

**THE EFFECT OF MOBILE BANKING ON THE FINANCIAL
PERFORMANCE OF COMMERCIAL BANKS IN KENYA**

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FULFILLMENT OF THE REQUIREMENT FOR THE AWARD
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DECLARATION

I declare that this research project is my original work and to the best of my knowledge, it has not been submitted to any other institution.

Signed

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The research project has been presented for examination with my approval as the University supervisor.

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DEDICATION

I dedicate this project to my family, for the invaluable support, love and encouragement.

ABSTRACT

The use of mobile banking has been necessitated by the rapid change in technology. The banking industry has adopted new strategies of sustaining their growth due to stiff competition. Most banks have adopted mobile banking applications allowing customers to conveniently do their banking using their mobile devices anytime and anywhere (Tchouassi, 2012). The objective of the study was to determine the effect of mobile banking on the financial performance of commercial banks in Kenya. The research reviewed theories and empirical studies that explains the relationship between mobile banking adoption and financial performance. This included efficient structure versus market power theory, prospect theory, mental Accounting theory and financial intermediation theory, which are theories governing the performance of commercial banks. The population of the study was 44 commercial banks in Kenya. The study used secondary data from the Audited and published Financial Statements of the licenced commercial banks. The data collected relate to the number of customers registered in the mobile banking networks of the commercial banks, volume of transactions handled through mobile banking technology, natural logarithm of total assets and % GDP growth. Data analysis was done using Statistical Package for Social Sciences (SPSS) version 21 where inferential statistics were applied and multiple regressions employed to test the relationship between mobile banking adoption and the financial performance of commercial banks in Kenya. The study concluded that mobile banking has a positive effect on financial performance. The study also concluded that the volumes of transactions that can be processed on mobile banking are high as compared to delivering such transactions using manual processes. The study recommends that banks as well as the regulatory bodies should strive to implement mobile banking for better and cheaper ways of serving customers.

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ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
ATM	Automated teller machine
CAMELS	Capital Adequacy, Asset Quality, Management Quality, Earnings, Liquidity and Sensitivity to market risk
CBK	Central Bank of Kenya
CRB	Credit Reference Bureaus
DIT	Diffusion of Innovation Theory
E- Banking	Electronic banking
FI	Financial institutions
GDP	Gross Domestic Product
M-banking	Mobile Banking
MFB	Microfinance Banks
MFI	Microfinance institutions
MFS	Mobile Financial Services
MRP	Money Remittance Providers
NGO	Non-Governmental Organisations
P2P	Person to Person
RMP	Relative Market power
ROA	Return on assets
SACCOs	Savings and Credit Cooperative Society
SE	Scale efficiency
SIM	Subscriber Identity Module
SPSS	Statistical Package for Social Sciences
XE	X-efficiency

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Jenkins (2008) defined mobile money as money that can be accessed and used via mobile phone. As in many other developing countries, inexpensive handsets have made it possible for more and more people in Kenya to get phone connection. The introduction of mobile banking has allowed individuals to transfer funds by simple SMS technology or text messaging. This has dramatically reduced the cost and challenges of sending money long distances. Before the technology was available, most households delivered payments via hand or informally through friends or bus drivers. In the last dozen years mobile technology has flourished throughout the developing world faster than any other technology (Aker & Mbiti, 2010).

The combination of widespread cellular communication and the ability to transfer money instantly, securely and inexpensively are leading to enormous changes in the organization of economic activities, risk management and mitigation, family relations among other things. Morawczynski and Pickens (2009), observe that M-Pesa users sent smaller but more frequent remittances, which resulted in overall larger remittances to rural areas and that users often keep a balance on their M-Pesa accounts, thereby using the system as a rudimentary bank account despite the fact that the system does not provide interest.

According to Bernardin & Russel (2009), the term financial performance is used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare

industries or sectors in aggregation. There are many different ways to measure financial performance, but all measures should be taken in aggregation for example line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales.

There is no limit to the range of transactions and services for which mobile money could eventually be used resulting to significant implications for economic across the board. The need and opportunity for mobile money are shared by businesses and their customers. For businesses across industries, the mobile channel offers the opportunity to reach new customers as well as to provide better service to existing customers. The mobile channel may open access to financial services and other markets to many mostly low income customers. It is mobile money's ability to facilitate financial sector inclusion that gives it its enormous potential for development impact (Muthiora, 2015).

As the usage of Bulk Payments has grown, a number of financial institutions (FIs) have also decided to get formally involved, either in using the services for their own requirements or in providing it on behalf of their corporate clients. These banks' services range from merely linking to the M-Pesa system for information and money transfer between accounts to handling the entire interface between organizations and Safaricom, including mobile money account validation, bulk transfer instructions and reporting, and assumption of liability for any incorrect transfers (Ake & Mbiti, 2010).

1.1.1 Mobile Banking

According to Nasikye (2009), Mobile banking involves the use of a mobile phone or another mobile device to undertake financial transaction linked to a client account. According to Owen (2008), m-banking refers to provision and availing of banking and financial service with the help of mobile telecommunication device. Services include performing payments, balance checks, credit applications, account transactions and other banking transactions.

Mobile money providers are not financial intermediaries and do not undertake banking business. On the contrary, mobile money complements banking (Islam, 2013). Partnerships with mobile money providers provide a cost-effective way for commercial banks and microfinance institutions (MFIs) to collect public deposits and offer credit services to new customers that are otherwise beyond their reach. Mobile money has also contributed to the development of the digital ecosystem by providing a readily available payment mechanism for many start-ups. (Muthiora, 2015). It is the mobile money's ability to facilitate financial sector inclusion that gives it its enormous potential for development impact as it provides value to low income customers.

1.1.2 Financial Performance

Performance is best looked at in two ways that is, end results and a means to achieve results. According to (Ukko, 2009) Performance is the ability to distinguish the outcomes of organizational activities. Performance could either be financial and non-financial performance (Ittner, 2008). The non- financial performance is measured using operational Key performance Indicators such as market share, innovation rate or

customer satisfaction (Hyvonen, 2007). Financial performance is a subjective measure of how well a firm can use its assets from its primary role of conduction of business and its subsequent generation of revenues.

Financial performance is also used as a general measure of a firm's overall financial status over a given period of time, and can be used to compare firms across the same industry. The financial performance is measured using accounting Key performance indicators such as Return on assets, Earnings before interest and tax (Crabtree & DeBusk, 2008).

1.1.3 Relationship between Mobile Banking and Financial Performance

As mobile phone usage expands, so may opportunities to bank the unbanked. With m-banking, low income people no longer need to use scarce time and financial resources to travel to distant branches. And since m-banking transactions cost far less to process than transactions at an automated teller machine (ATM) or branch, banks can make a profit handling even small money transfers and payments (BAI, 2004 and Allen, 2003).

According to Simpson (2002), e-banking is driven largely by the prospects of operating costs minimization and operating revenues maximization. A comparison of online banking in developed and emerging markets reveal that in developed markets lower costs and more revenues are more noticeable. While Sullivan (2000), finds no systematic evidence of a benefit of internet banking in US click and mortar banks, Furst et al., (2002) also examine the determinants of internet banking adoption and

observe that more profitable banks adopt internet banking after 1998 but yet they are not the first movers.

According to Sarel & Mamorstein, (2003), e- banking reaps benefits for both banks and its customers. From the banks perspective, e-banking has enabled banks to lower operational costs through the reduction of physical facilities and staffing resources required, reduced waiting times in branches resulting in potential increase in sales performance and larger global reach From the customer's perspective, e-banking allows customers to perform a wide range of banking transactions electronically via the bank's website anytime and anywhere (Grabner-Kraeuter and Faullant, 2008). In addition customers are no longer confined to the opening hours of banks, travel and waiting times are no longer necessary, and access of information regarding banking services are now easily available (Hamlet, 2000). The potential of mobile banking use is more than what has been achieved by Internet banking. It allows anytime, anywhere (within the network coverage) banking with all the inherent advantages (Kreyer, Pousttchi & Turowski, 2002; Pousttchi & Schurig, 2004). The high penetration of mobile phones across the strata of society makes it a natural tool for taking e-commerce to its next level. It is more than likely that Internet banking and mobile banking would exist as allies rather than competitors for each other.

According to Central Bank of Kenya, (2014), Kenya's banking sector continued to grow in terms of inclusiveness, efficiency and stability on the backdrop of legal, regulatory and supervisory reforms and initiatives. This growth supports the Government's efforts for a vibrant and globally competitive financial sector in Vision 2030. One of the key developments in the sector during the year include increased

convergence of banking and mobile phone platforms as banks explored more convenient and cost effective channels of banking.

1.1.4 Commercial Banks of Kenya

Commercial banks in Kenya are governed by the Companies Act (Cap, 486) the Banking Act,(Cap, 488) the Central Bank of Kenya Act(Cap, 491)and the various prudential regulations issued by the Central Bank of Kenya (CBK). The Central Banks of Kenya is responsible for formulating and implementing monetary policy and fostering the liquidity, solvency and proper operations of the commercial banks in Kenya which involves financial risk management and the financial management of commercial banks in Kenya.

As at 31st December 2014, 44 banking institutions (43 commercial banks and 1 mortgage finance company), 8 representative offices of foreign banks, 9 Microfinance Banks (MFBs), 2 Credit Reference Bureaus (CRBs), 13 Money Remittance Providers (MRPs) and 87 Foreign Exchange (forex) Bureaus. Out of the 44 banking institutions, 30 are locally owned banks and 14 are foreign owned. Of the 14 foreign owned banking institutions, 10 are locally incorporated subsidiaries of foreign banks and 4 are branches of foreign incorporated banks. Further, 10 of the 44 banking institutions are listed on the Nairobi Securities Exchange (CBK, 2014).

1.2 Research Problem

The advent of the mobile money transfer has revolutionized the way the financial services industry conducts business, empowering organizations with new business models and new way to offer 24 hour accessibility to this customers. The ability to offer financial transactions over the mobile phone has created new players in the financial services industry such as mobile phone providers who offer personalized services. This is evident with the prevalent use of Mpesa, Airtel money, Orange money and Yu cash. The real time money transfer over the mobile phones enables individuals in areas with no demand to acquire demand within seconds. Most banks have adopted mobile banking applications allowing customers to conveniently do their banking using their mobile devices anytime and anywhere.

Several studies have been done to establish the factors which affect performance of commercial banks. Njogu (2014), studied the effect of electronic banking on profitability of commercial banks in Kenya. In his findings, there is a positive relationship between financial performance of commercial banks and electronic banking, also the size of the bank was found to positively influence the financial performance of commercial banks in Kenya. In this study only mobile banking is considered as a variable affecting the financial performance of commercial banks, Ndi (2014), studied the relationship between mobile banking deepening and financial performance of commercial banks in Kenya. In his findings, there is weak positive relationship between mobile banking and financial performance of commercial banks in Kenya with macro-economic variables like post-election violence, inflation and foreign exchange rates fluctuations playing a major role. In this study there is consideration of macro-economic factors.

The study therefore sought to establish the effect of mobile banking adoption on the financial performance of commercial banks in Kenya. The use of mobile banking has been necessitated by the rapid change in technology. The banking industry as a whole needs to adopt new strategies of sustaining their growth due to stiff competition.

1.3 Research Objective

The objectives of the study were to determine the effect of mobile banking on the financial performance of commercial banks in Kenya.

1.4 Value of the Study

The importance of the study will enable commercial banks gain competitive advantage if they employ mobile banking through innovation of new products and services. This will help strategy makers of the commercial banks to make concrete decisions on how to improve security of the e channels in banking industry so as to maximise the profits generated through mobile banking and other electronic channels. Commercial banks will be informed on the effect of mobile transfer services on the financial performance hence assist on decision making in regard to the products being offered by the institution.

The study will provide useful information to the policy makers and agencies like Central Bank of Kenya in policy formulation especially in regard to regulating mobile money transfer services. The general public will also be informed of the benefits of mobile money transfer hence empowers the users and the providers on the information.

The study will bring out information on the application of mobile banking and its competitiveness that could be used by future scholars wishing to undertake further studies on the application of mobile banking. It will also assist research and academic institutions by providing a benchmark for further research on mobile transfer services and its effect on the financial performance of commercial banks and financial institutions.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter contains a review of the relevant theories and empirical studies that explains the relationship between mobile banking adoption and financial performance.

2.2 Theoretical Framework

This sections reviewed theories that guided the study. It consists of the theories governing the performance of commercial banks in the operations. In particular the section looked at the efficient structure versus market power theory, prospect theory, mental Accounting theory and financial intermediation theory.

2.2.1 Efficient Structure versus Market Power Theories

Demsetz (1973), was the first to formulate an alternative explanation on market structure-performance relationship and proposes the Efficiency Hypothesis. Applied to banking sector, this hypothesis stipulates that a bank which operates more efficiently than its competitors gains higher profits resulting from low operational costs. The same bank holds an important share of the market. Consequently, differences at the level of efficiency create an unequal distribution of positions within the market and an intense concentration.

Smirlok (1985), subscribing to the efficiency hypothesis, considers market share as a proxy for efficiency. The efficiency hypothesis prevails when a significant positive correlation between market share and profitability is signalled. This method implicitly

assumes that a higher market concentration is the main source of market power. Shepherd (1986) criticizes this method by considering that the direct source of market power is the domination of participants over the individual market, independently of the ultimate sources of such domination, hence the emergence of the Relative Market power (RMP) hypothesis. It is uniquely the banks with a large market share and diversified products that might exert their market power to determine prices and make profits. Consequently, under the RMP hypothesis, individual market shares accurately determine market power and market imperfections.

Berger (1995), divides the efficiency hypothesis into x-efficiency (XE) and scale efficiency (SE) hypotheses. According to the x-efficiency hypothesis, the costs incurred by banks with efficient management and/or technologies are lower resulting in higher profitability. The better banks' x-efficiency is, larger are market shares and higher is concentration. Under the efficiency hypothesis, the difference in performance between two firms is not due to differences in management quality, but to differences at the level of scale efficiency. Banks' costs lower than their competitors result in higher profitability. These banks may acquire extended market shares which increases market concentration.

2.2.2 Diffusion of Innovation Theory (DIT)

An innovation is an idea, object or practice that has distinguishable features perceived to be new while diffusion is a process by which the innovation is communicated through certain channels over time among the members of a social system. Rogers (1983), proposed a theory of diffusion, which highlighted innovation characteristics that either increase or reduce the rate of acceptance of a technological innovation.

According to this theory, the adoption of innovation is explained by relative advantages, compatibility, complexity, trialability and observeability.

New technology is considered to possess a relative advantage over existing technology based on its perceived usefulness and if the use of the new technology is highly dependent on the comparable benefits derived from its use. Compatibility is the extent to which the innovation is deemed to be aligned with customer values, past and potential wants and needs or the ability of technology to fit within the lifestyle of the customer. Complexity relates to the amount of physical and mental effort required to understand the technology which in this study is the use of mobile phone and its services. Trialability allows the adopter the opportunity to test the innovation on a limited time scale before full adoption takes place which reduces risks and uncertainty associated with adopting the technology. The last component of DIT is observability which is the extent to which the technology is observable by others.

2.2.3 Financial Intermediation Theory

Financial intermediaries exist because they can reduce information and transaction costs that arise from an information asymmetry between borrowers and lenders. Financial intermediaries thus assist the efficient functioning of markets, and any factors that affect the amount of credit channelled through financial intermediaries can have significant macroeconomic effects. There are two strands in the literature that formally explain the existence of financial intermediaries. The first strand emphasises financial intermediaries' provision of liquidity. The second strand focuses on financial intermediaries' ability to transform the risk characteristics of assets. In both cases, financial intermediation can reduce the cost of channelling funds between

borrowers and lenders, leading to a more efficient allocation of resources. (Iris & Arthur, 2003)

Diamond and Dybvig (1983), analyse the provision of liquidity (the transformation of illiquid assets into liquid liabilities) by banks. Illiquidity of assets provides the rationale both for the existence of banks and for their vulnerability to runs. An important property of our model of banks and bank runs is that runs are costly and reduce social welfare by interrupting production (when loans are called) and by destroying optimal risk sharing among depositors. Runs in many banks would cause economy-wide economic problems. Without an intermediary, all investors are locked into illiquid long-term investments that yield high payoffs only to those who consume late. Those who must consume early receive low payoffs because early consumption requires premature liquidation of long-term investments. Banks can improve on a competitive market by providing better risk sharing among agents who need to consume at different (random) times. An intermediary promising investors a higher payoff for early consumption and a lower payoff for late consumption relative to the non-intermediated case enhances risk sharing and welfare

Financial intermediaries are able to transform the risk characteristics of assets because they can overcome a market failure and resolve an information asymmetry problem. Information asymmetry in credit markets arises because borrowers generally know more about their investment projects than lenders do. The information asymmetry problem occurs ex post when only borrowers, but not lenders, can observe actual returns after project completion. This leads to a moral hazard problem. The problem with imperfect information is that information is a “public good”. If costly privately-

produced information can subsequently be used at less cost by other agents, there will be inadequate motivation to invest in the publicly optimal quantity of information (Hirschleifer and Riley, 1979). The implication for financial intermediaries is as follows. Once banks obtain information they must be able to signal their information advantage to lenders without giving away their information advantage. One reason, financial intermediaries can obtain information at a lower cost than individual lenders is that financial intermediation avoids duplication of the production of information.

Moreover, there are increasing returns to scale to financial intermediation. Financial intermediaries develop special skills in evaluating prospective borrowers and investment projects. They can also exploit cross-sectional (across customers) information and re-use information over time. Leland and Pyle (1977) formally show that a bank can communicate information to investors about potential borrowers at a lower cost than can individual borrowers.

2.3 Factors Affecting Performance of Commercial Banks

Factors affecting performance of commercial banks according to profitability is broadly categorized into two; internal and external factors, (Sehrish et al., 2011). Internal factors are mainly influenced by a bank's management decisions and policy objectives (Staikouras and Wood, 2004), whereas external factors focus on industry-related and macroeconomic variables reflected in the economic and legal environment where banks operate (Athanasoglou et al., 2006).

The internal factors reflect the differences in the bank management policies and decisions in regard to sources and uses of funds management, capital and liquidity

management and expenses management. These factors include capital size, size and composition of credit portfolio, size of deposit liabilities, interest rate policy, labour productivity, and state of information technology, risk level, management quality, bank size and ownership.

2.3.1 Liquidity

According to Begg, Fisher and Rudiger (1991), liquidity refers to the speed and certainty with which an asset can be converted back into money (cash, income) whenever the asset holder desires while in terms of accounting, liquidity can be defined as the ability of current assets to meet current liabilities (working capital). Cash is the most liquid asset of all. Liquidity risk is a factor that may arise from the possible inability of a bank to accommodate decrease in liabilities, since it becomes hard to raise funds for increasing demand for loans. This implies that liquidity risk is a serious factor that has an impact on the performance of commercial banks. Firm size is a basis of competitive advantage in the sense that larger companies tend to be more efficient than their smaller counterparts and have better resources to survive economic downturns.

2.3.2 Size of the Firm

Previous studies indicate that larger companies are more solvent than the smaller ones even if the numerical values of their financial ratios are the same (Beaver, 1966). This implies that the probability of failure is more likely to strike a smaller company in recessionary times. Empirical evidence supports this view (Mitchell, 1994). Smaller companies tend to experience higher volatility in their rate of return than their larger counterparts (Baumol, 1962). Large firms are more likely to manage their working

capitals more efficiently than small firms and enjoy economies of scale and thus able to minimize their costs and improve on their financial performance.

2.3.3 Leverage

Leverage can be measured and defined in many ways such as the debt to equity ratio which equals to long term debt divided by common shareholders' equity. Rajan and Zingales (1995), states that the definition of leverage rests particularly on the objective of the analysis. Other measures of leverage include debt to total assets, total liabilities to total assets, debt to net assets and debt to capitalisation. Debt imposes fixed obligations on firms that occur irrespective of sales. As a result debt can impose a significant risk on the company due to the accompanying financial distress (Myers, 2001). Firms with high leverage and considerable investment in research and development tend to suffer more and bear higher risk in economy downturn periods.

2.3.4 Firm Specific Risk

This is represented by Beta (β). It measures the risk of holding shares of a specific company against the market index in a well-diversified portfolio. Finance theory argues that all information regarding a company is impounded into prices. As a result, as new information comes to the market prices change to reflect this (Wessel and Titman, 1988). The Beta coefficient measures how one company's price moves against the general level of the market. This is argued as giving a measure of risk as it represents how the cash flows of a company are expected to be affected as market-wide conditions change. According to Myers (2001), a company with a very high beta coefficient, therefore, is expected to face a significant decline in price as investors

revise the future cash flows of that company down as Beta coefficient indicates those companies which are most vulnerable to negative/positive changes in market conditions.

2.3.5 Macroeconomic Variables

The external factors affecting the profitability of banks are represented in economic situations and institutional background. The macroeconomic environment, such as inflation, interest rates and cyclical output, and variables that represent market characteristics such as market concentration, industry size and ownership status.

2.4 Empirical Studies

This section looked at several studies done both locally and internationally on the relationship between capital structure and financial performance.

2.4.1 International Evidence

Several empirical studies have been conducted on the effects of mobile banking and the performance of commercial banks. Tiwari, Buse and Herstatt (2007), studied the role of innovative business solutions in generating competitive advantage. In his findings, the positive shift in the customer perceptions of mobile financial services (MFS) has turned them into a useful and vital tool to generate, retain and further strengthen the competitive advantage and mobile channel becoming an indispensable part of the multi-channel strategies in the banking sector.

Islam (2013), carried out a study on mobile banking, an emerging issue in Bangladesh. The study adopted descriptive research design. Data used in this study

was collected basically from the primary sources. Data collected through personal interview method. Several statistical and analytical methods and tools were used for analysing the gathered data from the survey. The study established that mobile banking is a variation of branchless banking which is the delivery of financial services outside conventional bank branches using information and communications technologies and non-bank retail agents and also available for 365 days. M-banking has a positive impact on transfers, payments, deposits and withdrawals in financial transactions. It is cost effective, reliable, speedy and simple way of conducting business and reduces the instances of human error that is characteristic during human interaction in traditional banking.

Sharma (2015), carried out a study on mobile banking technology, factors affecting its adoption in Indian context. The study was based on exploratory research whereby both primary and secondary data was collected. The research is both quantitative and qualitative. In his findings mobile phones have immense potential of conducting financial transactions thus leading the financial growth with lot of convenience and much reduced cost. For inclusive growth, the benefits of mobile banking should reach to the common man at the remotest locations in the country. For this all stakeholders like Regulators, Government, telecom service providers and mobile device manufactures need to make efforts so that penetration of mobile banking reaches from high-end to low-end users and from metros to the middle towns and rural areas. Inclusion of non-banking population in financial main stream will benefit all. There is also need to generate awareness about the mobile banking so that more and more people use it for their benefit.

Donner & Tellez (2008) studied mobile banking and economic development, linking its adoption, impact and use. The study established that offering a way to lower the costs of moving money from place to place and offering way to bring more users into contact with formal financial systems, m-banking or m-payments systems may prove to be an important innovation for the developing world. However, the true measure of that importance will require multiple studies using multiple methodologies and multiple theoretical perspectives before our questions about adoption and impact will be answered.

Tchouassi (2012), studied can mobile phones really work to extend banking services to the unbanked, empirical lessons from selected sub-Saharan Africa countries. The study established that m-banking can be used for person to person (P2P) transfers including remittances or disaster response; payments such as utility bills, airtime, microfinance and loans; disbursements such as payroll, government benefits, or NGO operations and incentives for health or education. The mobile phone presents a great opportunity for the provision of financial services to the unbanked. In addition to technological and economic innovation, policy and regulatory innovation is needed to make their services a reality.

Bamoriya, Singh (2012), carried out a study on mobile banking in India; barriers in adoption and service preferences. The study adopted a cross sectional descriptive study. For data collection purposive sampling was adopted and primary data collected. In his findings mobile banking was considered a new era in banking in which banks are spending considerable amount of money to have it available to their customers and to cut their operational costs. Unfortunately evidence showed that a

large number of customers do not use mobile banking for various reasons despite its benefits.

2.4.2 Local Evidence

Okiro & Ndungu (2013), studied the impact of mobile and internet banking on performance of financial institutions in Kenya. This study found that mobile banking has been adopted at a faster rate than internet banking and that commercial banks had the highest rate of usage of internet banking among the financial institutions sampled. SACCOs are slowly adopting internet banking, while micro finance institutions have not yet adopted internet banking. The study also found that mobile banking faces various challenges among them being, system delays by the mobile money transfer service providers, slow processing of transactions, high transactions costs, limit on the amount of money that can be withdrawn in a day and fraud.

Masila (2013), carried out a study to establish the effect of internet banking on the financial performance of commercial banks in Kenya. The measure of financial performance used in this research is Return on assets and the independent variables are natural Log of assets, Ratio of loans to total assets and internet banking .Results indicated that the increasing of internet as an additional channel of marketing banking services has significantly improved the financial performance of commercial banks in Kenya. Internet banking has also significantly improved banking efficiency in rendering services to customers.

Kanyeke (2014), studied the effect of diaspora banking on financial performance of commercial banks in Kenya. The study used Secondary Data which was collected

from Central Bank and banks financial reports and multiple regression analysis used in the data analysis. The study revealed that there was a strong positive relationship between diaspora banking and financial performance of commercial banks in Kenya. The study also established that diaspora deposits, diaspora loans, real exchange rate, real interest rate and bank size positively influenced the financial performance of commercial banks in Kenya. Inflation was found to be influencing negatively the financial performance of commercial banks in Kenya and that there is need for commercial banks in Kenya to provide more platforms in which people can access diaspora banking service.

Ndii (2013), carried out a study on the relationship between mobile banking deepening and financial performance of commercial bank in Kenya. The study applied descriptive research design and the target population included six mobile phone service providers and 43 commercial banks operating in Kenya as at June 2014. The total amounts transferred via the mobile were collected and the number of mobile banking users was regressed against bank performance as measured by the return on assets. The study used secondary data from the Central bank of Kenya, Mobile phone Companies and Kenya National Bureau of Statistics. There was a steady increase in the amount of money transacted through mobile money transfers which was motivated by the convenience offered by the service. The study however found that there exist a weak positive relationship between mobile banking and the financial performance of commercial banks in Kenya. The study recommends that the policy makers take mobile banking awareness creation into consideration when drafting policies on the operations of banks in Kenya.

Financial performance of commercial banks in Kenya was majorly affected by macro-economic variables like post-election violence, inflation and foreign exchange rates fluctuations among other macro-economic variables which were outside the scope of this study. Kigen (2011), studied the impact of mobile banking on transactions costs of microfinance institutions using a survey of microfinance institutions in Nairobi. The study established that mobile banking drastically reduced the transaction costs of micro finance thereby increasing the penetration level of the micro finance institutions. Wambari (2009), studied mobile banking in the developing countries using a case study on Kenya where he established that mobile banking has a positive impact on transfers, payments, deposits and withdrawals in financial transaction of small businesses. It is a cost effective, reliable and simple way of conducting business and reduces the instances of human error that is characteristic during human interaction in traditional banking. The adoption and use of mobile phones is product of a social process, embedded in social practices such as SMEs Practices which leads to some economic benefits.

2.5 Summary of Literature Review

This chapter began by looking at the theoretical framework. Financial intermediation theory deals with the core function of financial institutions which is intermediating between the surplus and the deficit units for sustained economic development while efficient structure versus market power theory which stipulates that a bank which operates more efficiently than its competitors gains higher profits resulting from low operational costs and holds an important share of the market. Financial intermediation theory brings out the role played by mobile banking services in the banking industry by enabling accessibility of banking services over the mobile phone.

It then reviews prospect theory which holds that decision makers can become less risk averse and even risk seeking if they find that they are operating below target or aspiration levels and people value gains and losses differently, and, as such, will base decisions on perceived gains rather than perceived losses. It also reviewed mental accounting theory which holds that customers' adoption of technology to a significant level is related to decision making where customers are expected to use a particular technology and the value brought by the technology. In the Kenyan context, with the emerging wave of information driven economy, the banking industry in Kenya has inevitably found itself unable to resist technological indulgence. This has led to a boom in development of mobile banking laying down a strong base for low cost banking, and the growth of mobile phone use in rural Kenya.

Various empirical studies have been done on the factors affecting financial performance of commercial banks in Kenya for example internet and mobile banking as variables to the performance of commercial banks, impact of electronic banking services such as automated Teller machines (ATMs) on the economy but limited studies focus on the impact of mobile banking on the performance of commercial banks in Kenya and its level of adoption. This study therefore sought to fill this research gap

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research design, population of the study, sample size, data sources and data analysis procedure with the model specification.

3.2 Research Design

This study adopted descriptive research design, Chandran, (2004) describes descriptive design as appropriate to describe and portray characteristics of an event situation and a group of people community or population. A descriptive research determines and reports the way things are and attempts to describe such things as possible behaviour, attitudes, values and characteristics, (Mugenda and Mugenda, 2003). In this research a causal approach was employed to identify the causal linkages between variables and to determine the cause and effect relationship and to understand which variable is dependent and which is independent. This research explored the relationship between the level of adoption of mobile banking and its impact on the financial performance of commercial banks in Kenya.

3.3 Population and Sample of the Study

Mugenda and Mugenda (2003) define population as an entire group of individuals, events or objects having a common observable characteristic. The target population of this study was all the licensed commercial banks in Kenya. According to Central bank supervision report, there are 44 operating commercial banks in Kenya as at December 2014. The 44 banks therefore formed the target population of the study.

3.4 Data Collection

The study used secondary data from the Audited and published Financial Statements of the licenced commercial banks. The data collected relate to the number of customers registered in the mobile banking networks of the commercial banks, volume of transactions handled through mobile banking technology, deposits mobilized through mobile banking. The data consisted of financial statements from the last five financial years starting from 2010 to 2014.

3.5 Data Analysis

Data analysis was done using Statistical Package for Social Sciences (SPSS) version 21 where inferential statistics were applied and multiple regressions employed to test the relationship between mobile banking adoption and the financial performance of commercial banks in Kenya.

3.5.1 Analytical Model

The analytical model used in the study to test the effect of mobile banking adoption on the financial performance off commercial banks in Kenya is presented as shown below;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y: Financial performance as measured by return on assets (ROA)

X₁: Ratio of registered mobile banking customers to the total number of account holders during the period

X₂: Ratio of total mobile banking transactions to total bank transactions.

X_3 : Bank size measured by natural logarithm of total assets

X_4 : GDP per capita annual growth in % ratio, to represent the macro economic factors affecting financial performance of commercial banks in Kenya.

β_0 : Regression constant

$\beta_1, \beta_2, \beta_3, \beta_4,$ and β_5 are the coefficients of independent variables

3.5.2 Test of Significance

Y represented the dependent variable financial performance and β_0 the regression. $\beta_1, \beta_2, \beta_3, \beta_4,$ and β_5 are the coefficients of the variables in regression model. Correlation was used to establish the relationship between the variables in question. The test of significance was performed at 95% level of confidence using Analysis of Variance (ANOVA) and F test and coefficient of determination to determine whether the model is a good predictor. The basis of the model was to help in determining the effect of mobile banking on financial performance of commercial banks in Kenya.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research objective and research methodology. The study findings are presented on the effects of mobile banking on the financial performance of commercial banks in Kenya. Secondary data spanning a period of 2010 to 2014 was collected from published financial statements and reports of Commercial Banks in Kenya, analyzed and findings presented in table forms and charts and graphs. Regression analysis was done to determine the relationship between mobile banking and financial performance of Commercial Banks in Kenya for all the period under study. The parameters of the model under study were used to come up with the model.

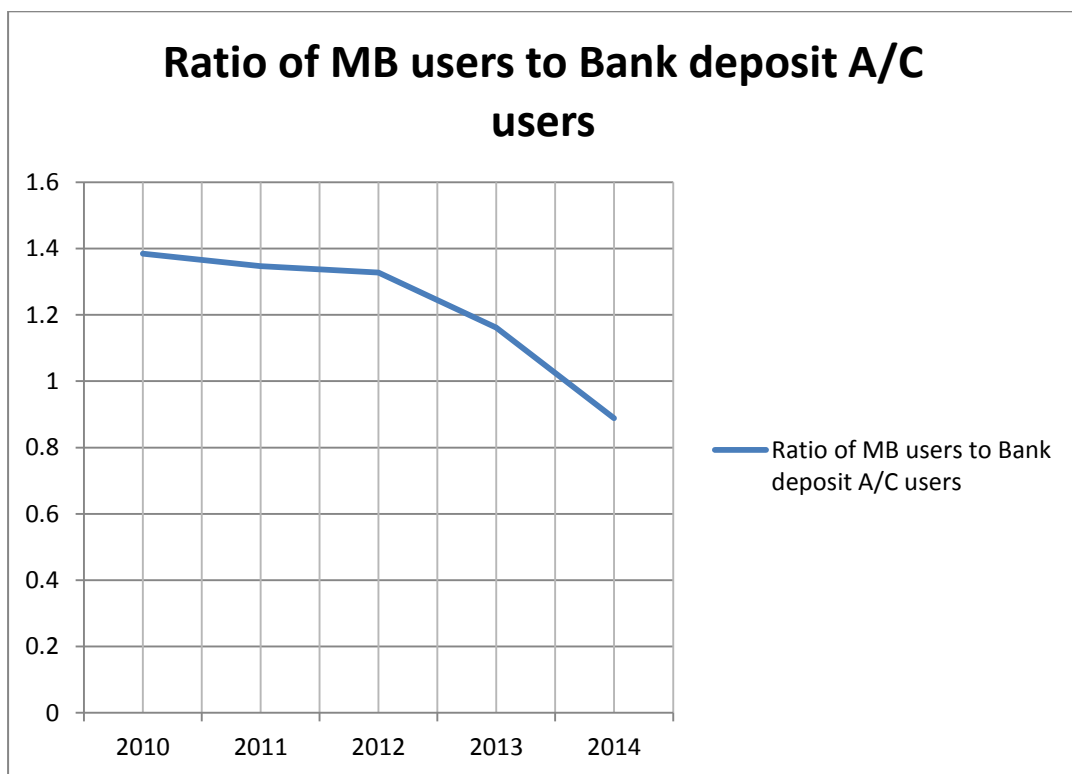
4.2 Data Analysis and Findings

This section presents a summary of the study variables that is the financial performance represented by return on assets, the mobile banking transactions measured in Kenya shillings, the number of registered mobile banking customers by the banks, bank size measured by natural logarithm of total assets, and GDP per capita annual growth in % ratio. It is also represented by Return on Assets relations to the averages of all the parameters under study for all the banks, their descriptive statistics, and coefficients of the parameters under study and how they fit in the model.

4.2.1 Ratio of Mobile Banking Users to Bank Deposit Account Users

The study sought to establish the ratio of mobile banking users to total bank Deposit account users among all commercial banks between 2010 and 2014. The findings were as shown figure 4.1;

Figure 4.1 Ratio of Mobile Banking Users to Total Bank Deposit Account Users



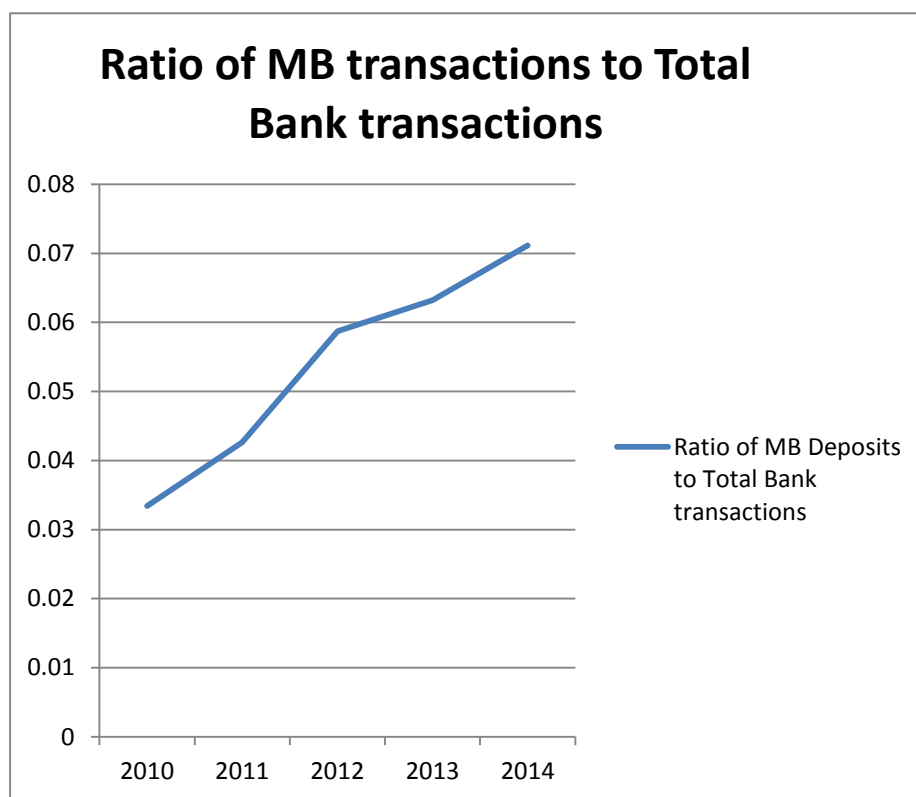
(Source: Research Findings, 2015)

From the findings presented above, the ratio of mobile banking users to bank deposit a/c users is decreasing over the years.

4.2.2 Ratio of Total Mobile Banking Transactions to Total Bank Transactions

The study sought to establish ratio of total mobile banking transactions to total bank transactions during the study period. The findings were as indicated in the figure 4.2;

Figure 4.2: Ratio of total mobile banking transactions to total bank transactions



(Source: Research Findings, 2015)

From the findings illustrated in the figure 4.2 above, the study established that in the year 2010, the ratio of MB transaction to the total transactions were 0.0334. The ratio grew to 0.0426 in 2011 and to 0.058 in 2012. The ratio increased further in 2013 to 0.063 and 0.0711 in 2014.

4.2.3 Bank Size Measured by Natural Logarithm of Total Assets

The study sought to determine the bank size of commercial banks using natural logarithm of total assets. The findings are shown in table 4.1 below;

Table 4.1 Bank Size Measured by Natural Logarithm of total assets

	Gross Assets (Millions)	Natural log of total assets
2014	3,261,095	28.8131
2013	2,703,394	28.6255
2012	2,330,335	28.4770
2011	2,020,818	28.3345
2010	1,678,112	28.1487

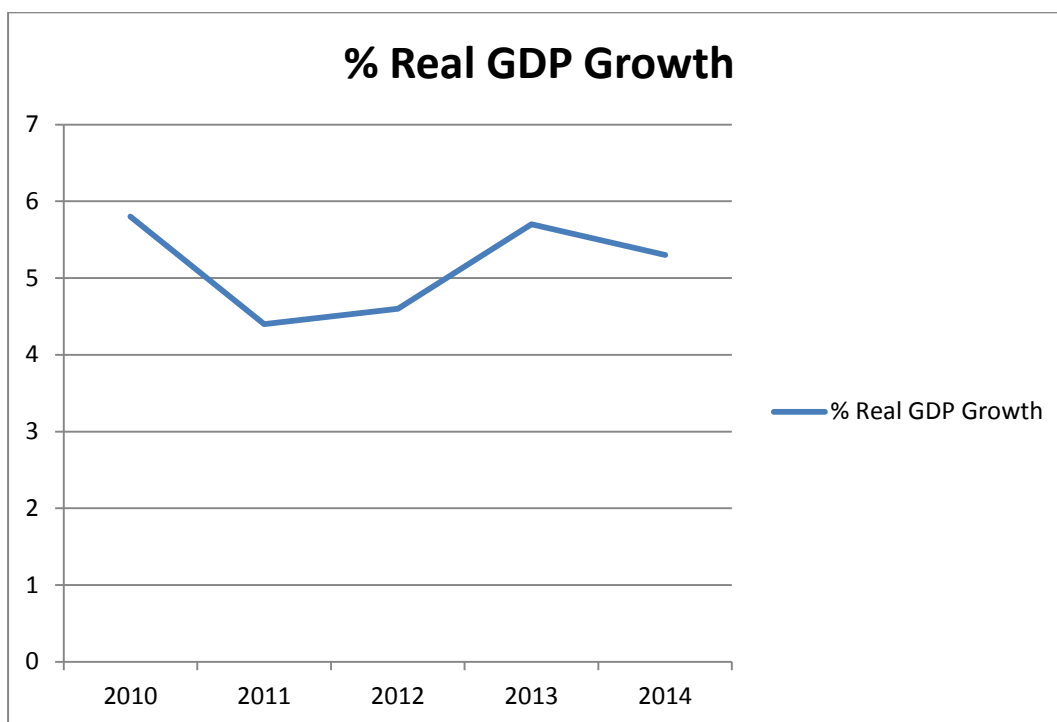
(Source: Research Findings, 2015)

The natural log of total assets in 2010 was 28.15, in 2011 it slightly increased to 28.33, and further in 2013 to 28.62. During the year 2014 it was 28.81. There is a clear indicator of increase in bank size over the study period.

4.2.4 GDP per Capita Annual Growth in % Ratio

The study sought to establish the GDP per capita annual growth in % ratio, to represent the macro economic factors affecting financial performance of commercial banks in Kenya. The findings are presented in figure 4.3;

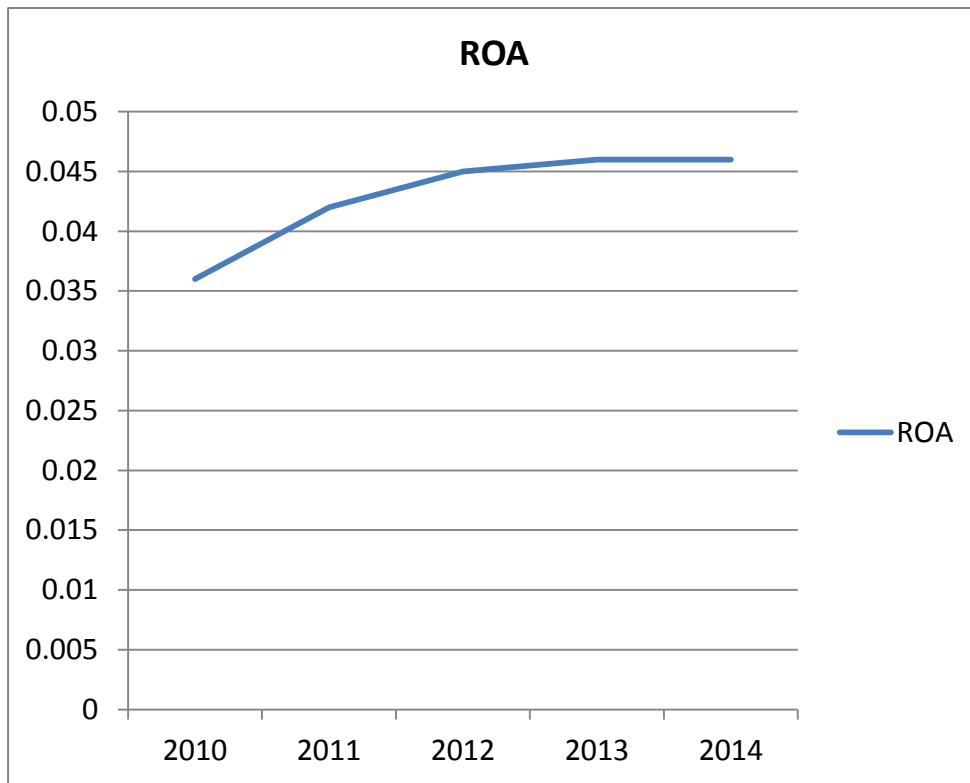
Figure 4.3 GDP per capita annual growth in % ratio



(Source: Research Findings, 2015)

From the findings in figure 4.3, GDP dropped from 5.8 in the year 2010 to 4.4 in 2011. The GDP slightly increased in 2012 to 4.6 and increased drastically 5.7. However, it reduced in 2014 to 5.3.

Figure 4.4 Dependent Variable Graph



(Source: Research Findings, 2015)

The dependent variable (Financial performance represented by return on assets) was on the increase over the study period as indicated in figure 4.4. However there's a slow growth in ROA between years 2012-2014 but a high growth between years 2010 – 2011.

4.3 Inferential Analysis

Regression analysis and ANOVA were performed to determine the significance of the effects on mobile banking on the financial performance of commercial banks in Kenya. The ANOVA tests are aimed at determining the significance of the effects of mobile banking on the overall financial performance of the banking institutions over the same period.

Table 4.2 Coefficients

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.903	.971		1.960	.003
Ratio of MB users to Bank deposit A/C users	.688	.243	.700	2.829	.012
Ratio of MB Transactions to Total Bank transactions	.040	.316	.042	.127	.001
Natural log of total assets	-.023	.114	-.040	-.206	.040
% Real GDP Growth	-.076	.290	-.076	-.262	.006

(Source: Research Findings, 2015)

Linear regression were performed and all models were found to fit in the model giving β coefficients of regression model as presented in table 4.3 above. The regression model is as below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y: Financial performance as measured by return on assets (ROA)

X₁: Ratio of registered mobile banking customers to the total number of account holders during the period

X₂: Ratio of total mobile banking transactions to total bank transactions.

X₃: Bank size measured by natural logarithm of total assets

X₄: GDP per capita annual growth in % ratio, to represent the macro economic factors

Based on these coefficients, the regression model therefore becomes; $Y = 1.903 + 0.688X_1 + 0.40X_2 - 0.023X_3 - 0.076X_4 + \varepsilon$. Thus, the model indicates that, holding the predictor variables constant, the financial performance of commercial banks would be 1.903. This explains that, without the influence of ratio of MB users to bank deposit account users, ratio of MB transactions to total bank transactions, natural log of total assets and % real GDP growth that returned values, the ROA value of the commercial banks would be 1.903.

Also, the model shows that, a unit increase in ratio of MB users to bank deposit accounts users would result to 0.688 times increase in the banks' financial performance. Thus the two variables are positively related with a magnitude of 1.903 explaining the extent of influence to the dependent variable. From the model developed also, it is clear that a unit change (increase/ decrease) in the ratio of MB

transactions to total bank transactions will lead to a 0.40 times direct changes in the banks' financial performance. This indicates that, the ratio of MB transactions to total bank transactions and the financial performance of the commercial banks are positively related where increasing the value of transactions will give a corresponding increase of 0.40 times to the financial performance and vice versa. Further, the model indicates that, natural log of total assets and the financial performance of the commercial banks is 0.023. This reveals that, given a unit increase or decrease in natural log of total assets, the financial performance of the commercial banks will be affected by 0.023. The model also indicates that a unit change in % Real GDP Growth will lead to 0.076 changes in financial performance.

ANOVA test was carried out to determine whether mobile banking and financial performance were significant across the network at 95% confident level. The results are indicated in table 4.3 below,

Table 4.3: ANOVA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.028	4	1.718	6.256	.013(a)
	Residual	26.009	1	3.251		
	Total	38.037	5			

(Source: Research Finding, 2015)

Analysis of Variance (ANOVA) consists of calculations that provide information about levels of variability within a regression model and form a basis for tests of significance. Correlation exist between the response and predictor variables if P-value < 0.05 . As shown in table 4.3, P-Value = $0.013 < 0.05$ indicated that there is enough evidence to support the alternative hypothesis, that there is a significant linear relationship between internal control and organization performance.

4.4 Summary and Interpretation of findings

From the findings, the ratio of mobile banking users to bank deposit a/c users is decreasing over the years. This could be a result of increasing number of mobile banking users who have been registered in the banks. The study established that in the year 2010, the ratio of MB transaction to the total transactions were 0.0334. The ratio grew to 0.0426 in 2011 and to 0.058 in 2012. The ratio increased further in 2013 to 0.063 and 0.0711 in 2014. It is evident that there is increase in mobile banking transactions. Aker and Mbiti (2010) and Rayhan, Sohel, Islam and Mahjabin (2012) support these findings using data from Africa and Bangladesh respectively and found that mobile phones open an opportunity for banks to improve their incomes and hence better return on assets by having a large number of virtual mobile accounts especially for the unbanked individuals. Several banks in Kenya have incorporated the use of mobile phones and have seen their business operations transformed and leading to more income.

There are increased collaborations between banks and mobile phone telephony providers which are mainly driven by income sharing and customer retention. The competition for income generating initiatives through the mobile phones has made

banks to participate in competing for space in the SIM card. This means that the more a bank makes its activities visible on the SIM card the more income it is likely to make towards recovering its investments in mobile banking. Some banks are even operating raffles to encourage customers to increase their transaction on the mobile phone with an aim to reduce their operational costs. Similar to the findings on mobile banking and financial performance, Porteus (2006) states that in Uganda mobile banking has increased access to banking services and subsequently income and profits for the banks.

In Kenya, Ndung'u (2011) agrees that mobile banking has revolutionised the money transfer business and has created further innovations that have lowered the transaction costs for both the banks and customers. This transformation of money transfer business has translated to more incomes and profits to the banks. This confirms why Kenya has appeared in the global map in the front of mobile money transfer services. Due to the potential in mobile banking, the model has been replicated in other countries and seems to be a threat to the traditional money transfers services like the EFT and cheque system.

The natural log of total assets in 2010 was 28.15, in 2011 it slightly increased to 28.33, and further in 2013 to 28.62. During the year 2014 it was 28.81. There is a clear indicator of increase in bank size over the study period. The GDP growth dropped from 5.8 in the year 2010 to 4.4 in 2011. The GDP slightly increased in 2012 to 4.6 and increased drastically 5.7. However, it reduced in 2014 to 5.3. The model indicates that, there is a positive relation between mobile banking and financial performance of commercial banks. Aker and Mbiti (2010) found a strong correlation

between mobile phone coverage and firm performance. Rayhan et al. (2012) found that mobile phone coverage in Bangladesh was key in enhancing banks' performance in terms for profitability and deposits growth.

Mobile phones have transformed the way banking business is done in Kenya. Many customers can perform some basic bank account enquiries using their mobile phones. Such services include checking balance, downloading mini-statements, reporting suspect transactions, payment of bills and deposit of cash in to their accounts. These services attract some commission fees which add to the income and profits of banks. Banks also advertise their new products to their customers through the use of short message services and hence creating more awareness. The mobile phone instrument has therefore presented a convenient service delivery platform for both the banks and their customers leading to a win-win type of innovation. Customers get their services at their convenience while banks earn income and improve their margins due to improved cost of doing business (Rayhan et al., 2012).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

Financial inclusion has emerged a hot issue to the researchers, academicians and governments of both developed and developing countries since 2005, a year that the United Nations declared International Microcredit Year. Financial inclusion denotes a delivery of formal financial services at an affordable cost to each and every member of a country. This involves delivery of banking facilities to the people through updated technologies such as ATMs, mobile banking and smart cards. Mobile banking is considered one of the most effective alternatives to reduce the problem of proximity to bank branches.

The objective of the study was to establish the effect of mobile banking on financial performance in commercial banks; the study chose to look at a five year time horizon of between 2010 through 2014. To understand the background of this, the study looked at literature that explained the theories and past empirical studies that focused on the financial performance of commercial banks. Analysis was carried out and the study found evidence on the relationship between mobile banking and financial performance of commercial banks in Kenya where the data analyzed comprised of volume of mobile transactions done through commercial banks in Kenya.

The results of the study indicate than a positive relationship exists between the two variables. Further, return on assets is also influenced by of ratio of MB users to bank deposit account users, ratio of MB transactions to total bank transactions, natural log of total assets and % real GDP growth. Financial institutions in Kenya have

adopted mobile services to provide crucial banking services to customers in Kenya. The findings show that as mobile banking customers and as the monthly transactions moved through mobile banking increases, the profitability of the commercial banks increase. The research shows that mobile banking to a larger extent impacts the financial performance of commercial banks in Kenya in that it helps reduce unnecessary cost, increase efficiency and improves on service delivery to customers.

5.2 Conclusions

From the research findings presented in chapter four, the study concludes that mobile banking has a positive effect on financial performance. Hence, banks should continue investing in mobile banking as it positively influences financial performance. The volumes of transactions that can be processed on mobile banking are high as compared to delivering such transactions using manual processes. This helps to minimize the cost per unit of service and hence better returns to the banks. Commercial banks should explore more ways of maximizing their utilization and returns from mobile banking.

The adoption of mobile banking has enhanced Kenyan banking industry by making it more productive and efficient. M-banking technology has become one of the most familiar banking features, opened up new window of opportunity to the existing banks and financial institutions. In the commercial sectors like banking, m-banking technology will bring banking facilities in hand's grip which will make life easier, robust and flexible.

The finding of this study is consistent with similar studies in Bangladesh by Islam (2013), carried out on mobile banking as an emerging issue in Bangladesh. The study

established that mobile banking is a variation of branchless banking which is the delivery of financial services outside conventional bank branches using information and communications technologies and non-bank retail agents and also available for 365 days. M-banking has a positive impact on transfers, payments, deposits and withdrawals in financial transactions. It is cost effective, reliable, speedy and simple way of conducting business and reduces the instances of human error that is characteristic during human interaction in traditional banking.

In Kenya, it also agrees with Ndi (2013), findings which assessed the relationship between mobile banking deepening and financial performance of commercial bank in Kenya. The study revealed that there was a steady increase in the amount of money transacted through mobile money transfers which was motivated by the convenience offered by the service. The study however found that there exist a weak positive relationship between mobile banking and the financial performance of commercial banks in Kenya.

5.3 Policy Recommendations

From the study findings, the following recommendations are proposed. First, banks as well as the regulatory bodies should strive to innovate for better and cheaper ways of serving customers. With shorter transaction turnaround times, transactions volumes can be significantly increased and by extension commission charges there from Government through the financial sector regulatory authorities, which is CBK, should encourage banks to engage in financial innovation but at the same time closely regulating such developments to assure on the integrity of the payment systems. Mobile banking, being a financial innovation is the engine of sustainable economic growth. Faster and more secure payment systems spur development of businesses and

economic growth in all other sectors in addition to facilitating financial activities. This is a key factor to the attainment of Kenya's Vision 2030's economic pillar objectives.

The study also recommends that for the commercial banks to be highly competitive, they need to employ modern technological innovations such as mobile banking, and internet based banking services. Technology is one of the key elements that define a society or civilization. The critical role of technological innovation in the development of a company and its contribution on the economic growth of firms has been widely documented. The study established that mobile banking have significant effects on the financial performance of the banks.

The study recommends that the banking sector should be able to determine the technical background of the majority of its customers before endeavoring into the use of advanced technologies. This entails assessing the literacy level of its major customers, the specific needs of its target customers and the potential benefits accruing to customers through the use of current technologies. This can be achieved through carrying a customer research.

5.4 Limitations of the Study

The period of the study was limited to five years between 2010 and 2014 and the analysis done based on the ratios for the various variables observed over the five year period. The short period which mobile banking has been in existence could not give a long trend for analysis. It may not give a clear picture of the relationship as not all commercial banks adopted it at the same time yet the performance used in the study takes into account the performance from all banks. The level of adoption of mobile banking by commercial banks was not considered.

In seeking the data for the study, from the outset as was put forth in the proposal for this study, it was to source for data from published reports from commercial banks and Central Bank of Kenya, but bank managers were unwilling to provide such data in fear of such data leaking to the competitors as much of the information is not public information and thus had to seek data from one side CBK. This made it difficult for data comparison to that data reported to CBK.

The study was limited to the effects of mobile banking on the financial performance of commercial banks in Kenya where the size of the bank and GDP were used as the control variables. Other aspects that influence performance of the banks were not considered in this study which include, other products offered by the banks for example different type of accounts, loans, investments, internet banking among others.

The study was limited to the degree of precision of the secondary data. While the data was verifiable since it was obtained from the Central bank website, the data could still have some shortcomings as to precision. The study was limited by the availability of data relating to the revenue generated from mobile banking as these data is not reported as a line item in the financial statements of commercial banks and was thus difficult to get the data.

5.5 Suggestions for Future Studies

This study only concentrated on the commercial banks in Kenya. The study therefore suggests further research be conducted on the effect of mobile banking on the financial performance on all financial institutions such as SACCOs, Micro-Finance institutions and insurance companies for comparison results. The study can also be conducted in other sectors or industries not only in Kenya but also in other countries within East African region where similar innovations are being adopted; this would help in drawing a clear conclusion on the relationship between these variables as more data would be collected for analysis.

The study did only considered mobile banking and not all bank innovation. Hence, further study is recommended to include innovations like agency banking, securitization and credit guarantees and their influence on the financial performance of commercial banks. These are among the several innovations being currently adopted by commercial banks. A more detailed study can be conducted to establish whether the adoption of financial innovations contributed to financial deepening among the unbanked population in Kenya and the East African region.

The study was restricted to five years, hence studies should be done that will factor in the performance of commercial banks before the introduction of mobile banking and after adoption of mobile banking. This will provide a clear indication of the effect of mobile banking and its contribution to the performance of banks. The rate of mobile adoption would be considered and measured against the performance of commercial banks in Kenya.

The study suggests that a research to be conducted on the financial risks associated with mobile banking and the strategies that commercial banks have put in place to tackle them. The study would be to explore on the challenges that banks face during implementation of mobile banking and ways of addressing them involving security challenges associated with m banking services.

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APPENDICES

Appendix I: List of Licenced Commercial Banks in Kenya as At December 2014

1. ABC Bank (Kenya)
2. Bank of Africa
3. Bank of Baroda
4. Bank of India
5. Barclays Bank
6. CFC Stanbic Bank
7. Charterhouse Ltd
8. Chase Bank (Kenya)
9. Citibank
10. Commercial Bank of Africa
11. Consolidated Bank of Kenya
12. Cooperative Bank of Kenya
13. Credit Bank
14. Development Bank of Kenya
15. Diamond Trust Bank
16. Dubai Bank Kenya
17. Ecobank
18. Equatorial Commercial Bank
19. Equity Bank
20. Family Bank
21. Fidelity Commercial Bank Limited
22. Fina Bank
23. First Community Bank
24. Giro Commercial Bank
25. Guardian Bank
26. Gulf African Bank
27. Habib Bank
28. Habib Bank AG Zurich
29. I&M Bank
30. Imperial Bank Kenya
31. Jamii Bora Bank
32. Kenya Commercial Bank
33. K-Rep Bank
34. Middle East Bank Kenya
35. National Bank of Kenya
36. NIC Bank
37. Oriental Commercial Bank
38. Paramount Universal Bank
39. Prime Bank (Kenya)
40. Standard Chartered Kenya
41. Trans National Bank Kenya
42. United Bank for Africa
43. Victoria Commercial Bank
44. Housing finance bank

Source: Central Bank of Kenya (2014)

Appendix II: Secondary Data

Users

	No of Bank deposit account holders	Mobile banking users	Ratio of MB users to Bank deposit A/C users
2010	11,881,114	16,446,300	1.384238885
2011	14,250,503	19,191,000	1.346689306
2012	15,861,417	21,060,000	1.327750226
2013	21,800,556	25,326,300	1.161727251
2014	28,438,292	25,249,200	0.887859229

Source: Central Bank of Kenya

Transactions

	Bank customer deposits (Millions)	RTGS (Millions)	Payment cards (Millions)	Automated clearing house (Millions)	MB Deposits (Millions)	Total Transaction s	Ratio of MB Deposits to Total Bank transactions
2010	1,236,549	17,100,730	517,324	2,329,127	732,219	21,915,949	0.033410326
2011	1,488,168	21,893,810	577,852	2,290,797	1,169,150	27,419,777	0.042638932
2012	1,707,834	19,879,567	1,009,760	2,171,385	1,544,807	26,313,353	0.058708102
2013	1,935,661	22,668,978	1,532,779	2,051,926	1,901,559	30,090,903	0.063193816
2014	2,331,609	25,561,215	1,265,261	1,810,655	2,371,794	33,340,534	0.071138453

Source: Central Bank of Kenya

GDP

	% Real GDP Growth
2010	5.8
2011	4.4
2012	4.6
2013	5.7
2014	5.3

Source: Central Bank of Kenya

Gross Assets

	Gross Assets (Millions)	Natural log of total assets
2014	3,261,095	28.8131
2013	2,703,394	28.6255
2012	2,330,335	28.4770
2011	2,020,818	28.3345
2010	1,678,112	28.1487

Source: Central Bank of Kenya