ASSESSING THE IMPACT OF MOBILE BANKING IN KENYA'S BANKING SECTOR:

(CASE STUDY OF KENYA COMMERCIAL BANK)

BY

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DECLARATION

This research project is my original work and has never been presented in any university for examination purposes.

Sign ..... Date 16/11/12

Catherine Njeri Kimotho

This research project has been presented for examination with my approval as a university supervisor.

Sign ..... Date 16th Nov. 2012

Edwin Nyutho

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DEDICATION

This proposal is dedicated to my family Mr. And Mrs. S.K. Wainaina, my fiancé George and my siblings Wainaina, Gakunga, Kamau.

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ABSTRACT

As the banking fraternity continues to make forays into the retail segment of the market, it is becoming more paramount that customers be given value for their hard-earned deposits. The new banking environment is about differentiating banking products, increased choices, security and accessibility. The ability of financial Institution to deliver products and services in the most efficient and effective manner, will therefore be the key to performance and relevance. Mobile banking serves to give the customers a new easier and quick approach to banking. This study sought to establish the trend, status and challenges facing m-banking in Kenya. To achieve this objective, the study collected data from the staff and customers of KCB. The data collected was qualitative and quantitative. Quantitative data was edited, coded and entered into a computer software SPSS version 17 for analysis. The study analyzed the data using descriptive statistics such as mean and standard deviation. The study found that the trend of m-banking in Kenya is increasing. There are various services and products in m-banking in Kenya. The study further established that use of m-banking is speed, accurate and convenient to the customers. However it faces a problem of low network coverage in some segments of the market. The study recommended that funding be directed and initiatives taken to widen network coverage in Kenya and m-banking services be expanded to include m-wallet in Kenya

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Mobile banking (also known as M-Banking, SMS Banking etc.) is a term used for performing balance checks, account transactions, payments, credit applications etc. via a mobile device such as a mobile phone or Personal Digital Assistant (PDA). The earliest mobile banking services were offered via SMS with the introduction of the first primitive smart phones with WAP support enabling the use of the mobile web in 1999, the first European banks started to offer mobile banking on this platform to their customers. Mobile banking has until recently (2010) most often been performed via SMS or the Mobile Web. Apple's initial success with i-phone and the rapid growth of phones based on Google's Android (operating system) has led to increasing use of special client programs, called apps, downloaded to the mobile device, (Srivastava V. *et. Al, 2012)*

Mobile Banking refers to provision of banking and financial services with the help of mobile telecommunication devices. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customized information, (Dierks& Allen 1999). As the banking fraternity continues to make forays into the retail segment of the market, it is becoming more paramount that customers be given value for their hard-earned deposits. The new banking environment is about differentiating banking products, increased choices, security and accessibility. The ability of financial Institution to deliver products and services in the most efficient and effective manner, will therefore be the key to performance and relevance.

1.1.1 Introduction of Mobile Banking in the Kenyan Market

In Kenya, majority of banks have introduced internet banking, mobile banking and other

e-banking facilities, to enhance delivery channels to their customers. It is however, important that the introduction of these products be accompanied with programs to broaden consumer horizon by enhancing their knowledge in the new and more innovative way of conducting banking business. For example, while Internet banking is fast and convenient mode of conducting banking transactions, this is yet to gain acceptance among banking consumers, due to fears of apprehension in this mode of banking. (Pennathur, 2001).Like many other developing countries, e-banking in Kenya is at its nascent stages. Not many banks have embraced e-banking but majority have at least one or two technology based delivery channels. The non adoption of e-banking by banks has been attributed to impaired non-availability of infrastructure and legislation to support e-banking (Gikandi, 2009)

The remarkable gains made towards mobile phone access such as the money transfer, quick communication, use of internet and m-banking, have seen a steady progress in the scope of innovations emanating from exploitation of these fairly new technologies. What has characterized the Kenyan mobile landscape is a rapid uptake of various services key among them the mobile based products. Mobile banking is one innovation which has progressively rendered itself in pervasive ways cutting across numerous sectors of economy and industry. An appropriate banking environment is considered a key pillar as well as an enabler of economic growth (Koivu 2002). With the continuously emerging wave of information driven economy, the banking industry in Kenya has inevitably found itself unable to resist 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. And given the huge demand for finance oriented services, institutions beside the historical banks have joined the fray in an attempt to grab a piece of the perceived cake of opportunity within the banking industry.

According to Financial Sector Deepening Kenya (FSD Kenya), the most recent data in available indicates that only 19% of adult Kenyans reported having access to a formal, regulated financial institution while over a third (38%) indicated no access to even the most rudimentary form of informal financial service. This leaves a percentage of more than 80% outside the bracket of the reach of mainstream banking. The pent up demand for an affordable and reliable way of holding funds while ensuring that risk levels are consigned to a minimum is consistently unfolding. A system with the potential to obliterate the historical hurdles of cost and free access which have for a long time stood in the way of willing partakers of banking services evokes immediate attention and interest. The unprecedented uptake of mobile phone banking services in Kenya is a testament to this fact.

1.1.2 Kenya Commercial Bank Limited.

The history of the bank dates back to 1896 when its predecessor, the National bank of India opened a small branch in Mombasa to handle business that infant port was attracting at the time. Eight years later in1904 the bank extended its operations to Nairobi, which had become the headquarters of the expanding railway line to Uganda (world bank report on economy and commercial banks (CBK, 2008)

The next major change in the bank's history came in 1958 when the long-established Grindlays bank merged with National bank of India to form the National and Grindlays bank. In those pre-independent days virtually all business was conducted with European farmers and Asians traders. With the coming of independence, however more and more Africans became actively involved in banking as opportunities for advancement were opened to all people. The government acquired 60% shareholding in National and Grindlys bank in an effort to bring banking closer to the majority of Kenyans. In the 1970 the government of Kenya acquired 100% of the share to take

full control of the largest commercial bank in Kenya National and Grindlys bank was renamed Kenya Commercial Bank (CBK, 2008).

1.2 Problem Statement

Mobile banking is an approach used by banks to bring customers convenience at hand. According to CCK 3rd Quarter 2011/2012 sector statistics reports, the number of mobile subscribers in Kenya by 31st March 2012 had increased to 29.2 million from 28.08 million in 31st December last year representing a growth of 4.0 per cent in total mobile subscriptions. This represents that more than 50% of Kenyans own mobile phones or personal Digital Assistants. By introducing mobile banking Kenya Commercial Bank brings banking services closer to the people in every sense. The customer does not have to move from one physical location to another in search of a bank. Time and money costs are done away with. Accessibility of the services is evident as they can be obtained any time of the night or day. Accessibility of banking services will play a major role in helping the Government of Kenya (GOK) achieve the status of Middle Income Country (MIC) in accordance to Vision 2030 (Jansen, 2010). The impact of mobile banking in the Kenya's banking sector through SMS as a way of banking communication is among the improved service delivery, improved customer satisfaction and reaching out to a larger target group throughout East Africa region.

Mobile banking has an impact of reducing transaction costs such as the ones encountered through traveling. In the earlier years, in the rural areas customers had to travel to the nearest towns in order to access banking services. With the introduction of e-banking, every client that owns a mobile phone can access the services at the comfort of his/her sitting room regardless the geographical location. Kenya Commercial Bank and other financial institutions lack the required capacity to establish bank branches in every corner of the country. This factor was leaving out a big group of

people who would have wanted to enjoy a certain bank's services but would not due to lack of its availability in the region. Mobile banking has impacted the community in such a way that people do banking transactions from a far way bank and still communicate effectively through mobile phone SMS. The need for establishment of bank branches has relatively reduced. This saves Kenya Commercial Bank investment costs in staff and infrastructure.

Previous case studies on e-banking technology have targeted insurance companies for example Megwa (2005), Kasoma (2000). KithinjiA. and Waweru N. (2008) case study on financial performance of Kenya Commercial banks. The studies analyzed the impact of merger for commercial banks. The results evaluated banks that had merged between 1993 and 2000. Another study by Gumbo (2006) investigated broadband technology adoption in Kenya. Wambari A. (2009) did a study on mobile banking in Kenya. The study looked on the use of mobile services to increase access to financial services through m-pesa. He gathered information from the small and medium enterprises and found out that there are a large numbers of mobile users and m-pesa agents in Kenya. USAID, 2009 did a study on link between mobile banking and mobile payment platforms to credit bureaus. Kenya was chosen as a case study because it has a very successful mobile payment service offered by Safaricom called M-PESA, as well as two private credit risk management companies, and the financial sector and banking regulator are making progress towards establishing licensed credit reference bureaus and building a credit bureau industry. Among the results was Mobile transaction data may be more useful as a market segmentation tool to separate lower- and higher-risk segments. The study concluded that credit data do not seem to be a binding constraint to increased access. Priority should therefore be on increasing the outreach of financial institutions and working towards having a robust credit reference bureau with multiple suppliers of information beyond banks.

The case of the banking sector in Kenya, there is no known study in Kenya which has ever been done on adoption and use of m-banking in Kenya. This study sought to fill gap in knowledge by assessing the impact of mobile banking in Kenya's banking sector using a case study of Kenya Commercial Bank (KCB)

1.3 Objectives of the Study

This case study had three objectives.

i. To explore the current state of mobile banking use in Kenyan Commercial Banks

ii. To determine the trend of mobile banking in Kenya Commercial Bank

iii. To establish the challenges faced in using mobile banking in Kenyan banks.

1.4 Value of the Study

Government: The findings will be important to the government of Kenya. In an attempt to achieve vision 2030 the government will use the gathered information to assess the progress in use of technology.

Banking Industry: The findings will also be beneficial to bank managers to assess the impact of mobile banking hence lay out strategies to improve the banks overall performance.

Researchers: The study findings will add to the available literature on mobile banking in Kenya's banking industry. It will promote education by providing reference to academicians and researchers in future case studies in the banking sector.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews available literature that is related to mobile banking in Kenya Commercial Bank. The chapter covers the theoretical review and empirical review.

2.2 Theoretical Review

2.2.1 Historical Perspective of the Concept of Mobile Banking

Mobile banking refers to use of mobile devices or Personal Digital Assistant to perform bank transactions against a bank account accessible using that device. Payments and financial transactions are done through mobile networks. Although the number of mobile money projects exceed 120 in an estimate of about 70 emerging markets (Beshouri et al. 2010), in Kenya mobile banking has gone as far as making payments and obtaining account details. Other mobile banking services offered in developed countries include: M-payment which involves making payments for purchased goods or services at the point of sale through a mobile phone; Mobile money transfers which involves transferring a given amount of money from one account to another by use of a mobile device and M-Wallet which involves an electronic store of a certain value of money linked to the user's mobile phone number. The user does not need to have a bank account. This can be used to transfer money and also make payments.

The perception of the customers will determine whether he/she will use m-banking. If he has trust issues with the bank as m-banking vendor it will be a negative factor (GU at el., 2009; Chung Kwon, 2009; Shah et al., 2009; Luo et al., 2010). All over the world, the telecommunication industry has strived to make available to mobile phone users what is

available to networked computers. Remote banking which can be explained as banking outside the banking hall is increasingly becoming common.

2.2.2 The Theory of Reasoned Action

The theory of reasoned action (Ajzen&Fishbein, 1980) was first introduced in 1967 by Fishbein in an effort to understand the relationship between attitude and behavior. It attempts to explain the relationship between beliefs, attitudes, intentions andbehavior. According to the theory of reasoned action, the most accurate determinant of behavior is behavioral intention. The direct determinants of people's behavioral intentions are their attitudes towards performing the behavior and the subjective norms associated with the behavior. Attitude is determined by a person's beliefs about the outcomes or attributes of performing a specific behavior (that is, behavioral beliefs), weighted by evaluations of those outcomes or attributes. The subjective norm of a person is determined by whether important referents (that is, people who are important to the person) approve or disapprove of the performance of a behavior (that is, normative beliefs), weighted by the person's motivation to comply with those referents (Ajzen&Fishbein, 1980; Montano &Kasprzyk, 2002).

According to Montano and Kasprzyk (2002), the theory of reasoned action is successful in explaining behavior when volitional control is high. In conditions where volitional control is low, the theory of planned behavior (Ajzen, 1991) is more appropriate to explaining behavior. Ajzen (1991) proposed the theory of planned behavior by adding perceived behavioral control (PBC) to the theory of reasoned action, in an effort to account for factors outside a person's volitional control that may affect her/his intentions and behavior. This extension was based on the idea that behavioral performance is determined by motivation (intention) and ability (behavioral control). According to Montano and Kasprzyk (2002), perceived behavioral control is similar to Bandura's

concept of self-efficacy, which refers to an individual's belief in his/her ability to perform a particular behavior under various conditions.

According to the theory of planned behavior, perceived behavioral control is determined by control beliefs concerning the presence or absence of facilitators and barriers to behavioral performance, weighted by the perceived power or input of each factor to facilitate or inhibit behavior. Thus, a person who holds strong control beliefs about factors that facilitate behavior will have high perceived control, which translates into an increased intention to perform the behavior (Ajzen, 1991; Montano &Kasprzyk, 2002).

2.2.3 Technology Acceptance Model

Technology acceptance model (TAM) is a theoretical foundation to explain and predict the individual's acceptance of information technology (Davis, 1989). TAM is based on Theory of Reasoned Action (TRA) (Fishbein, and Ajzen, 1975), which suggests that social behavior is motivated by the attitude and intention to perform. According to TRA, individuals often behave as they intend to do within available context and time. TAM, introduced by (Davis, 1986), adopts TRA's causal links to explain how external variables influence the inner beliefs, attitude, behavioral intention of users, and the actual usage of technology.

TAM not only uses the personal consideration and cognition toward some certain behaviors, but also adopts another two perceptions: perceived usefulness and perceived ease of use. Perceived usefulness means that the users think that it is beneficial to use thetechnology in completing his/her work. Perceived ease of use is how the users perceive the ease of using the technology. Both perceived usefulness and perceived ease of use would be influenced by external variables. Davis et al, (1989) explained that external variables are the connection between the inner belief, attitude,

intention, and personal differences, state, and controllable behavior. Previous research has listed various external variables. For example, (Agarwal, and Prasad, 1999) have examined personal differences as external variables, including the role connection with technicians, job term, education, experiences, and training. Mallette, and Fisher, (1998) have used training, technical support, working experiences, previous benefit, and voluntary as the external variables, and most of them are about personal characteristics and population attribute.

TAM is widely used by researchers to provide explanations of usage behavior of adopting information technology. This study is based on the perspective of TAM to investigate the online shopping channel. For TAM, user's beliefs determine the attitudes toward using the system. Behavioral intention, in turn, is determined by these attitudes toward using the system. Finally, behavioral intention leads to actual purchase behavior (Davis, 1989)

2.2.4 Diffusions of Innovations

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2003). An innovation is an idea, practice, or object perceived as new by an individual or other unit of adoption. The diffusion process typically involves both mass media and interpersonal communication channels. And, in today's world, information technologies such as the Internet and cell phones – which combine aspects of mass media and interpersonal channels, represent formidable tools of diffusion (Morris &Ogan, 1996). Consider the following experience of co-author Singhal in the Philippines.

Although most observers agree that the diffusion of innovations is fundamentally a communication process, communication scholars constitute only one of the dozen research traditions presently advancing the diffusion field (along with geography, education, marketing,

public health, rural sociology, agricultural economics, general economics, political science, and others) (Rogers, 1962). Other communication research areas such as persuasion and attitude change and mass communication effects also began prior to the institutionalization of communication study in university units (Rogers,1995; 2003; Singhal& Dearing, 2006).

The diffusion of innovations field emphasizes interpersonal communication networks more than any other type of communication research. From the first diffusion studies conducted about 60 years ago, the nature of diffusion was found to be essentially a social process involving interpersonal communication among similar individuals (Rosen, 2002; Valente, 2006). A person evaluates a new idea and decides whether or not to adopt it on the basis of discussions with peers who have already adopted or rejected the innovation. The main function of mass media communication in the diffusion process is to create awareness- knowledge about the innovation. Study of the diffusion of innovations involves both mass communication and interpersonal communication, and thus spans the dichotomy that otherwise divides communication into two sub-disciplines. These dichotomies blur further when diffusion occurs through the Internet, cell phones, and blackberry devices.

2.2.5 Theory of Planned Behavior (TPB)

Theory of planned behavior is a social cognitive theory, which is designed to understand and predict (determine) the doing or not doing the human behavior and it is the developed form of the Theory of reasoned action. The theory of reasoned action was developed by Fishbein and Ajzen in 1975. Entering construct "perceived behavioral control" as determinant of behavioral intention and behavior, Ajzen developed the theory of reasoned action and called it the theory of planned behavior; in 1985. This theory also tries to predict the involuntary behaviors considering the perceptions of performance control.

Theory of planned behavior was designed to eliminate defects and deficiencies of studies that aim to investigate the relationship between attitudes and behavior, and it determines the impact of three factors "attitude", "subjective norms" and "perceived behavior control" on the behavioral intention, (Fishbein and Ajzen, 1975). In fact, attitude is people's general feelings about desirability or undesirability of a subject or specific behavior. Subjective norm refers to individual's perception of the important people's opinions to do or not to do the behavior. In other words, the subjective norm is perceptions about the community opinions to do or not to do the behavior by individuals. Perceived behavior control construct is the individual's perception about ease or difficulty of doing behavior and shows the of individual's perception of required skills, resources and opportunities to perform the behavior.

TPB was designed for situations where people have not complete control over their behavior. According to this theory, behavior is a direct function of behavioral intentions (desire to doing the job) and perceived behavioral control, (Fishbein and Ajzen, 1975). Attitude is defined as positive or negative feelings about doing the behavior. Subjective norm refers to social pressures perceived by individuals to do or not do the target behavior. People often act based on their perceptions of what others think they should do, and their intention to accept the behavior is potentially influenced by people who have close connections with them. Normative belief refers to the perceived expectations of individuals or specific reference groups as well as personal motivation to motivate the individuals to do the target behavior, despite the perceived expectations. Behavioral intention is the intensity of individual's willingness to perform the target behavior. Perceived behavioral control indirectly through intentions and directly when the person does not

have complete control over the behavior, and when individual perceptions is based on control beliefs, affects the individual's behavior.

Extended theory of planned behavior

Most previous researches in the field of electronic banking have focused mainly on the technology adoption based on planned behavior model. Shih and Fang, 2004, in particular have done comprehensive studies on individual's beliefs, attitudes, perceived behavioral control and subjective norms, and the impact those factors have on users' behavioral intentions. However, most studies conducted in the field of electronic banking adoption models, an important factor such as quality and properties of electronic banking services on which mobile banking is defined, is not considered. Accordingly, five factors related to mobile banking services (information quality, transaction speed, ease of use, the bank's reputation and security of the mobile network) was added in the current study to other traditional factors in theory of planned behavior to obtain a better understanding of customer attitudes towards mobile banking.

2.3 Monetary Policy and Mobile Banking

2.3.1 Townsend Model of Financial Deepening and Growth

This model focuses directly on improvements in the technology of communication and links the degree of financial interconnectedness of agents with the level of economic development in a cross section and also over time. The idea is that as connectedness increases, with electronic payments connecting otherwise spatially separated agents; there is an increase in the specialization of labor, an increase in the consumption of market-produced goods, and a shift toward e-money relative to

fiat money, Townsend, 1987).This is the story of how financial deepening and growth are intertwined and how M-Banking could help Kenya increase gross domestic product over time at the same time as it increases monetized exchange.

The implications of this kind of model of financial deepening for a system like M-Banking is that it will change the financial connectedness of the individuals in the economy, which in the model above will cause higher economic development. Therefore, the main takeaway from this model is that m-banking can be viewed as a technological innovation that lowers trading costs or, better put, allows financial transfers (credits and debits) across agents who are still separated in space, (Townsend, 1987). This improves welfare, at least in the model economy without government and no vested interests in the current intermediation system (and without other heterogeneity). Fiat money and electronic payments can co-exist if some households have access to m-banking and some do not. However, in the model, but perhaps not in the m-banking system, the household buying goods in effect creates a net increase in e-money within the period. If e-money were essentially only a debit card, then an initial deposit of currency would have to underlie the debit transaction, undercutting this key advantage. In other words, the theory argues that we might see features of net credit creation in the functioning of the actual m-banking system, though perhaps at an aggregated or agent level and not necessarily at the level of individual households. However, for this feature to exist there must be a (harsh) means of preventing reneging or default so that accounts actually clear at the end.

2.3.2Manuelli and Sargent Turnpike Model with Currency and Debt

A closely related model of Manuelli and Sargent (2009) rationalizes the coexistence of fiat money and private credit. As in Townsend's turnpike models, agents meet in pairs and, while they have

long enough relationships to undertake some efficiency-enhancing intertemporal trades via the extension of private credit, they do not stay together long enough to effect fully Pareto efficient allocations. More specifically, time is divided into periods (think of these as "years"), each composed of four subintervals (e.g., "seasons"). Individuals meet for just half a year only, i.e., two consecutive subintervals, and then move on—some to the east, some to the west. In the first subinterval of a half-year, one person in a given pair has a positive endowment of the single perishable consumption good and the other has none, and in the second subinterval these roles are reversed, giving rise to short-term (two subinterval) private credit arrangements. However, the positive endowments in each subinterval can be either high or low.

One interpretation of Manuelli and Sargent's model, Manuelli and Sargent (2009), is as a generalization of Townsend's original turnpike in which endowments fluctuated with a periodicity of two and meetings lasted only one period. Instead of meeting for two periods, we can interpret Manuelli and Sargent as a model where households continue their travels after one period but remain linked electronically for two periods (though we ignore the requisite costly shipping of goods in the second period—some of the models below are more complicated so as to eliminate this flaw in our attempted interpretation). As the time and spatial limitations of communication fall (e.g., with the expansion of the network of M-Banking agents, accounts, and the use of cell phones), debts of increasingly long maturity can, in principle, be issued and repaid.

2.3.3 Implications of Mobile Banking and Monetary Policy

To the extent that mobile banking facilitates the operation of the private (often informal) credit market, a model that accommodates such products with nontrivial implications for policy can be informative. To start, as in the Townsend models, the laissez faire, non-interventionist monetary

equilibrium (without debt) is not Pareto optimal. Essentially, the wedge in the Cass-Yaari model, where money is earned through production and held without interest for one period, can be eliminated with intervention by paying interest on cash balances. This equates intertemporal substitution in consumption to the natural rate of time discount and ensures that no household hits a binding corner, running out of cash. But the impact of monetary policy interventions in the form of changes to base money depends on whether private credit is allowed or, under the interpretation here, whether e-money that allows borrowing and lending is in the system. An increase in the growth rate of the money supply has ambiguous effects on the average level of output but increases the volatility of output when there are no restrictions on private borrowing and lending. However, in economies where individuals do not have access to private loan markets, say because they move on without cell phones, the results are quite different: An increase in the rate of money growth decreases mean output and has no effect on volatility of output (which remains zero). Likewise, if the economy is liberalized, or otherwise experiences a surprise innovation that allows private borrowing and lending, then prices increase and output becomes more volatile, (Romer, 1987).

Financial innovation is welfare-improving but intimately connected with the impact variables that central banks typically monitor or attempt to control. As Manuelli and Sargent (2009) emphasize, the potential destabilizing effects of actual financial liberalizations are highlighted in both the academic and policy literatures. More generally, the effects of monetary policy depend on the way private credit markets are operating, even if in the process of borrowing and lending there is no net creation of e-money. Thus, when formulating monetary policy, the central bank will need to take into account the effective change in financial regimes that M-Banking has brought with it. Indeed, in the above class of models, optimal monetary policy in terms of control over fiat base money is

still relatively straightforward but not without interest. Specifically, the allocation achieved under optimal policy differs from the one associated with the corresponding economy with no locational restrictions and centralized trades permitted at time zero. While both allocations are Pareto optimal, they are not the same, implying that efficient monetary policy has redistributive consequences. Further, optimal government-issued currency continues to play an essential role even when interest is optimally paid on holdings of such currency. And, the interest-on-currency policy does not work in a way that can be replicated by free banking in a Walrasian world.

Related, moving from a suboptimal policy to one with interest on currency may redistribute income and not be Pareto improving. In Manuelli and Sargent Turnpike model, unlike the first, e-money does not drive out fiat money or the need for an optimal monetary policy. This is reminiscent of a class of related models of monetary management in which implementation of policy depends on the ability of agents to trade in asset markets. Financial market segmentation relies on costs that may be arguably decreasing. (Manuelli and Sargent, 2009).

2.4 Concept of Mobile Technology and Banking

Electronic Banking – the execution of financial services of a Bank via the Internet – is one of most appreciable examples of E-Commerce. Because it has changed the business of retail banks significantly, at the same time reducing costs and increasing convenience of customer (Pousttchi and Schurig, 2004). Banks and other financial institutions are exploring the use of mobile commerce to allow their customers to not only access account information, but also make transactions, such as purchasing stocks, remitting money via mobile phones and other mobile equipments. This service is often referred to as m-banking. Since cellular networks has become an essential component of the economic and social infrastructure of the developed and developing

countries, a new subset of electronic banking has created, mobile banking (m-banking). M-Banking refers to that technology which covers account management via mobile devices (Pousttchi and Schurig, 2004). On the other hand, customers get the convenience of accessing the bank directly from their home or workplace. In addition, messaging solution adds real value by its event based alerts. A customer is informed about all the transactions happening in his/her account. It can include range of services like information about bank accounts, Time deposits, ATM card transactions, Credit card transactions, Fund transfer, Personal loan details, Mutual Funds etc.

2.5 Current State of Kenyan Mobile Money Market

Currently the mobile money market in Kenya is dominated by one major player, Safaricom's M-Pesa. Not only did Safaricom launch the first service, in 2007, but it still dominates the field, with an estimated 99% market share of all mobile money transactions in Kenya. (FSD Kenya, 2009) Each of the mobile money players offer similar types of services, although the three newer service providers have tried to distinguish themselves in various ways, largely through their platform capabilities and service structures for corporate mobile money services. Many organizations want to offer their clients and customers the mobile money service provider of their choice when linking such services to their product offerings, but these services are not yet available. Therefore, for the time being, anyone looking to utilize a mobile money service in Kenya has little choice but to work with Safaricom, which has the largest network of subscriptions with a total of 17.5 million and 28 thousand agents.The success of mobile money in Kenya has been nothing short of phenomenal.

In just over four years, (between 2007 and 2011) a country with only 1,072 bank branches has seen the number of agent outlets providing mobile money service grow to 46,000. People have access to financial services as never before, such that the proportion of the population which is completely

excluded from financial services is lower in Kenya than any other African country except for South Africa. The key drivers of this financial inclusion in Kenya, most notably Safaricom's M-Pesa and Equity Bank, center on a very supportive regulatory regime, innovative business models and technological advances, particularly in the mobile phone sector. The issue at this point is no longer whether mobile money will survive in Kenya, but how to link this service into the greater financial ecosystem, as it's clearly here to stay.

In a population of 40 million people, it is difficult to get a clear sense of how many Kenyan citizens are considered formally "banked." A recent Fin Access report showed the number of formally banked people (defined as those using a bank, Post bank or insurance product) at 22.6% in 2009. One recent statement has the number of bank accounts at 5.5 million, giving a banked ratio of 14%, while yet another public statement, that there are 14 million deposit accounts, would put the "banked" ratio of about 35%. However one wishes to calculate it, it is clear that a good percentage of the population, at least two thirds, remains excluded from formal financial services. In fact, it is estimated that 95% of all financial transactions in Kenya are still cash-based. Of those that aren't cash based, it is estimated that 70% of these are handled by Safaricom's M-Pesa mobile money service. Total registered mobile money accounts in Kenya number 18.6 million, (FSD, 2009) although some of those are probably owned by users with multiple accounts, so it is safe to say that there are at least 16 million mobile money account holders in Kenya, or about 40% of the population, almost 60% of the adult population. It is also estimated that about 85% of Kenyans have used mobile money. In terms of mobile money market share, Safaricom's M-Pesa has about 99% of the mobile money market, and therefore essentially defines (for now) what the market looks like.

M-banking has made a huge difference in the lives of the poor who have traditionally been

excluded from the formal banking system. Bank products and fees have not typically catered to very low-income earners, nor have the poor felt the need or ability to use EFT. (CBK Annual Report 2010-2011) Culturally the poor have not felt welcome in banks. As a result, most low-income Kenyans have operated on a cash-only basis, with little or no savings and no means of developing a credit history. A key financial transaction for many of Kenya's citizens in recent years has been for a worker in Nairobi to send money home to family members remaining in home villages. The primary options for doing this have been via bank or postal transfer or to ask someone to carry it for them, either a friend or a taxi or bus driver, at high cost and high risk. (For small amounts, the fee as a percentage of amounts sent can be higher than 35% due to the high minimum fees charged for every transfer.)

The introduction of the M-banking service in 2007, focused on the marketing slogan of "send money home," touched a nerve and filled a big gap in the market. Kenyans consider m-banking a cheaper, faster and safer option for sending money, and one that is considerably more accessible than other options out there, such as bus, taxi, Posta Pay or bank branches. Currently, about 16 million Kenyans use mobile money to send money, pay bills, cover expenses, and buy goods. Besides money transfer and bill pay, it is estimated that 75% of M- banking users also save at least some money in their mobile account, citing reasons of ease (45%) and safety (26%) as the major factors. Organizations are also increasingly using M-banking, formally and informally. (CBK Annual Report 2010-2011).

2.6 Trends in Mobile Banking

The introduction of technology has seen the revolution of financial services businesses. Banks have been empowered as they are now able to offer 24 hour services to their customers. Over the last few years, mobile phone market has grown tremendously. This is according to GSM

association and ovum who state that there are more than 2.5 billion GSM mobile phone subscribers. There must be a big impact of mobile banking since according to a financial consultancy study the use of mobile banking households had risen to 35 % in 2010 from 1 % in mid 2007. Which effect does being able to make payment at the point of sale through mobile money banking have on the affected parties? It is clear that mobile users have just started utilizing the data capability of these devices. The trend shows that there might be more upgraded financial services in the future.

In countries with more developed mobile infrastructure and penetration such as Europe, China, India and Philippines mobile banking has a much expanded market. Such countries have better infrastructure than the fixed-line infrastructure which we have in Kenya. If we study the impact of mobile banking in Kenya which has the limited fixed-line infrastructure we will be able to assess the need for more opened up mobile phone infrastructures and the impact it would have in our financial institutions such as Kenya Commercial Bank. Indeed in the developing world there are more people with mobile phone devices than with bank accounts (Porteous, 2006).

2.7 Mobile Banking and Economic Development

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. 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,

micro-payments, 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 the Philippines, South Africa, Kenya, and elsewhere, these services are broadly available and increasingly popular.

Scholarly research on the adoption and socioeconomic impacts of m-banking/m payments 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. There is the need for research focusing on the context(s) in which m-banking/m-payments systems are used and also help reveal the myriad social, technological, and economic influences on use, this contextual research is not simply a complement but rather a critical input to effective "adoption" or "impact" research. The challenges of generating interdisciplinary dialogue about m-banking in the developing world are illustrative of long-running dynamics within the community of scholars and practitioners concerned with Information and Communication Technologies and Development (ICTD). The m-banking case adds new wrinkles to broader discussions about technology and development, and about mobiles in society.

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

The terms m-banking, m-payments, m-transfers, m-payments, and m-financerefer 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, or even access credit or insurance products. This paper uses the compound term *m-banking/mpaymentssystems* to refer to the most common features. The first targets for these applications were consumers in the developed world. 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; infoDEV, 2006). 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 (infoDEV, 2006; 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 (infoDEV, 2006). 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.

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, P2P transfers between individuals, 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 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 or creates a pseudo bank account, held by a third party or the user's mobile operator. (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 GSM 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.

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, where three million customers use systems offered by mobile operators Smart and Globe (infoDEV, 2006); in South Africa, where 450,000 people use Wizzit ("the bank in your pocket") (Ivatury& Pickens, 2006) or one of two other national systems (Porteous, 2007); and in Kenya, where nearly two million users registered with Safaricom M-Pesa system within a year of its nationwide rollout (Ivatury& Mas, 2008; Vaughan, 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 m-commerce 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" (pp. 8- 9), for example, will impact the claims and research programs of those interested in the technology.

The current research literature can be classified into three types of studies: (a) those that explain or predict the adoption of m-banking/m-payments systems; (b) those that assess the systems" impact on people and on economies; and (c) a relative few that try to understand the use of such systems in social, economic, and cultural contexts. Variants of this trichotomy, which distinguishes adoption studies from impact studies and from "use" studies, have been documented before (Fischer, 1992; Markus &Robey, 1988; Orlikowski&Iacono, 2001; Sein&Harindranath, 2004) and are a reflection of the disciplines that take an interest in communication technologies.

Donner (2008) applied the trichotomy in a review of the research literature on mobile telephony in the developing world. M-banking/m-payments systems have all the markers of an "innovation" waiting to be "diffused" to or adopted by a subset of mobile users in the developing world (e.g., Rogers, 1983). Brown, Cajee, Davies, and Stroebel (2003) used a statistical model combining elements of the theories of diffusion of innovation (Rogers, 1983) and of planned behavior (Taylor & Todd, 1995) to predict mobile banking take-up in South Africa, finding high levels of perceived

risk to be a major barrier to further adoption. To date, it is one of the few evaluations of an m-banking/ m-payments system in the developing world explicitly applying a theoretical lens. Two studies from the economic development/practitioner literature (Ivatury& Pickens, 2006; Porteous, 2007) suggested that mobile banking users in South Africa are wealthier and better educated than the average South African with a bank account, let alone the average unbanked South African. Porteous suggests that the profile of the typical m-banking user in South Africa still resembles that of the "early adopter" (see also, Ivatury& Mas, 2008).

Drawing on representative survey data, Porteous cites mistrust and unawareness among the primary reasons South Africans might choose not to adopt m-banking. Studies of the impact of m-banking/m-payments systems in the developing world are also scarce because the systems are so new. The best impact assessment to date is (Porteous, 2007), in which impact is operationalized using an "access frontier," which divides those who have the wherewithal—a monthly income from a formal source—to open the most basic of conventional bank accounts. Those below the frontier who use m-banking/m-payments systems do so as an alternative or addition to other choices. Those from above the frontier have done so by necessity. Porteous concludes that the "transformational" impact of m-banking/m-payments services in South Africa has been small (so far) because virtually all of the users are from below the frontier.

Additional adoption and impact studies are sure to follow, but the research community should also pursue studies of the context and use of m-banking/m-payments systems in the developing world. This section presents three important examples of non-technical (social and economic) contextual factors: comfort with electronic money, the availability of alternatives, and the social context of

transactions. Each influences the dynamics of m-banking/m-payments" adoption and impact, currently unfolding around the world. Even the simplest handsets have features buried deep in menu structures. If navigating an m-banking/m-payments interface is difficult for experienced mobile users with bank accounts, even greater is the difficulty for first-time users in the developing world, many of whom will have only been using a mobile for a year or two (Cracknell, 2004; Peevers, Douglas, & Jack, 2008).

However, the challenges may run deeper than interface design. People coming to banking for the first time via the mobile handset require a command of abstract concepts about invisible/virtual money. Consider the lack of ways to wrap or "gift" a digital money transfer (Singh, 2007). Beliefs, misunderstandings, habits, and concerns must be addressed if people who are used to storing money in cash are asked to store it "in" a handset; the analogy remains strained—the mobile is not yet a wallet (Chipchase, Persson, Piippo, Aarras, & Yamamoto, 2005).

The role of existing mediated transfers and other financial services also deserves scrutiny.

A large proportion of the volume of m-transactions may reflect existing transactional relationships, shifted over to the new channels. This is not to say that a shift is not itself valuable—there are significant benefits of cost, reliability, safety, flexibility, and immediacy associated with m-banking/m-payments systems. However, it is important for industry, researchers, and policymakers to understand the transactional networks and behaviors that already exist. An antecedent to this argument comes from the microfinance sector. Arguing that "it is no longer acceptable for prospective providers not to inform themselves of what their future clients are already doing and what services they appear to need," Ruthven (2002, p. 269) identified a broad array of "money mosaics" operating in a Delhi slum. These "financial relations are

frequently embedded in other social relations which reflect the diversity of social, security, and economic needs which people have. It highlights the relatively small role of commercial transactions in people's financial lives, and the importance, extent and diversity of personal networks" (2002, p. 267).

In the case of m-banking/m-payments channels, pawn shops, bus companies, the post office, hand carrying by friends and family, underground money transfer mechanisms—such as China's *feich'ien*(„flying money," a network of affiliates allowing users to put money into the network in one city and have it available in another without the actual banknotes making the trip) (Maurer, 2008)—and formal transfer services like Western Union all have their adherents, and the list is longer when one includes alternative savings and credit mechanisms like chit funds and moneylenders.

There are communication issues, as well: transfers are exchanges at a distance, and as Ruthven points out, there is an implicit or explicit network of communication and information exchange embedded into almost every transaction. Remittances, in particular, are a context in which it is difficult to separate financial transactions from symbolic meaning and social bonding (Hart, 2000; Singh, 2007).

There is a litany of social/contextual influences on m-banking/m-payments use. Both macro-level cultural factors and micro-level, locally-negotiated norms in families and among peers—particularly about money—are at play (Zelizer, 1994). For example, respondents in focus

groups we conducted in Manila (Donner, 2007b) explained that, while they would certainly transfer money to a family member (a gift), they would not do so to an acquaintance (a loan).

Technically, the actions are the same. Socially, they are miles apart. Practitioners and policymakers are already concerned about validating m-transactions under conditions of sharing behavior (infoDEV, 2006), in which two people use the same handset. On the other hand, others suggest that m-banking/m-payments systems may alter patterns of money sharing within families by giving women greater autonomy and control over household savings (von Reijswoud, 2007).

2.8 Key Challenges of Mobile Banking

For client organizations operating in very remote areas, particularly the humanitarian organizations trying to distribute cash transfers to drought victims in the north, the challenges of using mobile money are somewhat different. In these remote regions, mobile network coverage is either very spotty or non-existent, so that other solutions are needed to deliver money to recipients. In some cases, organizations such as Oxfam are training local traders in the region to act as agents, and using the nearest bank branch (which may still be hours away) to receive the cash into the trader's bank account, whereby the trader needs to travel to the bank branch to obtain the cash and then travel back for distribution of the payments. Safaricom has a few truck-loaded Base Transceiver Stations (BTS), which can be driven to remote areas needing temporary coverage, but these are inadequate for the needs of the many emergency relief organizations requesting the coverage.

Along with mobile network coverage is sufficient mobile money agent coverage and adequate agent liquidity for when large volumes of transfers are made to specific areas. While there have been occasional problems in this area in recent years, Safaricom has generally done a good job of

planning ahead for such contingencies with its corporate clients, so major problems are few and far between. A separate but related issue is that of M-Pesa system outages, which some partners feel is a problem, especially on Fridays when a lot of transactions are occurring and straining the Safaricom system.

Another challenge of delivering cash transfers to the most remote areas is that many of the recipients lack a National ID. A major problem in these areas is that many people do not own phones, either because they can't afford them or because the lack of mobile network coverage makes it pointless. Several NGOs tried instituting a policy of letting beneficiaries nominate "proxies" – usually family members or trusted members of the community who could receive the funds on their behalf. However, many of these same NGOs have decided to stop using this proxy system, as too many recipients were complaining of not getting all or some of their money. In these cases, the organizations opted to give the beneficiaries SIM cards or IDs of their own with which to receive and withdraw their funds at an agent location or for physical cash distribution where there was no mobile coverage at all.

All the organizations we spoke with have a concern about the need and ability to obtain written receipts for the payments they distribute. In all cases they wanted the recipients' signatures for the benefit of their parent organization or donor requirements, not because they felt they needed it themselves. Even though the organizations felt confident of the electronic records they received from Safaricom, they were concerned about not contravening any control or audit requirements that may come up, whether these were explicitly outlined or not. The irony here, of course, is that by continuing to obtain signatures from their rural or remote beneficiaries, most of these organizations were negating some of the very benefits of using mobile money in the first place, specifically travel costs and staff time. Another issue related to receipts for Bulk Payment users is

that many of the partners want to cover the cost of the first cash withdrawal for their users, but obtaining records that reflect that extra expense cannot currently be done within the Safaricom system.

Another, somewhat unexpected, issue that arose regarding large volumes of transfer payments was concern among some agents around conducting greater than normal transactions and thus triggering a "suspicious activity report" from Safaricom. Given the strict monitoring and fraud regime that Safaricom imposes on its agents, none of them wanted to find themselves subject to investigation, even for perfectly legitimate business, nor did they want their names included in monitoring reports to the CBK. In this particular case, the organization in question wasn't aware that they could use a Bulk Payment Service offered by Safaricom, so they attempted to place high volumes of P2P transfers with the help of a supermarket agent chain, where the issue arose. Better information would have helped the partner here, but it's noteworthy that the monitoring regime is enforced enough to impel caution on the part of agents.

Trust is a major issue in mobile banking or e-banking generally. It determines the mobile banking use (Ivatury, 2004; Porteous, 2007). People may be at ease in a face to face contact compared to use of exclusive m-banking Wizzit (Ivatury& Pickens, 2006). A research on the impact of mobile banking and its acceptability might influence a proposed modified technology acceptance model that comprises a trust variable which can give it credibility.

Trust in m-banking is a sensitive concept which should be handled carefully (Benamati&Serva, 2007). People might trust or lack trust in the interface, the money transferring network, and even financial institutions (Maurer, 2008). People might also trust some exchange partners and fail to transact with others. The trust might change with continued use and the experience with the mobile

banking or payment system. In Jamaica "link up" mobile phones are used as a strategy to develop and maintain resources through networks in order to obtain future loans or financial assistance. This is an example of how information technology generates and strengthens social/economic relationship which in turn generates returns to the players.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with the research design methodology that was used in order to achieve the set objectives of the study. This chapter is arranged into subheadings which entails research design, target population, sampling design, data collection and entry procedures and data analysis.

3.2 Research Design

This study was a case research design. According to Young (2002) a case study is a powerful form of qualitative and quantitative analysis that involves a careful and complete observation of a social unit, irrespective of what type of unit is under study. The case study approach is a method that drills down, rather than cast wide which may not be possible with other methods of study. This study therefore used case research design to assess the impact of mobile banking on the banking sector in Kenya.

3.3 Target Population of Study

The study mainly targeted the staff at the Kenya commercial bank in Kenya. The staff from different branches in Nairobi provided the required information. The Kenya Commercial Bank customers also provided data about their experience of mobile banking and how it had impacted their banking services.

3.4 Data Collection

This study used both qualitative and quantitative methods of data collection. This enabled gathering of primary and secondary data. The quantitative method to collect primary data was by use of a questionnaire. The questionnaire comprised of two major segments. The first one gathered

demographic information of the respondent. This part contained the personal information of the respondent. The second part of the questionnaire consisted of research questions which were analyzed to determine the impact of mobile banking and the trend its taking. Secondary data was obtained by studying the already published existing study materials on mobile banking in Kenya commercial bank sector. The questionnaire comprised of close – ended (structured) questions and open-ended (unstructured) questions to collect the thoughts of the respondents. The respondents were Kenya Commercial Bank customers since they were the ones who interact with the mobile banking application and the employees too since they track and operate against the application.

3.5 Data Analysis

The collected data was thoroughly examined and checked for effectiveness and comprehensibility. The data was then summarized, coded and entered in a computer aided tool for analysis that is; Statistical Package for Social Sciences (SPSS) which produced descriptive statistics that is; means, standard deviation and frequency distribution which were used to analyze the data. SPSS was then used to perform the analysis as it aids in organizing and summarizing the results. The findings were presented by the use of bar charts and graphs, percentages, pie charts and frequency tables. This ensured that the gathered information was clearly understood.

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION

4.0 Introduction

This chapter presents the findings of the data collected. The data has been summarized and collated and presented using bar graphs, pie charts and tables.

4.1. Demographic Information

Gender

The respondents were requested to indicate their gender. The findings are shown in figure 4.1.

Figure4.1 Gender

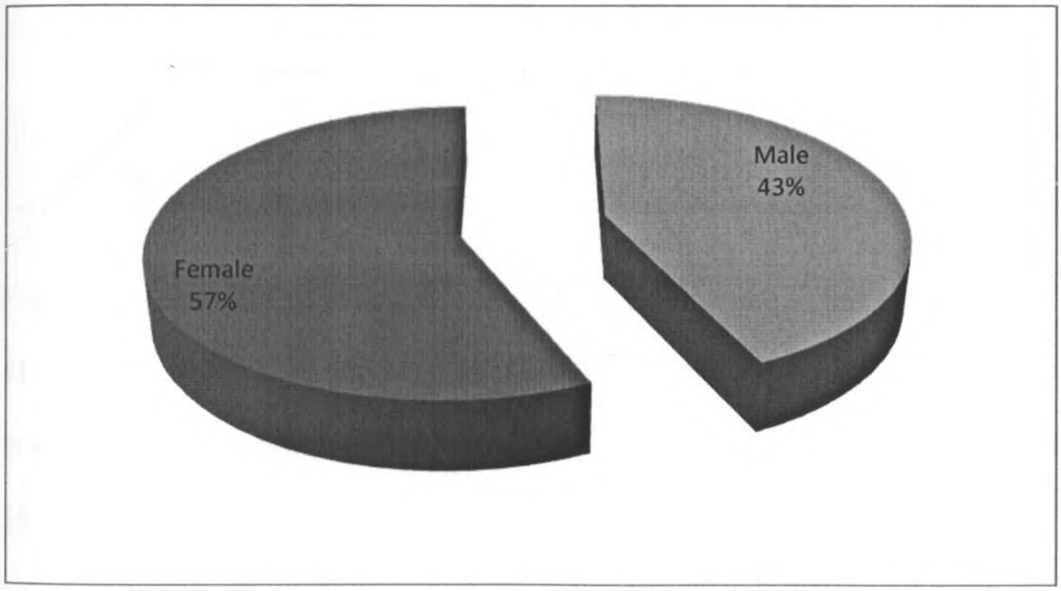

Figure 4.1 shows that majority of the respondents (57%) were females while 43% were males. Thus the respondents of the study was gender sensitive

Age bracket

The respondents stated their age brackets. The findings on their aggregate age brackets are shown in figure 4.2.

Figure 4.2 Age bracket

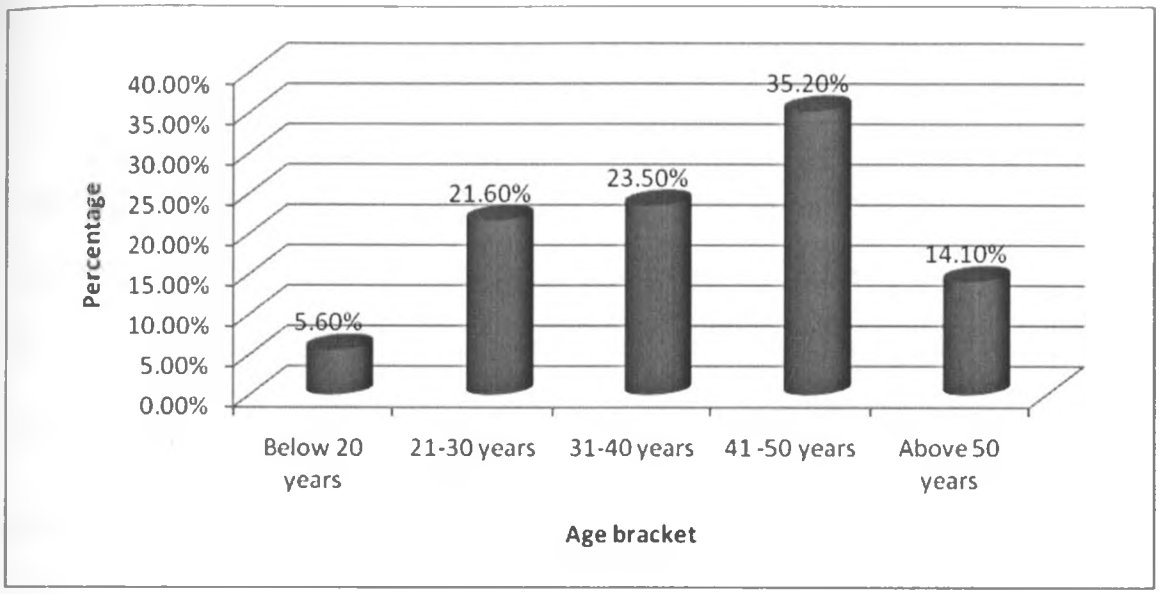

Figure 4.2 shows that most of the respondents who took part in this study were of the age bracket 41-50 years (35.2%), 23.5% were of the age bracket 31-40 years while 21.6% were of the age bracket 21-30 years. This implies that majority of the respondents are of the age bracket from 21 to 50 years.

4.1.1 Experience in Banking Sector

The respondents provided information about the duration they had been doing transactions with the banks. The findings are shown in figure in figure 4.3.

Figure 4.3 Experience in banking sector

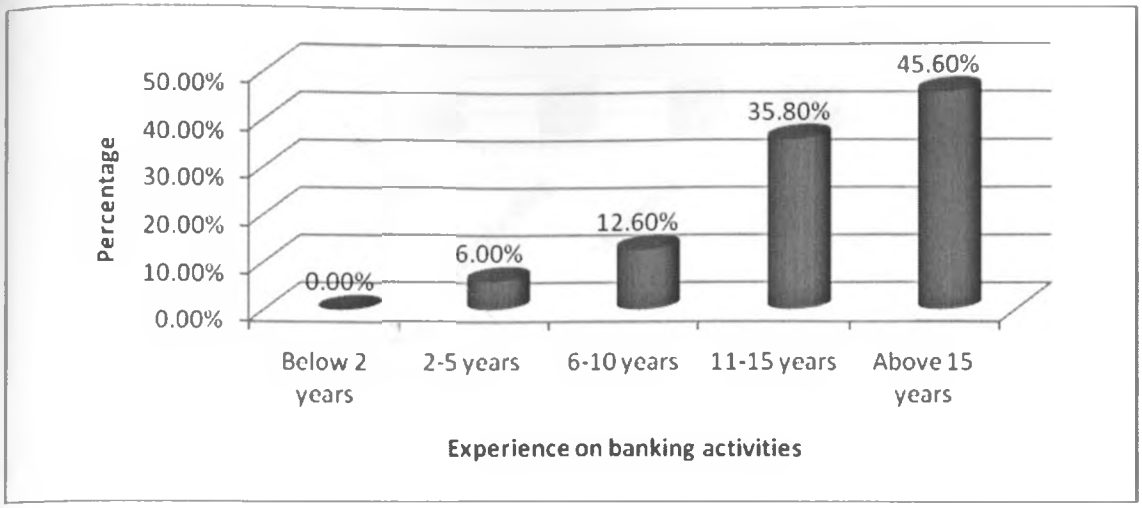

Figure 4.3 shows that majority (45.6%) of the respondents had experience with bank activities and transactions for more than 15 years, a sizeable proportion (35.8%) had a work experience of between 11-15 years. This implies the respondents who took part in this study had good experience on bank activities.

4.1.2 Department

The researcher requested the respondents to indicate their departments. The results are shown in figure 4.4.

Figure 4.4 Department

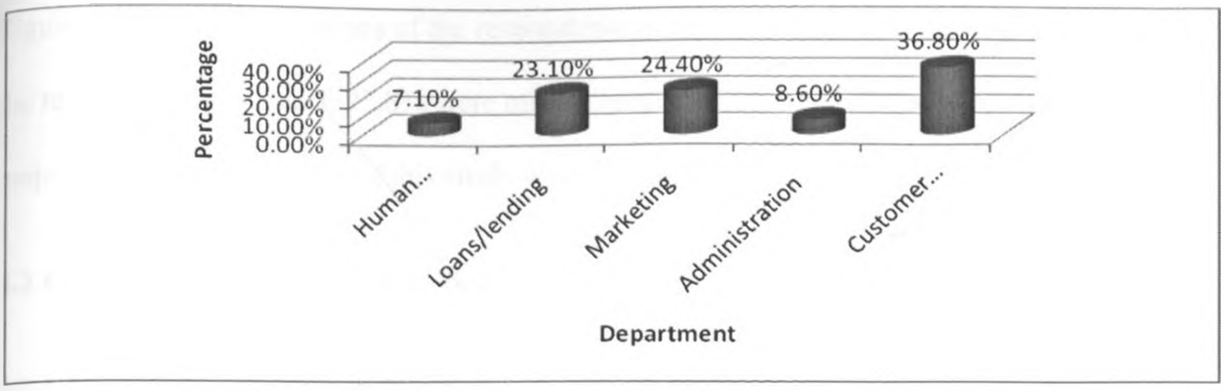

Figure 4.4 shows that most (36.8%) of the respondents who took part in this study were from the department of customer service, 24.4% were from marketing department and 23.1% were loans/lending department. Others were from the human resource and administration departments.

4.1.3 Position of the Respondents in the Bank

The researcher requested the respondents to provide information on the positions they held in the bank. The findings are shown in figure 4.5.

Figure 4.5 Position of the respondents in the bank

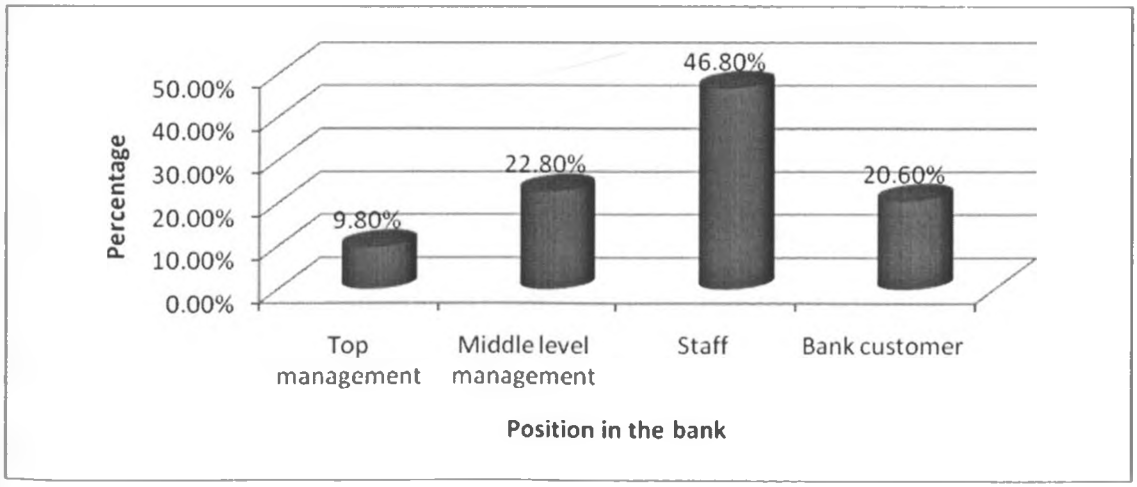

Figure 4.5 shows the positions of the respondents in the bank. From the findings, most (46.8%) of the respondents were staff, 22.8% were middle level managers, 20.6% were bank customers. Thus majority of the respondents of this study were staff and bank customers.

4.2 Current State of Mobile Banking

4.2.1 Knowledge on Mobile Banking

The respondents provided information on their knowledge about mobile banking. Thefindings are shown in figure 4.6.

Figure 4.6 Knowledge on mobile banking

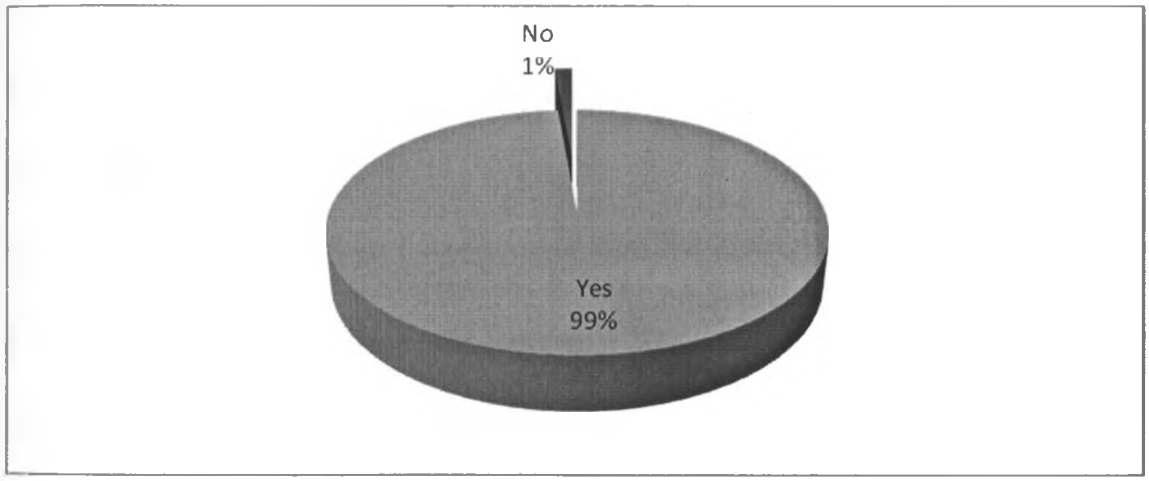

Figure 4.6 shows findings on the knowledge of the respondents on mobile banking. From the findings, majority of the respondents (99%) admitted they had knowledge about mobile banking. Only a negligible proportion (1%) of the population admitted that they had no knowledge on mobile banking. This implies that mobile banking is widely known.

4.2.2 Extent to which KCB use M-Banking in her Activities

The respondents were asked by the researcher to state whether KCB used m-banking in her

activities. The findings are shown in figure 4.7.

Figure 4.7 Extent to which KCB use m-banking in her activities

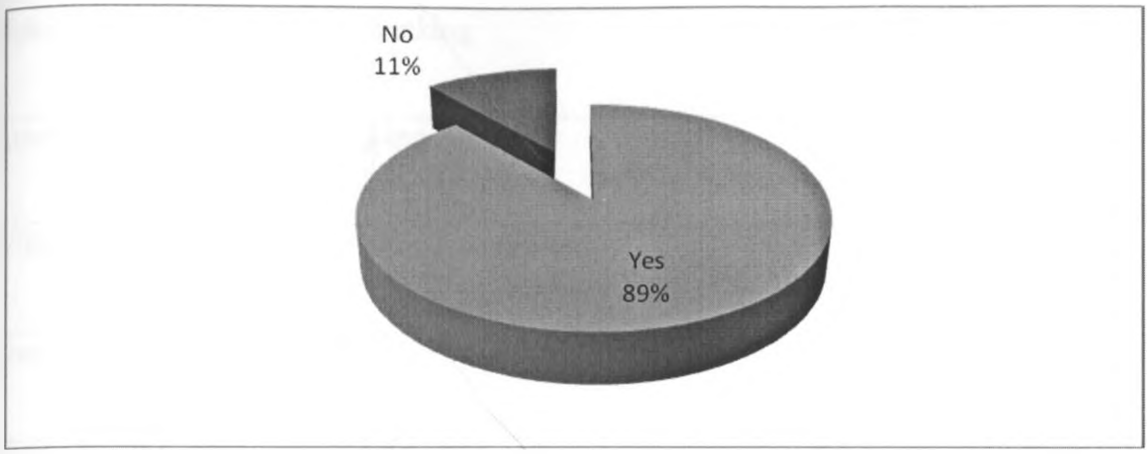

Figure 4.7 shows the findings on the extent to which KCB use m-banking in her activities. From the findings, majority (89%) of the respondents admitted that KCB uses m-banking services and products in her activities. The rest 11% were not aware whether KCB uses m-banking services and products.

4.2.3 Extent to which KCB has Adopted M-Banking Services and Products.

The respondents provided information on the extent to which KCB has adopted m-banking services and products. The responses were recorded using a likert scale of 5 units. Ranging from 1 to 5 where 1 represented no extent, 2-low extent, 3-moderate extent, 4-great extent and 5-very great extent. The findings are tabulated in table 4.1.

Table 4.1 Extent to which KCB has adopted m-banking services and products.

	Mean	Std.dev
Making payments through m-banking	2.5	0.8
Funds transfer through m-banking	4.4	0.5
Withdrawals through mobile phones to m-pesa	4.3	0.6
Crediting accounts through m-banking from m-pesa	4.1	0.5
Purchase of airtime	4.5	0.6
Balance inquiry	4.3	0.7
Use of m-wallet	1.2	0.6

Table 4.1 shows the findings on the extent to which KCB has adopted m-banking. The responses were analyzed using descriptive statistics such as mean and standard deviation. According to the scale, those variables with a mean close to 4.0 were rated to a 'great extent', those with a mean close to 3.0 were rated to a 'moderate extent' and those with a mean close to 2.0 were rated to a 'low extent' or were not considered at all. At the same time standard deviation was used to indicate the extent of dispersion of the responses.

From the findings shown, respondents admitted that KCB uses funds transfer through m-banking to a great extent (M=4.4), withdrawals from the bank accounts to m-pesa to a great extent (M=4.3) and depositing funds to their accounts through mobile phones was done to a great extent (M=4.1).

Other m-banking services such as purchase of airtime (M=4.5) and balance inquiry (M=4.3) through use of mobile phones were also noted to have been utilized to a great extent. However, m-payments of goods and services were utilized to a low extent (M=2.5). Also m-wallet was not used at all.

4.2.4 Use of M-Banking Today Compared to 7 years ago

The respondents provided information on the extent of improvement in the use of m-banking today compared to 7 years ago. The findings are shown in figure 4.8.

Figure 4.8 Use of m-banking today compared to 7 years ago

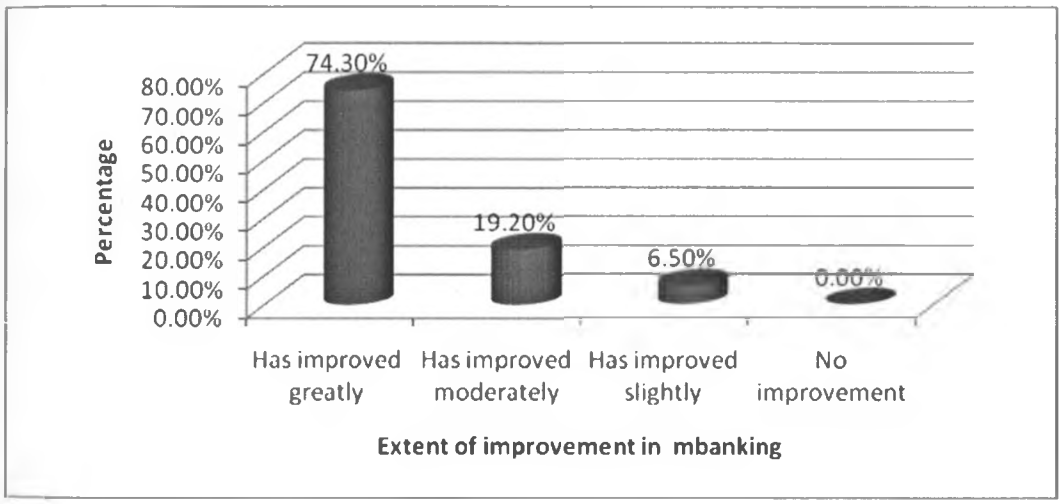

Figure 4.8 shows the extent to which m-banking is used today in comparison to some 7 years ago. From the findings, the use of m-banking services and products has improved greatly (74.3%). Significantly, none of the respondents admitted that there was improvement in the use of m-banking compared to 7 years ago.

4.3 Trend of M-Banking from 2005 up to 2012

The respondents were requested to give information on the trend of adoption and use of m-banking

services and products by KCB. The findings are shown in figure 4.9.

Figure 4.9 Trend of m-banking from 2005 upto 2012

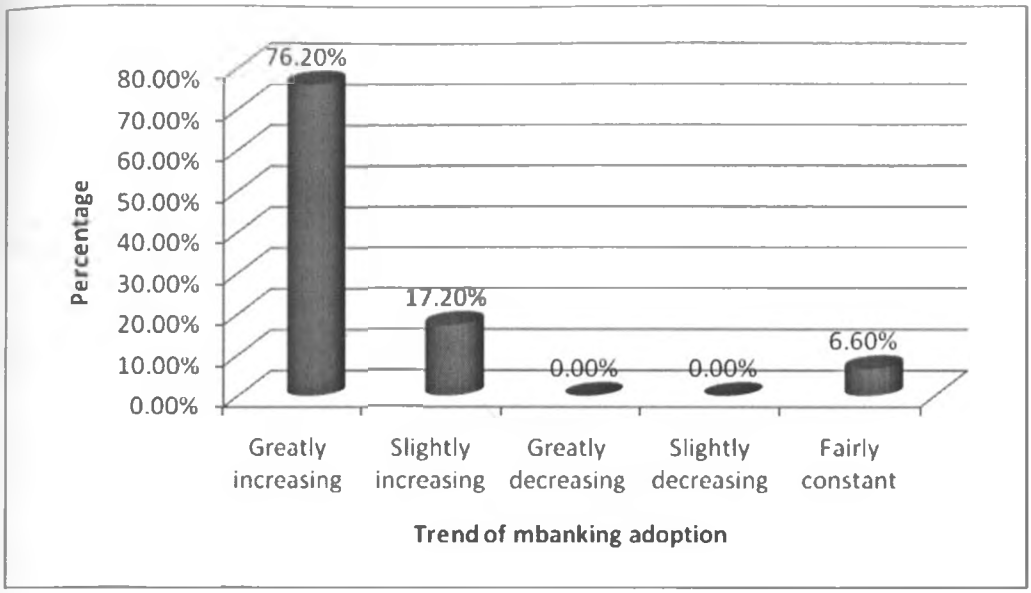

Figure 4.9 shows the findings on the trend of use of m-banking financial services from 2005 upto 2012. From the findings shown, majority of the respondents (76.2%) cited that the trend of adoption of m-banking has been greatly increasing. Some people contented that the adoption has been slightly increasing (17.2%). However, there was none of the respondents who cited a decreasing trend of m-banking adoption and use in KCB.

4.4 Advantages Associated with M-Banking.

The respondents provided information on the advantages of using m-banking services and products. The responses were recorded using a likert scale of 5 units. Ranging from 1 to 5 where 1 represented no extent, 2-low extent, 3-moderate extent, 4-great extent and 5-very great extent. The findings are tabulated in table 4.2.

Table 4.2 Extent at which the following advantages are associated to m-banking.

	Mean	Std. dev
Speed	4.1	0.5
Accuracy	4.2	0.7
Security	3.8	0.8
Efficient	3.2	0.7
Privacy	3.3	0.8
Convenience	4.4	0.6

Table 4.2 shows the findings on the advantages of m-banking over paper banking. The responses were analysed using descriptive statistics such as mean and standard deviation. According to the scale, those variables with a mean close to 4.0 were rated to a 'great extent', those with a mean close to 3.0 were rated to a 'moderate extent' and those with a mean close to 2.0 were rated to a 'low extent' or were not considered at all. At the same time standard deviation was used to indicate the extent of dispersion of the responses.

From the findings, the respondents cited that the m-banking were advantageous over paper banking in a number of ways. According to the respondents m-banking was speedy (M=4.1), accurate (M=4.2), secure (M=3.8) and convenient (M=4.4). However, m-banking was moderately efficient (M=3.2) slightly confidential (3.3).

4.5 Challenges Affecting M-Banking in Kenya Particularly KCB.

The respondents cited some of the challenges facing m-banking in Kenya especially KCB. The responses were recorded using a likert scale of 5 units. Ranging from 1 to 5 where 1 represented no extent, 2-low extent, 3-moderate extent, 4-great extent and 5-very great extent. The findings are tabulated in table 4.3.

Table 4.3 Challenges affecting m-banking in Kenya particularly KCB.

	Mean	Stddev
Lack of network coverage	4.4	0.6
Lack of mobile phones	2.5	0.7
People do not use banking services	3.7	0.8
Cost of transaction	2.4	0.9

Table 4.3 shows the findings on the challenges facing mobile banking in Kenya. The responses were analysed using descriptive statistics such as mean and standard deviation. According to the scale, those variables with a mean close to 4.0 were rated to a 'great extent', those with a mean close to 3.0 were rated to a 'moderate extent' and those with a mean close to 2.0 were rated to a 'low extent' or were not considered at all. At the same time standard deviation was used to indicate the extent of dispersion of the responses.

From the findings, the adoption and use of mobile banking has encountered some drawbacks. Firstly, lack of network coverage in some places has affected m-banking to a great extent (M=4.4). A large proportion of the population in Kenya also do not use banking services and thus they do

not utilize m-banking services. Notably, the study findings shows that lack of mobile phones (M=2.5) and transaction costs affect m-banking to a low extent (M=2.4).

CHAPTER FIVE: DISCUSSION, CONLUSIONS AND RECOMMENDATIONS OF THE STUDY.

5.0 Introduction

This study was motivated by the need to assess the impact of the use of m-banking in the banking activities and sector. The study specifically sought to establish the current status of use of m-banking in Kenyan banks, the trend of use and adoption of m-banking in Kenya and the challenges facing m-banking in Kenyan commercial banks. This chapter presents the demographic information of the respondents, discussions of the findings, conclusions, recommendations and suggestions for further study.

5.1 Demographic Information

This study was conducted in Nairobi. Majority of the respondents (57%) were females while 43% were males. Thus the views were from a well gender background. Most of respondents were (35.2%) were of the age bracket 41-50 years. A sizeable proportion (23.5%) were of the age bracket 31-40 years while 21.6% of the respondents were of the age bracket 21-30 years. Thus majority of them were of productive age bracket of 21-50 years. The study established that most of the respondents (45.6%) had banking experience of more than 15 years. None of the respondents had banking experience of less than 2 years indicating that the respondents were well versed with the banking activities and transactions.

The study attracted respondents from various departments, most of them (36.8%) were from the department of customer services, others from marketing (24.4%) and 23.1% were from the loans/lending departments. Notably, the respondents held various positions in the bank, most of them were staff (46.8%), some middle level managers (22.8%) while others were bank customers (20.6%).

5.2 Discussions of the findings

5.2.1 Current State of M-Banking

According to the CCK 3rd Quarter 2011/2012 sector statistics, the number of mobile subscribers increased by 4.0 per cent from 28.08 to 29.2 million, this high subscription indicates high rate of mobile phone usage in the country. Similarly, the study noted that most people are familiar with m-banking in Kenya (99%). The use of m-banking in Kenya is extensive and wide. For example, according to the study findings 89% of the KCB staff and customers use m-banking services and products. It is evident that the concept of m-banking is not knew to the bank customers and Kenyan people at large. However, despite this great number of mobile subscribers, According to FSD (2009), there were at least 16 million mobile money account holders in Kenya by 2009 which represents about 40% of the population. The same report also indicated that about 85% of Kenyans have used mobile money.

The study established that m-banking is used in different ways in Kenya. From the findings of this study, funds transfer through m-banking is used to a great extent (M=4.4). Withdrawals using mobile phones from their bank accounts to their m-pesa accounts was used to a great extent (M=4.3). Deposits from m-pesa accounts to bank accounts was to a great extent (M=4.1). Other m-banking services and products were purchase of airtime from the bank account and inquiry of bank balances through use of mobiles. These findings concur with CBK Annual Report (2010-2011) that 16 million Kenyans used mobile money to send money, pay bills, cover expenses, and buy goods and 75% used M-banking to save money in their accounts.

According to CBK Annual report (2010/2011) Kenyans considered M-banking as easy to use (45%) and safe (26%). However, the use of m-banking to pay purchased goods and services

through use of mobile phones was done to low extent (M=2.5). Moreover, the study noted that KCB never used m-wallet services. Thus the M-banking services need to be extended further to cover other services.

5.2.2 Trend of M-Banking Use and Adoption

The study established that use of m-banking had greatly improved (74.3%) from the way it used to be some 7 years. This indicates the adoption and trend of m-banking has being increasing over the years. These findings concur with Porteous, (2006), that the use of mobile banking households had risen to 35 % in 2010 from 1 % in mid 2007.

The rate at which technology or new services and products are adopted differs from one bank to another depending on varied factors. This study established that the trend at which the m-banking has been in Kenya KCB has been increasing greatly (76.2%). Some 17.2% indicated that the trend has been slightly increasing from 2005. Notably, none of the respondents stated that the trend on m-banking has been declining over the years. This shows that the overall adoption of m-banking KCB has been ever increasing from 2005 to 2012.

Although scholarly research on the adoption and socioeconomic impacts of m-banking/m payments systems in the developing world is scarce (Maurer, 2008) some pilots done in Philippines, South Africa, Kenya, and elsewhere, indicated that these services are broadly available and increasingly popular in those countries (Porteous, 2006). This generally implies the trend of M-banking is rapidly increasing both nationally and globally.

5.2.3 Advantages and Challenges Facing M-Banking

Pousttchi and Schurig, (2004) established that the new banking environment is about differentiating banking products, increased choices, security and accessibility. The ability of

financial Institution to deliver products and services in the most efficient and effective manner, will therefore be the key to performance and relevance. From the study findings, customers use M-banking since it is speedy (M=4.1), accurate (M=4.2), secure (M=3.8) and convenient (M=4.4). However, m-banking was moderately efficient (M=3.2) slightly confidential (3.3).

The adoption of m-banking has had its own share of draw backs. Firstly, lack of network coverage in some places has affected m-banking to a great extent (M=4.4). The same challenge was highlighted by Loretta Michaels in her study tilted *Kenya Mobile Money Market Assessment* that network coverage was very spotty or non-existent. A large proportion of the population in Kenya also do not use banking services and thus they do not utilize m-banking services this could be attributed to the fact that many of the recipients lack a National ID at some of the remote areas in the country.

Others challenges were that majority of the people in those remote areas never had mobiles because they could not afford them (M=2.5). According to a study on *Kenya Mobile Money Market Assessment* by Loretta (2011) most of the agents in the rural areas had inadequate liquidity to facilitate the Mobile financial services.

5.3 Conclusions

The study concludes that the use of m-banking is common in Kenya. The study notes that m-banking is used for making funds transfer, withdrawals from bank accounts to mpesa accounts, from mpesa accounts to bank accounts, purchase of airtimes, and making of bank inquiries.

The study concludes that there is no m-wallet in Kenya and the payments of services and goods purchased through m-banking is to a low extent and uncommon in Kenyan banking sector.

The study concludes that the trend of adoption and use of m-banking in Kenya has been greatly improving over the years. The study has established that the trend of m-banking in Kenya has been increasing over the years from 2005 to date.

The study concludes that customers prefer to use m-banking because it is speed enough, accurate, secure, and convenient. The study noted that the adoption and use of m-banking has faced numerous challenges such as lack of network coverage in some places which renders the m-banking totally impossible and a large population of unbanked people.

5.4 Recommendations

This study established that use of m-banking in Kenya is faced with a problem of spotty network coverage. This prevents some people in some segments from accessing and using m-banking financial services. This study recommends that the telecommunication industry in Kenya be boosted through funding to widen network coverage in Kenya.

The study has established that there is no m-wallet and the use of m-banking to pay goods and services in Kenya. It is therefore recommended that the telecommunication companies and the banks work in partnership to bring in Kenya this useful and sophisticated technology of m-banking.

The study has established that some people are not and do not use m-banking services. This is attributable to the fact that most do not have bank accounts and others are ignorant of the services. It is thus recommended that banks create more awareness on m-banking and make it affordable to include more and make it available to majority of the customers.

5.5 Suggestions for Further Studies

This study was conducted in Kenya commercial bank in Nairobi. The data was collected from the staff, customers and management team. Kenya commercial bank operations could be slightly different from those of other banks. It is thus recommended that other studies be done on the same subject but on other banks to reveal more on the adoption and use of m-banking in Kenya.

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APPENDICES

Appendix 1: Questionnaire

Section A: demographic information

1. Indicate your gender

   Male [ ] Female [ ]

2. Indicate your age bracket

   Below 20 years [ ]

   21-30 years [ ]

   31-40 years [ ]

   41 -50 years [ ]

   Above 50 years [ ]

3. Indicate your duration in banking sector

   Below 2 years [ ]

   2-5 years [ ]

6-10 years [ ]

11-15 years [ ]

Above 15 years [ ]

4. What is your department

Human resource [ ]

Loans/lending [ ]

Personal banking [ ]

Business banking [ ]

Administration [ ]

Customer service [ ]

Others specify.....

5. What is your position in the bank?

Top management [ ]

Middle level management [ ]

Staff [ ]

Bank customer [ ]

Section B: Information on mobile banking

Current state of mobile banking

6. Are you aware of mobile banking?

   Yes [ ] No [ ]

7. Does KCB use m-banking in her activities?

   Yes [ ] No [ ]

8. Indicate the extent to which your bank has adopted the following mbanking services and products.

	Very great extent	Great extent	Moderate extent	Low extent	No extent at all
Making payments through m-banking					
Funds transfer through m-banking					
Withdrawals through mobile phones to M-pesa					

Crediting accounts through M-banking from m-pesa					
Purchase of airtime					
Balance inquiry					

9. Apart from the above mentioned services what other m-banking services does your bank have?

   .....

   .....

   .....

   Trend of use of m-banking

10. To what extent does your bank use m-banking?

    Very great extent [ ]

    Great extent [ ]

    Moderately [ ]

    Low extent [ ]

No extent at all [ ]

11. How can you rate your bank's use of m-banking today compared to 7 years ago/

Has improved greatly [ ]

Has improved moderately [ ]

Has improved slightly [ ]

No improvement [ ]

12. What is the trend of m-banking from 2005 upto 2012?

Greatly increasing [ ]

Slightly increasing [ ]

Greatly decreasing [ ]

Slightly decreasing [ ]

Fairly constant [ ]

13. Indicate the extent at which the following advantages are associated to m-banking.

	Very great extent	Great extent	Moderate extent	Low extent	No extent at all
Speed					
Accuracy					
Security					
Efficient					
Privacy					
Convenience					

14. Apart from the above mentioned advantages of using m-banking. What other benefits come with m-banking

.....

.....

.....

.....

15. Indicate the extent to which the following challenges affect m-banking in Kenya particularly KCB.

	Very great extent	Great extent	Moderate extent	Low extent	No extent at all
Lack of network coverage					
Lack of mobile phones					
Poverty					
People do not use banking services					
Cost of transaction					

16. What other suggestions do you have on m-banking in Kenya?

.....

.....

.....