.000
2	.321[b]	.103	.096	.26384	.034	9.445	1	248	.002
3	.344[c]	.118	.108	.26210	.015	4.310	1	247	.039

Source: Research Findings

a. Predictors: (Constant), where do you save your money

b. Predictors: (Constant), where do you save your money, level of education

c. Predictors: (Constant), where do you save your money, level of education, to what extent do you face challenges while using mobile money

The model summary table represents entry of where they save money, which shows that it only accounted for 0.69% of the variance (R Square) in the subject average amount saved in the phone. Entry of the two variables i.e level of education and extent to which challenges are faced led to a R Square change of 11.8% which is significant from F change test ($F= 4.310$, $p<.05$), a test for the increase of explanatory power .

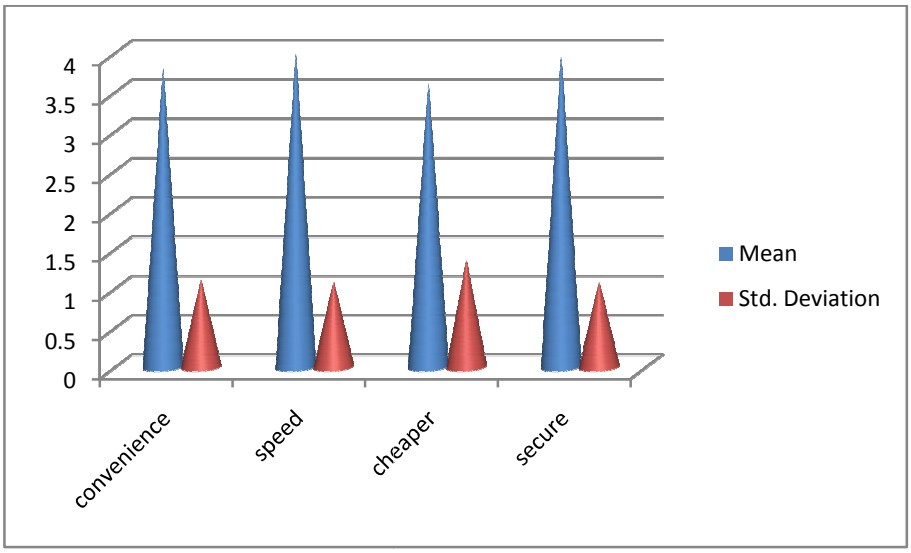
4.4 Other findings

Under this section the researcher considered other significant finding.

Motivation for using mobile money services

The purpose of this analysis was to establish some of the key motivations behind why residents of Molo town have embraced Mobile money services in a very big way.

Figure 4.2 Motivation for using Mobile Banking Services



Source: Research Findings

4.5 Measurement Reliability Test using Cronbach's Alpha

Reliability Statistics

Cronbach's Alpha	N of Items
.701	3

Source: Research Findings

Cronbach's Alpha is used to test the reliability of items included in the factor. This test is done to make sure that the measurements are reliable for further use. The Cronbach's alpha is 0.701 indicate a high level of internal consistency for the scale.

4.6 Interpretation of the Findings

The study was concerned in establishing the effect of mobile banking on the saving culture among residents of Molo town. This study examined how mobile banking has had an effect on the residents saving culture.

The study findings in table 4.1 show that mobile banking service is mostly manned by people of between 29-39 years, however the majority of its users range from 18 to 50 years. This means that mobile banking services are equally popular among users of widely varying ages.

The findings also in table 4.3 shows that most of those who were interviewed operate the mobile banking account more often as compared to how they operate their bank accounts. This is because it is easier for them to access their mobile banking services via their mobile phones.

Tables 4.4 and 4.5 have been used to show the extent to which mobile banking service has helped the respondents improve their saving behavior and avoid overspending. A higher percentage however agrees that mobile banking has indeed helped them improve their saving behavior which has played a critical role in helping them avoid overspending. Table 4.6 also shows that a high percentage of residents of Molo town agree that mobile banking has made saving easier as compared to traditional banking. This has had a positive impact on the frequency of saving since it increases the frequency of saving as seen in the table.

The study results from table 4.7 show that there is a statistically significant between the average amount saved in the phone and the challenges faced while using mobile banking, where money is saved and also level of education. The independent variables have a significant effect on the average amount saved in the phone.

From table 4.8 all explanatory variables except challenges faced while using mobile banking are negatively correlated with the dependent variable, average amount saved in the phone. The correlation results show that the independent variables have a weak relationship with the average amount of money saved in the phone. This is because the values are less than -.4 and +.4 respectively,

Where the money is saved and level of education has a negative relationship with the average amount of money that is saved in the phone. This means that when amount of money is saved in other facilities those saved in the phone will decrease meaning it will have a negative effect on the average amount saved in the phone, which means that when they increase they will adversely affect the average amount saved in the phone. Challenges faced however a positive relationship has with the average amount of money saved in the phone as seen in table 4.8. This means when challenges decrease then that put a positive effect on average amount saved in the phone.

Figure 4.2 shows that, the higher the mean or standard deviation the less the frequency. This therefore means in general the respondents agreed that all the factors put forward to them were some of the reasons as to why they use mobile banking services. However cost came out as the most important reason and speed came last. This means that residents of Molo prefer using the service of mobile banking as it is affordable to them

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter covers the summary of the findings, conclusions that can be drawn from the analyzed data, recommendations, limitations of the study ,and areas that need further research

5.2 Summary

In summary the objective of this study was to establish the effect of mobile banking on the saving culture among residents of Molo town. The study was able to establish this through a survey done via questionnaire that mobile banking indeed has an effect on the saving culture among the residents of Molo town. The achievement made so far by using the mobile banking services are many and there is still a lot of potential for growth in mobile banking in Kenya so as to attain even greater benefits.

The average amount saved was regressed against the three variables. Data was collected and findings indicated that on the overall model summary the average amount saved in the phone monthly is indeed dependent on the level of education, the place of save among the residents and also the challenges they face while using mobile money service also determines the amount of money saved.

The study has achieved its objective to discover the effect of mobile banking services on the saving culture. It was found out that mobile banking services is now indeed by far the most preferred and dominant way of saving money among residents of Molo town and has actually had a huge impact on the amount of money that is saved in the phones.

The study also found out that the mobile banking services has an effect as it has enabled many residents of Molo town to be able to save amount of money which has gone a long way in helping a high percentage of them avoid over spending. Many of the residents also agree that mobile banking has made saving easy as compared to using the traditional banking. The study also found out that mobile banking has indeed improved the saving culture among the residents of Molo. The study further found out that most of the residents of Molo town

operate their mobile banking service account more frequently as compare to operating bank accounts i.e 58% and 42% respectively.

5.3 Conclusions

The study concludes that mobile banking has an effect on the saving culture and as such with the improvement of the mobile technologies and devices; mobile banking users are able to conduct banking services at any time and any place. Many banks in the world have provided mobile access to financial information. Understanding the effect of mobile banking on the saving culture is an important issue in this research. Kenyan mobile banking sector presents a delightful outlook of exploitation. The demands of vibrant mobile banking revolve around improved network coverage, quality connection besides reduces cost so as ensure affordability to many.

5.4 Recommendations for Policy

From the finding of this study, it is recommended that the mobile banking services providers might be better of prevailing services at lower cost so as to net more users. By so doing they will be able to boost their revenues streams by promoting more transactions.

In order for the customers not to lose their money whenever they send money to the wrong number, the service providers should work on the legal framework which will ensure that the recipient can be prosecuted if they withdraw the money or whenever they transact in their account, the money is deducted and the person is refunded.

The service providers could also make the features of using the service more users friendly so that the users don’t suffer from the technical problems while using the service. The cost of the mobile banking services was also found to be high to some of the respondents, a factor which limits the reach of the service.

It is also recommended that mobile banking service providers should investigate ways through which float management can be undertaken. Information and education with respect to products and services should also be undertaken through various promotional and outreach programs.

5.5 Limitations of the Study

The study was largely successful however some problems noted included; The study only used multiple regression technique and didn't consider other suitable technique. The scope and depth of the study was also limited by the time factor and financial constraints. This put the researcher under immense time pressure.

Respondents wanted an assurance as to confidentiality of the information they were disclosing. Others were not sure if the researcher would live to the commitment to use the information provided exclusively for the purposes of the research. This made it difficult for some respondents to open up and freely respond to all the questions put to them.

The researcher also encountered problems with the respondents' unwillingness to complete the questionnaires promptly. Some kept the questionnaire for too long thus delaying the data analysis.

5.6 Recommendations for Further Research

The research recommends further study on the mobile banking since the study mainly focused on residents of Molo, the research should therefore be replicated in other towns and the results compared so as to establish whether there is a consistency among the residents.

The study also used regression analysis to analyze the data; it didn't consider use of other techniques such as chi-square and Time series technique It also didn't focus on mobile banking on the commercial banks, therefore the researcher recommends further studies using different analyzing technique.

For policy makers, the study recommends a further study on the economic implication of mobile money transfers. Such a study should seek to establish the impact of mobile banking on the macroeconomic variables of GDP and employment .It should aim at quantifying the economic implication of mobile banking.

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SCHOOL OF BUSINESS
MBA PROGRAMME

Telephone: 020-2059162
Telegrams: "Varsity", Nairobi
Telex: 22095 Varsity

DATE 21/06/2013

TO WHOM IT MAY CONCERN

The bearer of this letter Joyce Mumbi Ngáng'á

Registration No. D61/70473/2009

is a bona fide continuing student in the Master of Business Administration (MBA) degree program in this University.

He/she is required to submit as part of his/her coursework assessment a research project report on a management problem. We would like the students to do their projects on real problems affecting firms in Kenya. We would, therefore, appreciate your assistance to enable him/her collect data in your organization.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organizations on request.

Thank you.

PATRICK NYABUTO
FOR: MBA CO-ORDINATOR
SCHOOL OF BUSINESS

APPENDIX II

QUESTIONNAIRE

SECTION A:

NAME [optional]					
Sex	Male		Female		
Age [years]	Below 18	18-28	29-39	39-49	Above 50
Level of education	Primary school				
	Secondary school				
	College diploma				
	Undergraduate				
	Post graduate				

SECTION B:

1. Do you have a mobile phone?

Yes [ ]

No [ ]

2. Does your network offer a service that enables you transact with your phone financially?

Yes [ ]

No [ ]

3. If yes, Which of these mobile money services are you registered? *(Tick appropriately; you may tick more than one)*

i. M-PESA

ii. M-Kesho

iii. Airtel Money

iv. Yu Money

v. Orange Money

vi. M-Shwari

4. Do you have a bank account?

Yes [ ]

No [ ]

5. If yes, which of the two accounts do you operate more often?

Mobile banking service [ ]

Bank Account [ ]

6. How often do you save a part of your regular income? *Tick only once.*

Very often [ ]

Often [ ]

Occasionally [ ]

Rarely [ ]

Never [ ]

7. Where do you save your money? (*Tick appropriately; you may tick more than one)*

i. Savings Bank Account

ii. In the house

iii. Sacco

iv. In the phone

8. On average, how much do you save in a month by using other facilities (Amount in Kshs) Please tick only once

Less than 1000 [ ]

1,000-20,000 [ ]

21,000-50,000 [ ]

More than 50,000 [ ]

9. On average, how much do you save in a month though mobile money?
Amount in Kshs) please tick only once

Less than 1000 [ ]

1,000-20,000 [ ]

21,000-50,000 [ ]

More than 50,000 [ ]

10. To what extent has the following made you prefer to use Mobile money?

	No extent at all	Little extent	moderate	Great extent	Very great extent
Convenient					
Security					
Faster					
Cheaper					

11. What is your level of agreement that mobile banking has made saving easier as compared to using the traditional banking? *Please tick only once*

Strongly agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly disagree [ ]

12. To what extent does saving in your phone help you avoid overspending? (*Please Tick only once)*

No extent at all [ ]

Little extent [ ]

Moderate extent [ ]

Great extent [ ]

Very great extent [ ]

13. To what extent do you think using mobile banking has improved your saving behavior?

No extent at all [ ]

Little extent [ ]

Moderate extent [ ]

Great extent [ ]

Very great extent [ ]

14. To what extent do you face the following challenges while using Mobile money? Use a scale of 1 to 5 where: 1=No extent at all; 2=Little extent; 3=moderate extent; 4= Great extent;5=Very great extent

	5	4	3	2	1
Insufficient cash from the Mobile money agent					
Difficulty in accessing customer care service					
Sending money to the wrong recipient					
Delay in receiving confirmation text					
Technical procedures involved in using mobile money					

Thank You!

APPENDIX III

LIST OF MOBILE SERVICE PROVIDERS OFFERING MOBILE MONEY SERVICES

Airtel - Airtel Money

Orange - Orange Money

Safaricom - Mpesa

Yu Mobile - Yu Cash

APPENDIX IV

LIST OF COMMERCIAL BANKS OFFERING MOBILE BANKING SERVICES

Barclays Bank

Cooperative Bank of Kenya

Equity Bank

Family Bank

Kenya Commercial Bank

National Bank

Standard Chartered Bank