ST JOHN'S UNIVERSITY OF TANZANIA

IMPACT OF MOBILE BANKING ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN TANZANIA: A CASE OF CORPORATIVE RURAL DEVELOPMENT BANK (CRDB) TANZANIA

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A Dissertation submitted in partial fulfillment of the requirements for the Master of Science in Finance at St John's University of Tanzania

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CERTIFICATION

I, the undersigned, certify that I have read and hereby recommend for acceptance by St. John's University of Tanzania a dissertation entitled; "The Impact of Mobile Banking on The Financial Performance of Commercial Banks in Tanzania: The case of Corporative Rural Development Bank (CRDB) Tanzania", in partial fulfillment of the requirements for the award of the degree of Master of Science in Finance of St John's University of Tanzania.

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Dr. B.D.Sebyiga

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DECLARATION

I**, Tadei Abdala**, declare that this thesis is my own work. It has not been and will not be presented for any other course of study.

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Date ……..

ABSTRACT

Mobile banking has transformed the way banks in both developed and developing countries work. This type of banking offer a wide variety of services ranging from account information, which has to do with alerting the customers on the updates and transactions on their account through their mobile phones. Regardless of its potential benefit, however its impact to the performance of banks has not yet being evaluated in Tanzania. Therefore the objective of this study was to analyze the impact of mobile banking to the performance of the banks in Tanzania.

Based on the purpose of the study and the type of data the research included the use of both quantitative and qualitative methods of data collection with the use of a descriptive study. Descriptive research was adopted because it involves gathering data that describes events and organize, tabulates, depicts and describes the data. It involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data.

The findings of the study showed that mobile banking had a positive impact on the performance of CRDB bank Tanzania.

The study recommend that Banks should continue investing on mobile banking and other innovation delivery channels because they are able to control their costs much better as compared to investment in brick and mortar or physical branches.

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ABBREVIATIONS

SJUT	St John's University of Tanzania
CRDB	Corporative Rural Development Bank
IT	Information Technology
E-banking	Electronic banking
SMEs	Small and Medium Enterprises
SPSS	Statistical Package for the Social Sciences
ICT	Information and Communication Technology
ROA	Return on assets
ROE	Return On Equity
NIM	Net Interest Margin
E-banking	Electronic Banking
M-transactions	Mobile Transactions
PDA	Personal Digital Assistant
ATM	Automatic Teller Machine or Automated Teller Machine
E-commerce	Electronic Commerce
E-funds transfer	Electronic Funds Transfer
BOT	Bank of Tanzania
SMS	Short Message Services
PIN	Personal Identification Number
TCRA	Tanzania Communications Regulatory Authority
KPIs	Key Performance Indicators

CHAPTER ONE

INTRODUCTION

1.1 Chapter overview

This chapter presents the introduction and is divided as follows; background to the problem, statement of the problem, general objective of the study, Specific objectives of the study, significance of the study, ethical issues, organization of the study and lastly chapter summary.

1.2 Background of the Study

Recent innovations in telecommunications have enabled the launch of new access methods for banking services; one of these is mobile banking; whereby a customer interacts with a bank via mobile phone (Barnes and Corbitt, 2003). In India 617 million mobile subscribers far exceed fixed line subscribers because of better mobile infrastructure (TRAI, 2010). The banks in India are racing to use this latest technology to reduce their operational costs and increase customer base (Peterson, 2009).

Mobile banking refers to provision and ailment of banking and financial services with the help of mobile telecommunication devices. The scope of offered services may include facilities to conduct bank transactions, to administer accounts and to access customized information (Tiwari and Buse, 2007). After the launch of mobile banking in India, mobile banking transactions have seen some growth. What attracts customers to mobile banking is the round the clock availability and ease of transactions.

Porteous, (2006) classified m-banking into two, firstly, transformational m-banking, which is the provision of banking services using mobile phones to reach unbanked population and secondly, additive m-banking, in which mobile phone is simply an additional channel that is used to improve banking services to the already banked.

Mobile banking is innovation that has progressively rendered itself in pervasive ways cutting across several financial institutions and other sectors of the economy. During the 21st century mobile banking advanced from providing mere text messaging services to that of pseudo internet banking where customers could not only view their balances and set up

multiple types of alerts but also transact activities such as fund transfers, redeem loyalty coupons, deposit cheques via the mobile phone and instruct payroll based transactions (Okiro and Ndugu, 2013).

Mobile banking offers a potential solution for the millions of people in emerging markets that have access to a cell phone, yet remain excluded from the financial mainstream. It can make basic financial services more accessible by minimizing time and distance to the nearest retail bank branches (Ivatury, and Pickens,2006) as well as reducing the bank's own overheads and transaction related costs. According to the International Telecommunication Union (ITU), over 90% of South Africans use a mobile phone (ITU, 2009). Mobile banking presents an opportunity for financial institutions to extend banking services to new customers (Lee et al, 2007).

In recent years, banks, payment system providers, and mobile operators have begun experimenting with branchless banking models which reduce costs by taking small-value transactions out of banking halls and into local retail shops, where agents such as airtime vendors, gas stations, and shopkeepers, register new accounts, accept client deposits, process transfers, and issue withdrawals using a client's mobile phone to communicate transaction information back to the telecommunication provider or bank. This enables clients to send and receive electronic money wherever they have cell coverage. They need to visit a retail agent only for transactions that involve depositing or withdrawing cash (Salzaman, Palen & Harper, 2001).

Stiff competition in Tanzania's financial sector is forcing institutions into adopting new forms of technology to reduce the costs of doing business and widen customer outreach for enhanced profitability. Banking services has become usual in recent years as a way of maintaining customer loyalty and increase market share (Africa-Tanzania-Business-Travel-Guide.com). The new innovative systems (such as mobile banking) are especially targeting the earning but unbanked population in rural and hard to reach areas.

According to Nasikye (2009), Mobile banking (m-banking) involves the use of a mobile phone or another mobile device to undertake financial transaction linked to a client account. According to Owen m-banking refers to provision and availing of banking and

financial service with the help of mobile telecommunication device. Services include performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone which is most used in developing countries or Personal Digital Assistant (PDA).

Financial performance refers to the financial soundness where depositors' funds are safe in a stable banking system. The financial soundness of a financial institution may be strong or unsatisfactory varying from one bank to another. Mugembe (2008) argued that external factors such as deregulation: lack of information among bank customers, homogeneity of the bank business do cause bank failure. The activities undertaken in m-banking contribute to the financial soundness of the commercial banks. Some useful measures of financial performance are coined into what is refer to as CAMELS (Capital adequacy, Asset quality, Management, Earning, Liquidity and Sensitivity analysis) which guide the banking sector (Madhyam and Stichele, 2010).

Mobile banking has transformed the way people in the developing world transfer money and now it is poised to offer more sophisticated banking services which could make a real difference to people's lives. This type of banking can offer a wide variety of services ranging from account information, which has to do with alerting the customers on the updates and transactions on their account through their mobile phones. People receive short messages on their phones informing them of their immediate transactions in their bank accounts. Also, they help in payments (utility bills), deposits, withdrawals, transfers, purchase airtime, request bank statements and perform 13 other crucial banking tasks, all in real time over their mobile phones (Turihamwe, 2014).

Mobile banking has increased provision of financial services with a wider choice of services geared to all levels of society (Vaidya, 2011). Mobile banking differs from mobile payments, which involve the use of a mobile device to pay for goods or services either at the point of sale or remotely, analogously to the use of a debit or credit card to effect an EFTPOS payment (Darrat, 1999).

In both the developed and developing countries, mobile phones have become the primary form of telecommunication (Bhavnani,et al, 2008).The northern European countries are among the most advanced ones in adoption of different new mobile technologies. In 2003,

m-banking in Finland enabled services such as checking account balances, funds transfer, payment of bills, share dealings, portfolio management and purchase of insurance. Mari, Rafael and Francisco (2007) established that product and service delivery innovations contribute positively to regional Gross Domestic Product (GDP), investment and gross savings growth. These sentiments are shared by Hendrickson and Nichols (2011), while studying the performance of small banks in the United State with regards to interstate branching and found out that banks perform better when they adopt innovations across their branches.

Over the last ten years, the financial sector in Tanzania has seen dramatic changes. This has been made possible by factors including; development in the wider economy, policy and regulatory reforms, increased competition and new technology. The amendment of the banking act in 2009 finance bill, passed into law at the end of the year allowed banks to use small shops, petrol stations, pharmaceutical companies and other retail outlets as agents. Mobile banking offers millions of people a potential solution in emerging markets that have access to a cell phone, yet remain excluded from the financial mainstream. It can make basic financial services more accessible by minimizing time and distance to the nearest retail bank branches (CGAP, 2006) as well as reducing the bank‘s own overheads and transaction- related costs. Mobile banking presents an opportunity for financial institutions to extend banking services to new customers thereby increasing their market (Lee & Kim, 2007).

Over the past few years, advancement in information technology has changed the way organizations operate and conduct their business (Al-Jabri, 2012). Technological advancement has brought about the evolution of m-banking and online banking in the banking industry which has revolutionized the manner in which commercial banks conduct their business. Internet and m-banking has not only made financial organization provide banking services online and via mobile but has also provided customer with easy access to financial services and other benefits.

The movement from traditional branch banking to mobile banking has caused banks to come up with strategies to attract more customers and retain existing ones. The desire to reduce both operational, administrative cost and competition has driven banks to adopt

mobile banking. However cost reduction is only realizable with an increase in customer adoption (Bradley and Stewart, 2003).

Technological advancements in the area of telecommunications and information technology have continued to revolutionize the banking industry. The delivery of financial services has experienced major changes during the past few years. A feature of the banking industry across the globe has been that it is increasingly becoming turbulent and competitive thereby forcing commercial banks to innovate for survival. Banks, aided by technological developments, have responded to the challenges by adopting new strategies which emphasize on attempting to build customer satisfaction through offering better products and services and at the same time to minimize operation costs (Sohail and Shanmugham, 2003).

An appropriate banking environment is considered a key pillar as well as enabler of economic growth (Koivu, 2002). The banking industry has been subject to this technological change (Bradley and Stewart 2003). In order to be in line with the changes in the operating environment, it is apparent that banks in Tanzania and other financial institution have to embrace mobile banking in meeting customer demands (Tiwari and Buse, 2006). Providing banking through mobile phones has proved fruitful in terms of cost control by employing automated ways of transacting other than the traditional method of labour intensive therefore higher productivity and profitability. Consequently, growing partnership in financial institution and other service providers has lead to an increase in m banking as customers can transact and clear utility bills through their mobile.

Mobile banking has a lot of advantages and they include; firstly, a client having more ways to access accounts where by the banks typically let the client access accounts via texting, mobile browsers or downloadable applications. Secondly, good security whereby there is no major security breaches. Mobile banking is safer than other channels, including Internet banking. Even if the client lose their phone, they are safe. Bank data are guarded with passwords and other ID checks. Also, the client can disable their phone remotely. Thirdly, mobile banking is ramping up quickly; mobile banking began catching on in 2007. But already, the big banks offer these services, along with 500 other banks and credit unions. Fourthly, no fees required for using mobile banking services. However, the phone provider may tack on extra charges. Fifthly, easy access

of financial records anytime anywhere makes mobile banking appealing. Clients can check deposits, notice money transfers and monitor transaction history Gustke (2014).

Recently many studies focusing on evaluating the impact of mobile banking on the financial performance of the banking sector have been carried out and have received increased attention over the years. However, little has been done on the Tanzanian commercial banks. The increasing number of mobile banking users in Tanzania has justified the needs for more scholars investigate the impact of mobile banking on the financial performance.

According to Aker and Mbiti (2010), there is a strong correlation between mobile phone coverage, the types of services offered, the price of such service, and firm performance.

Abubakar (2012), carried out a study in Nigeria using time series data for the period 2006-2012, the study examined the effects of electronic banking on growth of deposit money banks in Nigeria. The study revealed that positive relationships existed between mobile banking and total deposits, and between internet banking and total asset while on the other hand, no significant relationships between internet banking and total deposits, and between mobile banking and total asset. The study recommended that banks that wanted to improve their deposit growth performance must offer numerous products/services through mobile phones in an effective, efficient and cost effective manner. They must also make mobile banking application all mobile phones enabled so that those customers who cannot afford Java enabled mobile phones can also use the product. The study also recommends that banks that want to increase their asset holdings must offer numerous, efficient and cost effective secured transactions through the internet.

Mago and Chitokwindo (2014) in their study carried out in Zimbabwe examined the impact of mobile banking on financial inclusion. The study adopted a qualitative research methodology and a survey design. The study findings revealed that the low income people were willing to adopt mobile banking and the reasons are that it is easily accessible, convenient, cheaper, easy to use and secure. The findings also revealed that the mobile banking system was an easily accessible, cheaper, more convenient and faster means of sending and receiving money.

Mavhiki et al, (2015) carried out a study in Zimbabwe aiming at finding the impact of mobile banking on traditional banking practices in Zimbabwe. The study found that mobile banking has transformed the way traditional banking activities are undertaken thus resulting in the reduction of traditional banking transactions, decongesting banking halls, transforming the lives of ordinary people in the street and also reduce costs of visiting brick and mortar branch always for transacting. The study also found that mobile banking is still to win security trust amongst customers. Since some customers were still skeptical about the security and integrity of mobile banking. This could be the reason why mobile banking practices have not completely replaced traditional banking practices. The study also noted that mobile banking has its own challenges which according to this research include mobile network failures, lack of a clear regulatory framework, systems failures and lack of trust. The study concluded that the banks need to lobby the regulatory authorities to implement the right regulatory framework for mobile banking as this impact on their operations with this business model. The study recommended that whilst the bank was focusing on mobile banking it must not completely ignore to maintain traditional ways of banking. Banks needs to invest more in risk and compliance functions as these will save them on major losses resulting from fraud and theft of data. This would increase the level of trust thereby enjoying high adoption of the technology by customers.

Mwendwa et al (2014), in their study carried out in Tanzania aimed at assessing the effect of MMS on the performance of the banking institutions. The study found that the introduction of mobile money services had contributed positively to the financial performance of the banking institutions. Convenience and reliability of various mobile money services had largely led to increased customer satisfaction and loyalty despite occasional technical itches that prove disappointing to the customers.

Nyangena (2015), in his study carried out in Kenya, established the effects of electronic banking on financial performance of commercial banks. The study adopted a survey study. The target population of the study was 44 Commercial Banks in Kenya. Purposive sampling was employed to select one employee from each bank thus forming a sample size of 44 respondents who were used in this study. A questionnaire was used to collect primary data from the field. Secondary data was also used. The study carried out a pilot study to pre-test and validate the questionnaire. Quantitative data collected was analyzed by the use of descriptive statistics such as frequency and percentage and presented using

frequency tables. The study noted that Internet banking had a very small impact on financial performance of commercial banks in Kenya. Although internet banking was efficient in account management, elimination of errors, flexibility as well as well as 24 hours banking, internet banking remained underutilized and unknown by the majority of Kenyans. The findings also revealed that majority of respondents felt that affects profitability to a very great extent. From the findings, mobile banking was shown to have a good opportunity for financial providers to introduce new financial innovations, enhances the convenience of existing customers, allows bank customers to check their account balances, perform credit card transaction and allows bank customers to check their account balances, perform credit card transaction as well as provide information on the latest transaction made by customers. The study established that mobile banking is well known as well as well utilized by majority on Kenyans. The findings revealed that real time gross settlement affects financial performance of commercial banks in Kenya. Majority of the respondents felt that RTGS affects financial performance to a great extent. The findings show that RTGS is a powerful mechanism for limiting settlement and systemic risks, reduction of settlement risk in securities and foreign exchange transactions, minimize or even eliminate the basic interbank risks and reduce the duration of credit and liquidity exposures. From the findings, the study recommended that internet banks remain underutilized by majority of Kenyan, thus there is need for various players in the banking sectors to educate potential users on the merits of internet. From the finding also, mobile banking was found to be well utilized by majority of Kenyans but there is still a need for commercial banks to heavily invest in mobile banking to gain more returns. The finding revealed that RTGS positively affect financial performance but Commercial banks should market its use to maximize productivity

Rachael, (2010) in her research on effects of mobile banking on profitability of commercial banks in Kenya concluded that mobile banking to a larger extent impacts the financial performance of commercial banks in Kenya in that it helps reduce unnecessary costs, increases efficiency and improves on service delivery.

Misati, et al (2010) in their study carried out in Kenya noted that for instance, document that financial products have increased, activities and organizational forms have also improved and the overall efficiency of the financial system has increased.

Munyoki S (2015), in his study carried out in Kenya focused on mobile banking technology in relation to its effect on commercial banks' financial performance indicators namely: Return on Assets (ROA) and Return on Equity (ROE). The objective of this study focused on the effect of mobile banking on the financial performance of commercial banks in Kenya. The study reviewed theoretical literature guided mainly by the financial intermediation, innovation diffusion and balanced scorecard theories as well as existing empirical literature on the effects of mobile banking on the financial performance of banking institutions giving attention to the gaps in the research literature. The study applied descriptive research design. The target population included the 42 commercial banks operating in Kenya as at December 2014. The key study instruments used to collect primary data were questionnaires. The analysis of the quantitative data was limited to descriptive statistics while qualitative data was presented through narration. The study established that the number of mobile banking transactions has tremendously increased in the last five years since the introduction of M-banking. The study thus concludes that, banks that have adopted M-banking services have to a large extent increased their customer outreach, and hence have improved their financial performance. The findings revealed that many mobile banking products were being offered by banks such as Fund Transfer between Accounts/ E-funds transfer, Bill Payment, order for cheque books and bank statements and therefore concluded that the financial performance of the banks that provided these mobile banking products had improved because they ensured efficiency of the banking services.

Chale and Mbamba (2014), in their study carried out in Tanzania examined the role of mobile money services on growth of small and medium enterprises in Tanzania, where data was collected from respondents in Kinondoni District in Dar es Salaam Region. Data were collected using self-administered questionnaires, which were distributed to 100 respondents, who yielded a 90% return rate. Multiple regression analysis was used to test the role of increased volume of sales, efficiency in purchase of stock, reduced time in processing payments, payments of goods and services, improved habit of savings, and money transfer on business growth in terms of market share, revenue and profitability. Based on technology adoption theories, the study findings revealed that small and medium enterprises used mobile money services in various ways for business purposes, which included sales transactions, efficiency in purchase of stock, receiving payment, payment of goods and services, savings as well as money transfer that influenced their business

growth. Based on the study findings, the study recommended that there is a need for SMEs to continue using mobile money in their businesses so as to enhance their businesses and reduce some costs such as cost of travelling, money transfer, as well as time for processing payments. Moreover, they should review their business strategies to include other uses of mobile money (other than ones tested in this research, which are sale transactions, efficiency in purchase of stock, to receive payment, payments of goods and services savings money) in their businesses, which in turn, would attract more customers and facilitate SME business growth.

Measuring the impact of mobile on the financial performance of the CRDB bank will enable the bank to know what has changed and what works about an intervention or funding programme. It will also enable CRDB bank to know the extent and intensity of the change. It will enable CRDB bank to have benchmarks and make comparisons. CRDB bank will learn and make improvements. CRDB bank will be in a position to test assumptions. Measuring impact will provide evidence of value for money which can increase sustainability. CRDB bank will be in a position to detect any unintended impacts.

1.3 Statement of the Problem

The impact of mobile banking on performance of commercial banks in Tanzania is not well known to the public. Mobile banking has been one of the fastest growing markets in Tanzania and is still growing at a period of a rapid pace following the addition of few telecommunication players who have attracted dynamic number of subscribers. Mobile banking has transformed the way people in the developing world transfer money and now it is poised to offer more sophisticated banking services which could make a real difference to people's lives. Mobile banking has also helped in payments (utility bills), deposits, withdrawals, transfers, purchases, airtime, and request bank statements (Turihamwe, 2014). The importance of financial innovation in form of mobile banking in explaining banking performance fits well in understanding the impact of mobile banking in Tanzania (Mabrouk and Mamoghli, 2010). With the uncertainty on the contribution of mobile banking to the financial performance of commercial bank, there is a need to find out what is the influence of mobile banking on the financial performance of the banking sector in Tanzania. This study is therefore meant to access the impact of mobile banking on the performance of the banking sector in Tanzania, the case of CRDB bank.

1.4 Objectives of the Study

1.4.1 General Objective

The general objective of this study is to assess the impact of mobile banking on the financial performance of commercial banks in Tanzania, taking a case of CRDB bank.

1.4.2 Specific Objectives of the Study.

The specific objectives of the study include:

i. To determine the effects of mobile banking on total income of CRDB bank.
ii. To analyze the effects of mobile banking on return on total assets of CRDB bank.
iii. To examine the impact of mobile banking on profitability of CRDB bank.
iv. To investigate challenges of mobile banking in relation to CRDB bank.

1.5 Research questions

The study is set forth to answer the following research questions:

i. Are there any effects of mobile banking on total income of CRDB bank?
ii. Are the effects of mobile banking give any returns on total assets of CRDB bank?
iii. What are the impacts of mobile banking on profitability of CRDB bank?
iv. Which challenges are there in mobile banking in relation to CRDB bank?

1.6 Significance of the study

The study had the following contributions to organization's performance, theory and to other researchers.

i. The research broadens the existing literature in similar area of study.
ii. The research is useful to bank organizations and even to other external users such as general public.
iii. The gaps identified in this research created a footstep to potential researchers who are interested in undertaking research on the impact of mobile banking.

1.7 Limitations of the study

The available time and resources might be limitations in this study. A descriptive design lacked control over a long time frame and sometimes led to low response rates. To avoid this limitation, the questionnaires were in most cases administered, filled and picked the same day. In cases where the right respondents were not available, the questionnaires were left and picked after two days.

1.8 Organization of the study

This study comprises of five chapters. Chapter One covering chapter overview, the background of the study, statement of the problem and purpose of the study. This is followed by research objectives, research questions, ethical issues, significance of the study, limitations of the study, organization of the study, and chapter summary.

Chapter Two, covers the chapter overview, definition of key terms, theoretical review, empirical review from various sources to establish work done by other researchers, their findings, conclusions and identification of knowledge gaps which forms the basis of setting objectives and research questions of the study and lastly chapter summary.

Chapter Three covers the research design, target population of the study, sample size and sampling procedures. This is followed by data collection procedures, data collection instruments, validity of instruments, reliability of instrument, data analysis techniques, ethical considerations and concludes with operational definition of variables.

Chapter Four covers findings from data analysis, presentation of findings and interpretation of findings. It is concluded with summary of the chapter.

Chapter Five covers summary of findings, discussion, conclusions and recommendations of the study. It is concluded with suggested areas for further research and contribution to the body of knowledge.

1.9 Ethical issues

Consideration of ethics and values in research reminded the researcher of the responsibility for acknowledging, keeping the public informed and protecting the privacy and welfare of human subjects (Mason and Bramble, 1997). In this light, anyone who enters into research activities needs to adhere to ethical obligations. This study involved the use of secondary data which were obtained from the audited financial statements and primary data collected from the distributed questionnaires in which respondents were required to fill them. The information provided was used solely for research purposes and was not passed on to any other person or organization. Confidentiality of information was highly protected in that the respondents were not being required to write their names and

questionnaires were identified by alphabetic letters. The bank management was informed when and where they would have access to a summary of the findings of the research.

1.10 Chapter summary.

This chapter describes in depth the background of the study concerning the impact of mobile banking on the financial performance of the commercial banks sector in Tanzania with regard to worldwide perspective and to local area where the study was conducted.

Furthermore, the statement of the problem was “the impact of mobile banking on performance of commercial banks in Tanzania is not well known to the public “and was provided in order to clarify the need to research in this area. Not only that but also both the general objective and specific objectives were provided in order to determine the essence of the study and objectives expected to be achieved. With intention of getting the variables for data collection, research questions were constructed with regard to specific objectives. Finally, the significance of the study was provided as a way of revealing the advantages that every part involved in this study would benefit from one way or another.

CHAPTER TWO

LITERATURE REVIEW

2.1 Chapter Overview

This chapter reviews the existing literature on the subject matter of inquiry through theoretical and empirical literature. The theoretical literature review comprises theoretical issues and concepts of mobile banking on financial performance while the empirical review deals with the studies that address the research objective and questions.

2.2 Theoretical Review

2.2.1 Definitions of key terms and concepts.

- **Financial performance**

Financial performance is the process of measuring the results of an organization policies and operations in terms of monetary value. These results are reflected in the firm's profitability, liquidity or leverage. Evaluating the financial performance of a business allows decision-makers to judge the results of business strategies and activities in objective monetary terms (Zawadi, 2013).This is a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues (Srinivas,2013). In this study ROA, ROE and NPM were used to measure financial performance was used when generally measuring the impact of mobile banking on the overall financial health of the CRDB bank by comparing the performance before and after the introduction of mobile banking. The financial performance of CRDB bank would relate to how well the bank is generating profit.

- **Mobile banking**

This is also called M- banking which refers to the access of banking services and facilities using electronic mobile devices such as mobile phones and personal digital assistants (PDAs) (Porteous, 2006). Tiwari et al, (2006) define mobile banking as any transaction, involving the transfer of ownership of rights to use goods and services, which is initiated and/or completed by using mobile access to computer- mediated networks with the help of an electronic device.

- **Commercial bank**

This refers to a financial institution that provides services, such as accepting deposits, giving business loans and auto loans, mortgage lending, and basic investment products like savings accounts and certificates of deposit. The traditional commercial bank is a brick and mortar institution with tellers, safe deposit boxes, vaults and ATMs. However, some commercial banks do not have any physical branches and require consumers to complete all transactions by phone or Internet. In exchange, they generally pay higher interest rates on investments and deposits, and charge lower fees (Business Dictionary, 2011).

- **Return on assets**

This refers to the profit before tax divided to the total resources owned and controlled by a bank (Dew, 2007).

- **Customer deposit**

This refers to the money placed in a Bank for safe keeping and it is a liability by the Bank owed to the depositor (Business Dictionary, 2011).

- **Automated teller machine (ATM)**

This is a times known as a Cash Point, Cash Machine. This refers to a computerized telecommunications device that provides the clients of a financial institution with access to financial transactions in a public space without the need for a cashier, human clerk or bank teller (DeYoung, 2005).

2.2.2 Theories related to Mobile banking

2.2.2.1 Theory of Financial Intermediation

Financial intermediation is a process which involves surplus units depositing funds with financial institutions who then lend to deficit units. Bisignano (1992) identified that financial intermediaries can be distinguished by four criteria. First, their main categories of liabilities or deposits are specified for a fixed sum which is not related to the performance of a portfolio. Second, the deposits are typically short-term and of a much shorter term than their assets. Third, a high proportion of their liabilities are chequeable which can be withdrawn on demand and fourthly, their liabilities and assets are largely not transferable.

The most important contribution of intermediaries is a steady flow of funds from surplus to deficit.

Diamond and Dybvig (1983) analyses the provision of liquidity that is transformation of illiquid assets into liquid liabilities by banks. In their model, identical investors or depositors are risk averse and uncertain about the timing of their future consumption needs, without an intermediary all investors are locked into illiquid long term investments that yield high pay offs to those who consume later.

According to Scholtens and Van Wensveen (2003), the role of the financial intermediary is essentially seen as that of creating specialized financial commodities. These are created whenever an intermediary finds that it can sell them for prices which are expected to cover all costs of their production, both direct costs and opportunity costs. Financial intermediaries exist due to market imperfections. In a perfect market situation, with no transaction or information costs, financial intermediaries would not exist.

Numerous markets are characterized by informational differences between buyers and sellers. In financial markets, information asymmetries are particularly pronounced. Borrowers typically know their collateral, industriousness, and moral integrity better than do lenders. On the other hand, entrepreneurs possess inside information about their own projects for which they seek financing (Leland and Pyle, 1977). Moral hazard hampers the transfer of information between market participants, which is an important factor for projects of good quality to be financed.

2.2.2.2 Theory of information production and contemporary banking

Diamond (1984) suggested that economic agents may find it worthwhile to produce information about possible investment opportunities if this information is not free; for instance surplus units could incur substantial search costs if they were to seek out borrowers directly. There would be duplication of information production costs if there were no banks as surplus units would incur considerable expenses in seeking out the relevant information before they commit funds to a borrower. Banks enjoy economies of scale and have expertise in processing information related to deficit units (borrowers). They may obtain information upon first contact with borrowers but in real sense it's more likely to be learned over time through repeated dealings with the borrower. As they develop this information they develop a credit rating and become experts in processing information. As

a result they have an information advantage and depositors are willing to place funds with a bank knowing that this will be directed to the appropriate borrowers without the former having to incur information costs.

Bhattacharya and Thakor (1993) contemporary banking theory suggests that banks, together with other financial intermediaries are essential in the allocation of capital in the economy. This theory is centered on information asymmetry, an assumption that "different economic agents possess different pieces of information on relevant economic variables, in that agents will use this information for their own profit" (Freixas and Rochet 1988). Asymmetric information leads to adverse selection and moral hazard problems. Asymmetric information problem that occurs before the transaction occurs and is related to the lack of information about the lenders characteristics is known as adverse selection. Moral hazard takes place after the transaction occurs and is related with incentives by the lenders to behave opportunistically.

2.2.2.3 Innovation diffusion theory

Another theory that has been used to describe acceptance of information systems is Rogers' (1995) DoI or the Innovation Diffusion Theory (IDT). Innovation is defined as an idea, practice or object while diffusion is the process by which innovation or perceived new technology is communicated through certain channels over time among members of a social system (Rogers, 1995). DoI includes five significant innovation characteristics, namely, relative advantage, compatibility, complexity, trialability and observability. Relative advantage is defined as the degree to which an innovation is considered better than the existing method of performing the same task. It is suggested in the theory that relative advantage has a positive influence on behavioral intention. Compatibility is defined as the degree to which adopting the innovation is compatible with what people do, existing values, experiences, and needs. Complexity is defined as the degree to which an innovation is perceived as relatively difficult to understand and use. Trialability is defined as the degree to which an innovation may be experimented on a limited basis before making an adoption (or rejection) decision. Observability is defined as the degree to which results of an innovation are visible to others (Rogers, 1995). This model also has been tested extensively (Tobbin, 2011; Shambare, 2011; Abdelghani & Aziz, 2013).

2.3 Empirical Review

Empirical literature review is a directed search of published works, including periodicals and books, that discusses theory and presents empirical results that are relevant to the topic at hand (Zikmund et al., 2010).

2.3.1 The need to analyze the impact of mobile banking

Assessing the impact of mobile banking is an effective and a very important tool to management of a financial institution. This is due to the duties accomplished by mobile banking which are very essential for the performance of the banking sector. Firstly; Convenience, direct banks are open for business anywhere there is an internet connection. Other than times when website maintenance is being done, they are open 24 hours a day, 365 days a year. If internet service is not available, customer service is normally provided around the clock via telephone. Secondly; Better Rates, Some accounts can be opened with no minimum deposits and carry no minimum balance or service fees. Thirdly, Services; direct banks typically have more robust websites that offer a comprehensive set of features that may not be found on the websites of traditional banks. These include functional budgeting and forecasting tools, financial planning capabilities, investment analysis tools, loan calculators and equity trading platforms. They also offer free online bill paying, online tax forms and tax preparation. Fourthly; Mobility, Online banking now includes mobile capabilities. New applications are continually being created to expand and improve this capability on smart phones and other mobile devices. Fifthly; transfers, Accounts can be automatically funded from a traditional bank account via electronic transfer. Most direct banks offer unlimited transfers at no cost, including those destined for outside financial institutions. They will also accept direct deposits and withdrawals that you authorize, such as payroll deposits and automatic bill payment. Sixthly; Ease of Use where by online accounts are easy to set up and require no more information than a traditional bank account. Many offer the option of inputting your data online or downloading the forms and mailing them in. If you run into a problem, you have the option of calling the bank directly. One advantage of using online checks is that the payee's information is retained, which eliminates having to reenter information on subsequent checks to the same payee. Finally; online banking is also environmentally friendly. Electronic transmissions require no paper, reduce vehicle traffic and are virtually pollution-free. They also eliminate the need for buildings and office equipment. (Geoffrey, 2014);

Summarily, mobile banking plays an important role in the economy by facilitating access to financial services. Mobile banking has become an easy, low cost, convenient and secured way of transferring money through person-to-person, person-to-business and business-to-business transactions. By facilitating financial transactions mobile banking enable the customers to overcome the key challenges of limited access to low cost financial services, liquidity and cash flow management. Customers use mobile banking services to make and receive payments, pay taxes, make loan repayments and pay various bills. This saves time and money, and contributes to growth of customers and businesses in terms of market share, revenue and profitability.

2.3.2 Mobile banking and Profitability

Simpson (2002) suggests that mobile and e-banking is driven largely by the prospects of operating costs minimization and operating revenues maximization.

Nader (2011) analyzed the profit efficiency of the Saudi Arabia Commercial banks during the period 1998- 2007. The results of his study indicated that availability of phone banking, number of ATMs and number of branches had a positive effect on profit efficiency of Saudi banks. On the contrary he found that the number of point of sale terminals (POSs), availability of PC banking and availability of mobile banking did not improve profit efficiency.

Customer dissatisfaction with branch banking because of long queuing and poor customer service is an important reason for the rapid movement to electronic delivery (Karjaluoto, Mattila and Pento, 2002).

Mabrouk and Mamoghli (2010) in their study on Dynamics of Financial Innovation and Performance of Banking Firms: Context of an Emerging Banking Industry, analyzed the effect of the adoption of two types of financial innovations namely; product innovation (telephone banking and SMS banking etc) and process innovation (Magnetic strip card (debit, ATM and credit card), Automatic cash dispenser; (Automatic teller machine; Electronic payment terminal etc) on the performance of banks. Their analysis included two adoption behaviors, first mover in adoption of the financial innovation and imitator of the first movers. They found out that first mover initiative in product innovation improves

profitability while process initiative has a positive effect on profitability and efficiency. Banks that imitate are less profitable and less efficient than first movers.

2.3.4 Mobile banking and Return on Assets

Arnaboldi and Claeys (2008) while comparing the performance of different online banking models over the period 1995-2004 in Finland, Spain, Italy and the UK, found out that internet banks were performing better in terms of average returns to assets (or equity), and do not seem to run higher operational costs for the little income they generate.

They explain the performance of banks using a group of selected bank specific features, but also adding country specific macroeconomic indicators and information technology related ratios. They further say that by focusing mostly on bank deposits, the banks cannot gain benefits from more rewarding banking activities and clients interested in value added products still prefer interaction with a physical branch and therefore internet banks need to reach a minimum dimension in order to become profitable. They further contend that online banking as a process innovation is largely driven by factors external to the banking industry which include percentage of households with access to internet at home, a higher broadband penetration rate, and higher outlay on R&D employment that are all factors positively influencing internet bank performance.

2.3.5 Mobile banking and Customer Deposits

Nyangosi and Arora (2011) argue that financial institutions adopted different electronic distribution channels to meet the demands of customers. In their study to examine the adoption of information technology in Kenyan banks focusing on services provided through internet and mobile banking, they found out that inclusion of information technology in banking business was necessary to achieve excellence goal. The study further revealed that ATM technology is the most available technology while SMS banking was also found useful. They also found out that customers use bank websites to know the products, use internet banking to check balance, know after sale services and buy products, an indication that internet banking is gaining popularity and becoming vital in financial transaction events.

Mahdi and Mehrdad (2010) used chi-square to determine the impact of e-banking in Iran and their findings from the view points of customers is that, e-banking caused higher advantages to Iranians. In other words, Iran banks provide services that the customers are deriving satisfaction with particular reference to the use of e-banking.

In a similar study, Jayawardhena and Foley (2000) explore e-banking as a new delivery channel arguing that e-banking may help to overcome the inherent disadvantages of traditional banks and it is very clear that if e-banking is conducted successfully it leads to big volume of transactions.

Mahdi and Mehrdad (2010) concluded that ATMs in banking sectors will cause cash circulation decreases, the efficiency of banking sector will increase, as client banking costs decrease (less cash fees to pay), shop keeper / service provider costs will decrease, and bank costs decrease (cash storage, less checking and processing costs), and that customers don't have enough knowledge related to e-banking in Iran.

One aspect of mobile phones in the developing world that is being looked at with some anticipation is the introduction of mobile financial services and transactions. Many if not most rural users in less developed countries have no access to financial services of any kind, and getting these "unbanked" citizens linked somehow into the formal banking sector is a priority for many governments. However, the evidence to date of initial efforts in this regard is mixed. While users are employing the mobile banking systems to make payments for things such as airtime and pre-paid electricity, and many are using them for sending remittances back to friends and relatives in their rural villages, there is little evidence to date of an increase in the number of users registering for more formal banking services via mobile phone, such as savings and credit services (Ivatury and Pickens, 2006; Morawczynski, 2008).

2.3.6 Mobile Phone Service and Performance

Sub-Saharan Africa has some of the lowest levels of infrastructure investment in the world. Merely 29 percent of roads are paved, barely a quarter of the population has access to electricity, and there are fewer than three landlines available per 100 people (International Telecommunication Union, ITU, 2009; World Bank, 2009a&b). Yet access to and use of mobile telephony in sub-Saharan Africa has increased dramatically over the past decade. There are ten times as many mobile phones as landlines in sub-Saharan Africa and 60 percent of the population has mobile phone coverage (ITU, 2009). Mobile phone subscriptions increased by 49 percent annually between 2002 and 2007, as compared with 17 percent per year in Europe (ITU, 2008).

The effect of mobile phones has been particularly dramatic in rural Africa, where in many places; mobile phones have represented the first modern telecommunications infrastructure of any kind. Mobile phones have greatly reduced communication costs, thereby allowing individuals and firms to send and to obtain information quickly and cheaply on a variety of economic, social, and political topics. An emerging body of research shows that the reduction in communication costs associated with mobile phones has tangible economic benefits, improving agricultural and labour market efficiency and producer and consumer welfare in specific circumstances and countries. As telecommunication markets mature, mobile phones in Africa are evolving from simple communication tools into service delivery platforms (Jensen, 2007; Aker, 2008; Aker, 2010; Klonner and Nolen, 2008). This has shifted the development paradigm surrounding mobile phones from one that simply reduces communication and coordination costs to one that could transform lives through innovative applications and services.

According to Aker and Mbiti (2010), there is a strong correlation between mobile phone coverage, the types of services offered, the price of such service, and firm performance. In markets with limited competition, profit-maximizing firms to offer more limited services at higher prices. Rayhan, Sohel, Islam, and Mahjabin (2012) in their study on mobile banking in Bangladesh concluded that, mobile phone banking offers the potential to extend low cost virtual bank accounts to a large number of currently un-banked individuals. Mobile phones enhance the ability of electronic banking solutions to offer customers an enhanced range of services at a low cost. Mobile banking is real time on-line banking, available anytime, anywhere throughout the country, it is convenient, affordable and secure and therefore it is much more effective in developing savings habits and hence leading to increase in bank deposits. Mobile phone also makes access to banking and advanced payment transactions at affordable cost. A positive aspect of mobile phones is that mobile networks can reach remote areas at low cost both to the consumer and the bank.

In this case there are substantial researches which were made with regard to the impact of mobile and internet banking on the financial performance of the banking sector and companies globally among them are;

Dinh V et al (2015); in their study carried out in Vietnam aimed at evaluating the impact of internet banking to performance (profitability ratios, noninterest operating expenses and

incomes) of banks in Vietnam in the period from 2009-2014. The study used random effect model (REM) and fixed effect model (FEM) to estimate the relationships between Internet indicators and bank's performance. The study results from the regression model showed that internet banking had an impact on bank profitability through an increase of income from service activities. However, the impact level was low and had a lag time of over 3 years, which was longer than findings from previous studies.

Gehling et al. (2007), in their study argued that the impact of electronic banking on small businesses depends on several factors related to the bank's understanding of the relationship between those businesses and their customers, and how well electronic banking services address their business requirements.

Liu (2008), in his study argued that Internet customer capital (customer databank, customer trust, customers' complaint analysis and customer loyalty) and Internet service capital (speed of transaction check, security of transaction, knowledge databank, stability of system, and diversity of services) are significantly correlated with business performance.

Ceylan et al; (2008), in their study analyzed the internet banking performance in Turkey. During a period of time from 1996 to the year 2000 it took in consideration 14 commercial and savings bank. The authors have used ROE (return on equity), ROA (return on asset) and MARGIN as a performance variable. The analysis concluded that in the first year of adoption usually there is no positive performance; it takes two or three years to reach a good performance. The results show that the ROE has a positive result in the second year of adoption. There is also positive result for ROA, but the variable is not significant.

Husni Ali and Noor Mousa (2011) evaluated the performance of Jordanian domestic banks by adopting e-banking services. The study was based on three types of banks: non internet services, recent adopters of the e-banking services and early adopters of these services. The ratios used in the study included Return on Assets, Return on Equity and Margin of Interest as profitability ratio. The study covered a period of time from the year 2000 to 2009.On the basis of empirical analysis all the bank types of the study, which differed in e-banking adoption were compared on the basis of the performance as a measure. Results for the non-internet services had no significant effect on ROE, but they

were significant in terms of ROA. For the second type the recent adopters of the services for a period less than 2 years, the significance was only on Margin. The last type of the bank that applied electronic banking services it did not have any significance on banks profitability for the whole period of time. In this case it is clearly seen that it takes time to be adapted to the e-banking services, as for every new product usually it takes two or three years to see the positive result.

Egland et al. (1998) was the first important study, which estimated the number of US banks offering Internet banking and analyzed the structure and performance characteristics of these banks. It found no evidence of major differences in the performance of the group of banks offering Internet banking activities compared to those that do not offer such services in terms of profitability, efficiency or credit quality. However, transactional Internet banks differed from other banks primarily by size.

Furst et al. (2000a, 2000b, 2002a and 2002b) found that banks in all size categories offering Internet banking were generally more profitable and tended to rely less heavily on traditional banking activities in comparison to non-Internet banks. An exception to the superior performance of Internet banks was the de novo (new start-ups) Internet banks, which were less profitable and less efficient than non-Internet de novos. The authors concluded that Internet banking was too small a factor to have affected banks' profitability.

There is another similar empirical analysis in India by Pooja and Balwinder (2009). Authors choose 85 commercial banks, some public and private ones for a period of time from 1998 to the year 2006. The study is divided in univariate and multivariate analysis, using 10 financial performances. The authors wanted to prove the performance and risk in relation to online banking. In the univariate analysis the hypothesis is built on how the online and non online banking adoption performs on the basis of those 10 financial indicators. Due to the Size results that Internet banking is bigger in assets and employees. The profitability, operating efficiency and financing Internet banks perform better with a lower cost. In the category of Asset Quality and Diversification again internet banks are having a lower net Non Performing Assets (NPA). Lastly, in the category Cost of Operation it is implied that Internet banking usually is expected to have lower cost of operation. This conclusion is sustained by the authors by proving that private banks have lower costs, whereas public and early adopters have higher costs, which can be attributed to the used costs in

maintaining physical branches or adopting the online banking. The second part of analysis is developed to prove if there is a connection between offering internet banking to performance and risk, using OLS estimation and dependent variable such as ROE, ROA, and NPA. It concludes that in terms of ROE and ROA there is no significance between the Internet and performance. However, there is negative significance between the Internet and ROA in the part of private banks and its sub category. Another result highlighted is that in term of ROE the internet banking performance was very good and reached 10 percent significance at foreign banks. The last dependent variable NPA in this study had great result, such as the Internet is not increasing risk, but it is actually decreasing the risk profile. This was the second analysis which proved that Internet banking is getting better and better through time and is performed in a good way.

Özataç and Nwobodo (2010) studied the internet banking in Northern Cyprus at a period of time 2004-2009, in a panel data of 22 retail banking. They also used ROE and ROA as dependent variables. In this case, two other ratios were included: the CA- ratio of total credit to total assets and the CD-ratio of total credit to total deposits used to test the link between Internet banking and performance. The model resulted with a low link between the variable and the absence of multicolinearity among variable. The main conclusion was that the CA and CD ratios both resulted with negative relationship while using the internet. Despite the internet banking increases the performance in different sectors, the authors entail that in case of these two ratios they were not used wisely or properly.

In this case there are substantial researches which were made with regard to the impact of mobile and internet banking on the financial performance of the banking sector and companies in Africa among them are;

Adewoye (2013); carried out a study in Nigeria aimed at examining the impact of mobile banking on service delivery in the Nigeria commercial banks. The findings showed that Mobile banking improve banks service delivery in a form of transactional convenience, savings of time, quick transaction alert and save of service cost which had recuperate customer's relationship and satisfaction. The study also recommended that banks management should Create awareness to inform the public about the benefits derived on the e-banking service products, Collaboration among banks should perfectly maintain, Skilled manpower and computer wizard should be employed by every Banks, in other to

prevent fraudulent personal and hackers from manipulating the Banks data and stealing money from the Banks accounts. Finally Provision and maintenance of public network, system such as telephone (Nitel) the availability of these basic infrastructures is fundamental to the efficient functioning of the mobile banking services.

Salami and Ogbeta (2014), in their study carried out in Nigeria, it aimed at explaining why the electronic commerce channels such as the use of ATM, telecommunications, social networks, internet banking, POS terminals, Mobile phones, software applications, etc could enable business to blossom and reduce the movement of cash/cash handling which in turn helped to curb crime rates, mitigate other barricading challenges and would protect customers from many dangers. Also, it explained why it had gained greater height of acceptability and thus explaining how information communication technology (ICT) could be exploited and enhanced for this purpose. The study found out that E-commerce made organizations, banks and other financial service providers to become competitively advantageous and reduced operational cost. The study findings showed that E-commerce if adequately funded by an organization would enhance the achievement of the organization marketing and corporate objectives whereby banks with a strong support and commitment to e-commerce from top management were more likely to adopt e-commerce banks that had the requisite It and business resources (infrastructures and skills) for e-commerce adoption stood a better chance of adopting ecommerce and profitability of the organization involved. The study recommended that banks should anticipate competitors' actions and develop new marketing and succession plans that were robust and contingent. It also recommended that the banking industry should embrace the use of electronic commerce for improved profitability, productivity and operate optimally amidst competitors. The study recommended that businesses should be e-commerce friendly to attract foreign investor's awareness programmes and should organize talk shows, seminars/workshops and be taught in tertiary institutions, schools, etc. Lastly the availability of current technology in computing networks in Nigeria and some of the infrastructures needed for the successful take-off of e-commerce are already on ground. Government should therefore study the system to see how it can be adopted to develop the banking industry. Government should provide necessary infrastructures for e-commerce to thrive in Nigeria.

Kwaku (2014), in his study carried out in Ghana investigated how the electronic banking services through internet and ATM had impacted on banking services in general and the

banks' profitability in particular. The study finding showed that E-banking had an impact on the profitability of the Agricultural Development bank. The study also found that there was a significant increase in the net profit margin of the bank in the year (2011) E-banking was introduced and the even though it fell in the next year (2012) which wasn't much, it increased again in the third year (2013).The study revealed that E-banking has a positive effect on ADB's Profitability.

Abaenewe, (2013), investigated the profitability performance of Nigerian banks following the full adoption of electronic banking system. The study became necessary as a result of increased penetration of electronic banking which has redefined the banking operations in Nigeria and around the world. Judgmental sampling method was adopted by utilizing data collected from four Nigerian banks. These four banks are the only banks in Nigeria that have consistently retained their brand names and remain quoted in the Nigerian Stock Exchange since 1997. The profitability performance of these banks was measured in terms of returns on equity (ROE) and returns on assets (ROA). With the data collected, we tested the pre- and post-adoption of e-banking performance difference between means using a standard statistical technique for independent sample at 5 percent level of significance for performance factors such as ROE and ROA. The study revealed that the adoption of electronic banking has positively and significantly improved the returns on equity (ROE) of Nigerian banks. On the other hand and on the contrary, it also revealed that e-banking has not significantly improved the returns on assets (ROA) of Nigerian banks.. The findings of this study motivated new recommendations for bank customers, bank management and shareholders with regard to electronic banking adoption for banking operations.

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Josiah and Nancy (2012) in their study intend to confirm if there is a relationship between e-banking and performance by using Pearson Product- Moment Correlation Coefficient test. They focused in a regression with ROA as dependent variable, EB (investment in electronic banking measured in Kshs as independent variable, CDS (number of debit/cards issued by banks) and ATMS (number of systems installed by banks). The purpose was analyzing the impact of e-banking, on bank performance. Usually other studies involved research on the relation of loan, deposit and other variables, but Josiah and Nancy (2012) used different variables. They started with 43 commercial banks, from which only 27 banks answered positively to the data sent to the managers. Basically, the study was based on these 27 commercial banks for a period of time from 2006 to 2007 year. Conclusion resulted that E-banking has strong significance on ROA in the banking industry of Kenya. The relationship between e-banking and performance of banks was positive. Overall the whole study concluded that the adoption has made good points, especially the use of debit cards and ATM made the costumer access to the money for 24 hours.

Mwangi (2013), in their study carried out in Kenya studied the innovations in relation to their effect on commercial banks' financial performance indicators namely: total income, profit before tax, return on assets and deposits. The main objective of this study was to establish the effect of bank innovations on financial performance of commercial banks in Kenya. A descriptive survey design was used while a questionnaire was used to gather primary data. Secondary data was also used to validate the communicative and pragmatic validity of primary data. The target study units for this research were 20 conveniently selected commercial banks. They comprised of 10 listed banks, 2 governments owned and 8 private owned commercial banks. The study sample in terms of the respondents

covered the senior management only and a sample of 325 was administered with the questionnaire. Statistical analysis was done with the aid of Statistical Package of Social Sciences (SPSS) software. The findings revealed that bank innovations had statistically significant influence on income, return on assets, profitability and customer deposits of commercial banks in Kenya and tests for significance also showed that the influence was statistically significant. The findings also revealed that mobile phones had a higher moderating effect than internet services on the bank innovations when influencing financial performance of commercial banks in Kenya. Based on the findings of the study, it can be concluded that bank innovations influence financial performance of commercial banks in Kenya positively. The study recommended to the management of commercial banks and the Government continues to explore and implement sustainable business linkages and collaborations with mobile phone service providers as well as the internet service providers as a way of accelerating the penetration of innovations and eventually creating desired impacts in the economy. Banks should leverage on mobiles phones in order to grow their business and customer base. This study did not include all bank innovations and a further study is recommended to include innovations like agency banking, securitization and credit guarantees and their influence on the financial performance of commercial banks.

Mutua (2010), in his study carried out in Kenya aimed at determining the effect of mobile banking on the financial performance of commercial banks in Kenya. The study applied descriptive research design. The target population included six mobile phone service providers who provided mobile phone services and 43 commercial banks operating in Kenya as at December 2012. The total amounts transferred via the mobile for the past five years 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. The study noted that during the study period, the amount of money transacted through the mobile money transfers increased steadily from 0.06 billion in 2007 on its launch to 118.08 billion by the last month of the analysis. The growth was motivated by the convenience offered by the service. The study however found that there existed a weak positive relationship between mobile banking and the financial performance of commercial banks in Kenya. The study recommended that the policy makers should take mobile banking awareness creation into consideration when drafting policies on the operations of

banks in Kenya. This was because of the indirect relationship of mobile banking and financial performance especially as the industry moved into a technologically competitive environment. The study also recommended that policy makers keep a keen eye on the developments of mobile banking as it was a new platform for competition among commercial banks as the world moved into a digital age to ensure it doesn't lose its regulatory role.

Nyang'ate (2015), carried out a study in Kenya sought to determine the relationship between E-Banking technologies and financial performance of commercial banks in Kenya. The study was based on Technology acceptance model (TAM), diffusion of innovations theory and resource based theory. The study findings revealed that recent ATM innovations offered financial institutions the opportunity to transform the ATM from a cash dispenser to a customer relationship management tool, helping to enhance loyalty among all customers. Credit cards were being adopted by the banks so as to increase income, and to reduce credit and liquidity risks. Mobile banking was likely to have major impacts on the profitability of commercial banks as business operations got smoothened and that internet banking offered the convenience of conducting most of the banking transactions at a time that suits the customer. The study concluded that adoption of E-Banking technologies had a positive influence on the performance of commercial banks in Kenya. The study recommended that commercial banks should continue investing in ICT.

Namara (2014), carried out a study in Uganda, the main objectives were; to find out m-banking technology used, to examine the factors influencing the adoption of mobile banking services and to establish the relationship between m-banking and financial performance of Standard Chartered bank (Uganda) using a case study of Mbarara branch in Mbarara Municipality. The study collected data through self administered questionnaires both structured and semi-structure, interviews and observation. The Data collected was analyzed qualitatively and quantitatively. The study findings indicated that one needed to register with bank and maintain an account with both the bank and telecom company such as MTN. The services offered by standard chartered bank (Uganda) included; Account Balance Enquiry, Fund Transfer between Accounts, Bills payment (utility bills) among others. The introduction of m-banking in Uganda had contributed to customer loyalty, convenience and also had influenced the financial performance of the banking sector in Uganda positively. Therefore there was a positive relationship between m-banking and

financial performance of a bank. Conclusion and recommendation were made towards strengthening the contribution of m-banking to financial performance of the banking sector in Uganda. the researcher recommended that the banks should conduct research on other possible m-banking packages, Free training and refreshing training should be provided to staff of the bank and if possible to customers and The bank should provide toll free line to enable customers who want to use the system and also in case of any problem that deserve attention of the bank.

2.3 .7 Commercial Banks in Tanzania

According to Srinivas (2013), the function of the commercial banks has been enhanced in Tanzania to sustain the increasing need of the agriculture, industrial and service sector and the economy in general after the financial reforms contemplated in the country. Starting in the mid-1960s, Tanzania implemented a series of economic policies grounded in socialist principles. According to these principles, the government implemented central controls by directly investing in all sectors of the economy. However, by the mid-1980s, it was clear that earlier reforms had created a host of inefficient companies verging on financial crisis. In the early 1990s, the Tanzanian government implemented reforms designed to decrease its influence in the financial sector.

In 1991, the government passed the Banking and Financial Institutions Act, which allowed for the formation of privately held banks. In addition, the Bank of Tanzania was given certain oversight controls to ensure the development of prudent banking activities. In 1996, Tanzania's Cooperative and Rural Development Bank (CRDB) became the first state-owned bank to be privatized. Currently, a number of banks have been established in Tanzania and now hold a significant amount of total market share (Srinivas, 2013).

As of December, 2011, there were 48 commercial banks consisting of 31 fully-fledged commercial banks and 17 financial institutions. The top 10 banks in term of market share are National Microfinance Bank (NMB) with 23%, National Bank of Commerce (NBC) with 13.3%, CRDB Bank 12.8%, Barclays Bank Tanzania 6%, Exim Bank 4.3%, Stanbic Bank Tanzania 3.6%, Tanzania Postal Bank 3.5%, Akiba Commercial Bank 3.2%, Standard Chartered Bank 3%, FBME Bank 2.7%.Three of the top six, NMB, NBC

and CRDB are the private sector banks have significant domestic share holdings either via the government, aid agencies or the Tanzanian private sector. The other four, are foreign owned (Srinivas, 2013).

The performance of the Banking sector during the period from 2006 to 2011 can be understood from its increase in Total Assets from TSHS 5,294 Billion to TSHS.14,537 Billions, Loans from TSHS 2,214 Billion to TSHS.7,157 Billion, Deposits from TSHS 4,240 Billion to TSHS.11,964 Billions, Shareholder Capital from TSHS. 525 Billions to TSHS.1,746 Billions, and Net Income from TSHS 131 Billion to TSHS.343 Billions, signifying a CAGR 18.2%, 17.8%, 23.2%, 7.95% respectively. During the same period the net interest income went up from TSHS.332 Billion to TSHS.1048 Billion and interest spread went from 8.7% to 15%. With The total number 48 banks, the branch network has gone up from 285 to 503 and employees from 6167 to 11,897 by the end of 2011. Out of the total assets, foreign and local banks account for 50% each as at the end of 2011 (Srinivas, 2013).

Tanzania's banking sector has very limited exposure to the world financial markets. As a result, the negative ramifications of the global credit crisis have not affected Tanzania relative to others, more developed African countries. Nevertheless, the strength of the banking system will be tested by the economic slowdown that has followed the initial crisis. In spite of significant role played by the banking sector it fails to cater the needs of industry, agriculture, service sector. High interest rates, high interest spreads, low return on capital employed, growth in NPAs are some of the challenges faced by the banking sector (Srinivas, 2013).

2.3.8 Mobile banking in Tanzania

In Tanzania, mobile banking was first introduced by E-fulusi Africa Limited in Partnership with FMBE bank through Mobipawa platform. Mobipawa was operator independent platform that allowed subscribers to transfer, receive, save and withdraw money as well as purchase goods and services through the use of mobile phones (Masamila, 2014).
Vodacom Tanzania in collaboration with Vodafone launched Vodafone M-Pesa (a version of M-Pesa in Kenya) in April 2008. M-Pesa is a mobile money transfer platform that can be operated by MNO in emerging markets. With M-Pesa, customers are able to send money to any other mobile customer via a simple text-based transaction. Recipients of such

transfers are able to convert the e-money back into cash at any authorized M-Pesa agent across the country (Vodacom, 2008).

M-Pesa uses aggregator model to manage agent network. The use of aggregators has reduced the complexity of agent management as M-Pesa does not deal directly with thousands of outlets spread out across the country. Also, this model has improved cash management, for example, balancing of cash float issues between different outlets caused by regional imbalances between deposits and withdrawals (Davidson et al,2012). Recently, Vodacom Tanzania and Commercial Bank of Africa (CBA) have launched a banking service named M-Pawa that will allow Tanzanians, who are M-Pesa customer, to save and borrow money on their mobile phones. In addition, Vodacom's M-Pesa is integrated with 21 commercial banks in the country. It is also the preferred payment solution for over 200 businesses in country (Cgap,2014).

Another provider is Zantel. Zantel launched Z-Pesa (which known as Ezy-Pesa) in 2008. Ezy-Pesa was first introduced in Zanzibar market, but it has since extended its service to include the mainland. Initially, it was intended to support money transfer (i.e. sending and receiving money), but this service has expanded to include payment such as bill and merchants payments. Ezy-Pesa uses E-Fulusi Mobile Transaction Switch (EFMTS) developed by E-fulusi (Masamila, 2014).

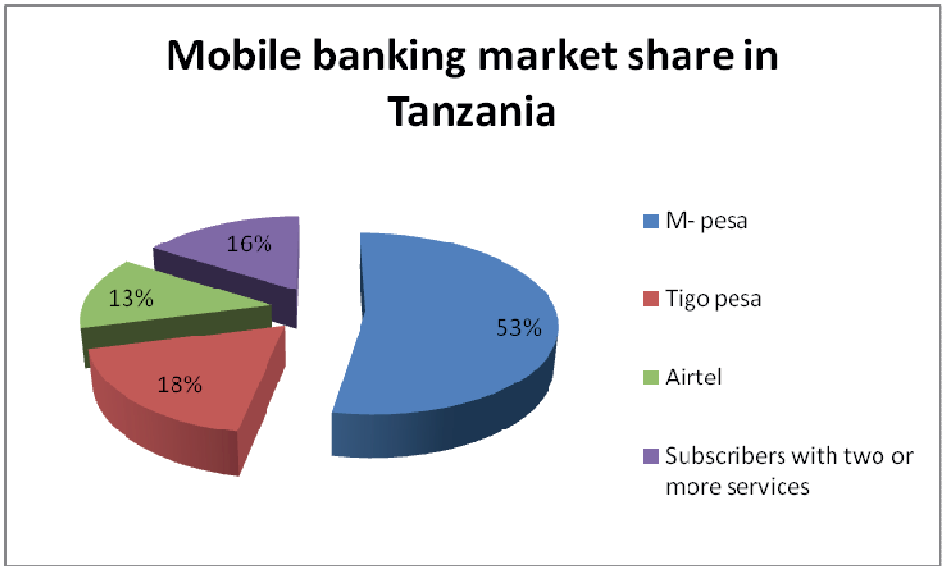
In 2009, Airtel (previous knows as Zain) introduced Airtel Money, a mobile banking platform developed by Hamisco Oberthur technologies (Unctad, 2012). Airtel Money was launched simultaneously in Tanzania and Kenya with the aim to link micro-payments to merchants that would overcome the need to convert money into cash. With Airtel Money, customer can make a direct purchase to the merchant and also it can be used as the channel to move cash from one location to another. Airtel through Airtel Money is collaborating with merchants who moves larger amounts of money, and has inter-linked with several banks of which customers can move their virtual money into their Airtel Money accounts (Ivatury, 2009).

Tigo, a mobile network operator, introduced another version of mobile banking called Tigo Pesa. Tigo Pesa was launched in September, 2010, initially with the ability help customer

to send and receive money. Its function has been expanded to include payment services such as bill, merchants and personal-to-personal payment (Masamila, 2014).

Currently, the mobile banking market share (as shown in Figure 2.1) is dominated by Vodacom's M-Pesa with 53% followed by Tigo-Pesa with 18% and Airtel Money with 13% (Di Castri, and Simone,2013).

Figure 2.1 The mobile banking market share distribution



Sources: Di Castri and Simone,(2013)

2.3.9 Types of mobile banking

You can check your account status, make payments, pay your utility bills and transfer funds between accounts using just your Smartphone. However, that is not all. Apart from using a bank's mobile application, you also have SMS alerts and USSD services where the need of a smartphone is not necessary (www.itsallaboutmoney.com). The following are the different types of Mobile Banking and they include; Mobile banking over Wireless Application Protocol (WAP), Mobile banking over SMS/ text alerts and lastly Mobile banking over Unstructured Supplementary Service Data (USSD)(itsallaboutmoney.com,2016)

- **Mobile Banking over WAP**

Mobile banking over Wireless Application Protocol is a service which allows you to access your bank account details and transact over the internet through a mobile banking application. At present, you can access Mobile Banking using either mobile data services (2G, 3G or even 4G in certain regions) or Wi-Fi. Mobile banking applications are optimized for iOS, Android and Blackberry phones. With Windows phone also growing, banks are now working on making the application available for those users as well. You can also use the Mobile Banking application on java/ non-java handsets via GPRS connection. You can download the Mobile banking application, which is free on your mobile phones, via your bank's website.

The Mobile Banking application emulates a majority of banking services provided by the bank on your phones and gives you the freedom to carry out most of your banking activities. The services available via Mobile Banking applications (itsallaboutmoney.com (IAAM, 2016) :

i. Access your bank accounts and related services anytime you want.
ii. All enquiry services such as account statements/ mini statements/ loan statements are available to you. You can also choose to download or print these statements.
iii. Transfer funds between various bank accounts of the same as well as different banks.
iv. Make instant payments as per your wish.
v. Mobile Banking allows you to pay your utility bills such as electricity/water or telephone bills. You can also set these payments on automatic pre-schedules where the payments are automatically disbursed before the due date arrives.
vi. Avail value added services which allow you to instantly recharge your mobile/DTH or internet.
vii. Choose to view your Credit/Debit card statements.
viii. Request for cheque books/ loans/ stop payment orders etc. via Mobile Banking application.
ix. Locate the nearest bank branches and ATMs.

- **Mobile Banking over SMS**

With Mobile Banking via SMS services you do not require to download any application. SMS services are available on all phones whether java or non-java, with or without GPRS connectivity as Mobile Banking via SMS works like any other SMS service. To get updates on your account you are required to send a text message to a specified number and receive instant replies as per your request (itsallaboutmoney.com, 2016).

To register for Mobile Banking via SMS, you need to put a request for the service at your bank or register your mobile number at your bank's ATM. Once you are registered, you will receive instant alerts via SMS on your mobile devices.

The facilities available in Mobile Banking via SMS include: Enquiry services such as account summary/ balance enquiry or mini statements and Instant SMS alerts on every activity related to your account.

The service may or may not be free of cost depending upon the respective bank policies. Some banks charge a small quarterly fee for instant alerts. However, your phone network provider will charge normal SMS rates for each request.

- **Mobile Banking over USSD**

Considering that a majority of mobile users in rural India do not have the same access to banking facilities as their counterparts in urbanized pockets, a convenient form of Mobile Banking based on unstructured supplementary service data (USSD) was introduced targeting the rural areas. The services of Mobile Banking via USSD can be enjoyed by any individual with any mobile phone, with or without a GPRS connection (IAAM, 2016).

Mobile Banking over USSD unlike SMS service is based on real time interaction between a customer and the bank. To get instant alerts, you are required to dial a pre-fixed code on your mobile phone and hit the 'Call' button. An instant menu pops up on the screen and you can choose the next step. The service is however available with only a select number of service providers. Get in touch with your bank for more information on the service availability.

With Mobile Banking via USSD you can enjoy the following services (IAAM, 216):

i. Enquiry services which includes account statements/ mini statements/ Credit card statements etc. You can access your balance details and previous transaction details.
ii. Request services where you are allowed to request for cheque books, loans, stop payments.
iii. Enjoy IMPS (Immediate Payment Service) Funds transfer between accounts via Mobile Banking.
iv. Mobile Banking via USSD also supports value added services such as instant mobile top ups and DTH recharges as well.
v. Use Mobile Banking to locate bank branches and ATMs around you.
vi. The service is session based thus requires the requestor to respond instantly or the session may expire.

All account holders can enjoy Mobile Banking via USSD services. Though the service is free of charge from the bank, other charges by the mobile network provider may be applicable. There are no limits on how you should use different types of Mobile Banking services so why wait? Sit back, relax and choose to do all you're banking right from home, on the move or from anywhere else.

2.4 Research gaps

From the foregoing review of relevant literature, it is evident that research in the area of mobile banking has been done but not in a comprehensive approach. Some literatures reviewed indicate that previous researchers only concentrated on other variables other than mobile banking. This makes the study more comprehensive. From survey of relevant literature, it has been found that there are few studies specific to Tanzania on the link of mobile banking and financial performance of commercial banks. This study therefore intends to fill these pertinent gaps in literature by studying the effects of mobile banking on selected key performance indicators of commercial banks in Tanzania.

2.5 Chapter summary

Generally this chapter provided a review of literature which is directly related to mobile banking and its impact on financial performance of CRDB bank in Tanzania. The main purpose was to make the study comprehensive thus being able to achieve the intended objectives. A review of theories was made and the theories reviewed were, Innovation diffusion theory, Theory of information production and contemporary banking theory correlated to this study due to the fact that it depicted the concept of mobile banking.

Empirical literature review also to a large extent was considered as a means of comparing the findings from different authors as well as the justifications of information obtained.

CHAPTER THREE

METHODOLOGY

3.1 Chapter Overview

This chapter deals with the research methodology, which represents how the study would be conducted, the choice and reasons for choosing the research setting, data collection methods and procedures that were used in conducting the study. Other issues covered, include accessibility of the primary and secondary data and how they were be selected. The issue of validity and reliability was highly considered in relation to the data to be collected. The study used a panel of secondary data collected from CRDB bank and primary data collected through questionnaires. Also the chapter comprises of the description of the population of the study, sampling techniques, sample size, sources of data, and method of data collection and method of data analysis that the researcher was use in the study

3.2 Research Design

According to Mcmillan and Schumaker (2001) a research design is a plan for selecting subjects, research sites and data collection procedures to answer the research questions. Kothari (2004) describe a research design as the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. Based on the purpose of the study and the type of data the research included the use of both quantitative and qualitative methods of data collection with the use of a descriptive study. Descriptive research was adopted because it involves gathering data that describes events and organize, tabulates, depicts and describes the data. It involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data (Babbie, 2002). Descriptive studies portray the variables by answering who, what and how questions. According to Cooper and Schindler (2000) descriptive statistics discover and measure cause and effect relationships among variables. The aim of qualitative study was to provide a clear understanding of mobile banking and its usage in the commercial banks from user perspectives while quantitative data were collected with the aim of quantifying the impact of the mobile banking to the banks performance. Quantitative data were collected from the audited financial statements

for the financial years of 2005-2007 (before the introduction of mobile banking), 2013-2015 (after fully integrating mobile banking in the services of CRDB bank Tanzania).

3.3 Study Area

Study area, is a place where the study is going to be conducted (Glesne, 2006). In this study CRDB bank Tanzania was used as the study area due to fact that, it is one of the commercial banks that needed analysis of the impact of mobile banking to be done so that an assessment could be made on how efficient and effective it was in its financial performance hence it was easy to access data.

3.4 Population and Sampling

3.4.1 Population

Cooper and Emory (1995) defined population as the total collection of elements about which the researcher wishes to make some inferences. Lavrakas (2008) also defines a population as any finite or infinite collection of individual elements. An element is the subject on which the measurement is being taken and is the unit of the study. The population of interest in this study consisted of the managers, and other employees who were targeted as key respondents.

The main reason for choosing senior management employees and other employees were because they are responsible for performance of their respective bank(CRDB bank Tanzania) and have higher level of appreciation on how mobile banking influences financial performance. They are also responsible for managing performance of their units through the departmental budgets and action plans.

3.4.2 Sampling Procedure

A set of audited financial statements from CRDB bank Tanzania for three years before the introduction of mobile banking (2005-2007) and three years after the introduction of mobile banking fully (2013- 2015) and the employees of CRDB bank Tanzania was selected and they included the balance sheet, the statement of comprehensive income and the cash flow. The selected financial statements and employees represented the characteristics of the performance of the CRDB bank Tanzania. The purpose of these selected financial statements to study was to gain information about the whole the impact of mobile banking on financial performance of CRDB bank Tanzania.

3.4.3 Sample Size Estimation

Sampling procedure is the scientific method of selecting the sampling units which would provide the required estimates with associated margins of uncertainty arising from examining only a part not the whole. Various sampling techniques can used depending on the type of research to be conducted (Anthony, 2014). Respondents were selected by focusing on the purpose of the study and kinds of respondents to be involved.

As CRDB bank Tanzania had more than 10,000 employees, the formula below as described by Rwegoshora (2006) was used to estimate the sample size. Precision level will base on 1-10%.

$$n = \frac{N}{1 + N(x)^2} \quad \text{..... (1)}$$

Where by n = Sample size,

N= Total population

x = Precision (10%)

1= constant

Hence, according to the Rwegoshora, (2006) formulary the sample size is as follows; whereby the Total number of population is 10,000 people/employees.

N=10000

$$N = \frac{10{,}000}{1 + 10{,}000\ (10\%)\ ^2}$$

$$N = \frac{10{,}000}{1 + 10{,}000\ (0.1)\ ^2}$$

N =100

From the calculation, the study used a sample size of 100 employees from all levels of management at CRDB bank Tanzania. This was an adequate number of representative that posses all characteristics of the target population.

3.5 Types and Sources of Data

3.5.1 Primary Data

Kothari (2004) describe primary data as those which are collected afresh and for the first time, and thus happen to be original in character. Ember and Ember (2009) describe primary data as data collected by the investigator in various field sites explicitly for a comparative study.

The rationale of using primary data was that; they are collected for the particular project at hand. This means they are more consistent with the research questions and research objectives. It could be a bit difficult to learn about opinions and behavior without asking questions directly to people involved (Perez and Knell, 2005). The primary data was collected by questionnaires and documentary review. Detailed information about the respondent's awareness of the impact of mobile banking on financial performance was obtained through the use of primary data source.

3.5.2 Secondary Data

Kothari (2004) defines secondary data as data that is already available, referring to the data which have already been collected and analyzed by someone else.

Secondary data was gathered by researcher from both from published and unpublished documents. It was useful to use the publications from respective websites of reputable organization such and researches conducted on the impact of mobile banking. Furthermore search engines such as Google scholar were employed as a means of accessing information related with the impact of mobile banking on financial performance of commercial banks.

Secondary data was also collected from the information given through CRDB bank Tanzania end of year financial reports and other related literatures from publications. The rationale to use this type of data was because they are available with ease, rapidly and economically. Secondary data though old may be the only possible source of the desired data on the subjects, which cannot have primary data at all.

3.6 Tools for Data Collection

3.6.1 Questionnaires

Schwab (2005) defines questionnaires as measuring instruments that ask individuals to answer a set of questions or respondent to a set of statement. This will be as one of the methods that will be used to obtain data for this study.

According to Dawson (2002), there are three basic types of questionnaires; closed ended, open-ended or a combination of both. Closed-ended questionnaires are used to generate statistics in quantitative research. As these questionnaires follow a set format, and as most can be scanned straight into a computer for ease of analysis and greater numbers can be produced. Open-ended questionnaires are used in qualitative research, although some researchers will quantify the answers during the analysis stage

According to Mugenda and Mugenda (2003) questionnaires have various merits, like; there is low cost even when the universe is large and is widely spread geographically; it is free from the bias of the interviewer; answers are in respondents' own words; respondents have adequate time to give well thought out answers; respondents who are not easily approachable can also be reached conveniently; large samples can be made use of and thus the results can be made more dependable and reliable. They also concur that the main demerits of questionnaires are; low rate of return of the duly filled in questionnaires; bias due to no-response is often indeterminate; it can be used only when respondents are educated and cooperating; the control over questionnaire may be lost once it is sent; there is inbuilt inflexibility because of the difficulty of amending the approach once questionnaires have been dispatched; there is also the possibility of ambiguous replies or omission of replies altogether to certain questions i.e. interpretation of omissions is difficult; it is difficult to know whether willing respondents are truly representative and this method is likely to be very slow. In view of the advantages and the need to gather more information, questionnaires were administered to senior bank managers to solicit their views concerning the effect of bank innovations on performance of commercial banks.

100 questionnaires were administered to all employees in all levels of management due to fact that these employees possess a lot a lot of knowledge on the impact of mobile banking mainly at CRDB bank Tanzania. Both open ended and closed ended questionnaire were used. The reasons behind these distributions were based on their

knowledge and experience of the entire staff's on the impact of mobile banking. The sample size was calculated from a formula that was used from the related studies. Pre testing was done in order to ensure that the questionnaires are in line with objectives of the study.

3.6.2 Documentary analysis; this method was used to help retrieve data from the secondary sources which include archives of records containing financial reports and auditors' letters to the management.

3.7 Data Analysis

3.7.1 Qualitative Data

After collecting qualitative data, the researcher prepared data for analysis, through data editing, classifying, coding, adjusting and formatting. Data was examined to determine the correct responses as per requirements. Data was summarized and analyzed by using data processing software called SPSS and were presented in academic tables.

3.7.2 Quantitative Data

Quantitative data were used to calculate profitability ratios so as to find the profitability position of CRDB bank Tanzania before and after adopting mobile banking. Net profit margins, return on equity and lastly return on asset were calculated.

- **Net Profit Margin**

According to Richard (2009), Net profit margin is often referred to simply as a company's profit margin, the so-called bottom line is the most often mentioned when discussing a company's profitability.

Formula

$$\text{Net Profit Margin} = \frac{\text{Net Profit}}{\text{Sales}} * 100$$

The higher the profitability ratios (GPM, OPM, NPM), the higher was be the profitability position of the concerned of CRDB. The lower the operating ratio (OR = OE/Sales), the better it is.

In case of CRDB bank Tanzania, the profit margin was mostly used for internal comparison and a low profit margin indicated a low margin of safety of the bank that is

to say higher risk that a decline in the total income earned by the bank will erase profits and result in a net loss, or a negative margin. Net profit margin also showed how well the bank controls its costs.

- **Return on Equity**

According to Richard (2009), this ratio indicates how profitable a company is by comparing its net income to its average shareholders' equity. The return on equity ratio (ROE) measures how much the shareholders earned for their investment in the company.

Formula

$$\text{Return on net worth or equity} = \frac{NP}{\text{Net worth of equity}}$$

$$= \frac{\text{Net Profit}}{\text{(Equity Capital + Reserve \& Surplus)}}$$

Return on equity measures the productivity of the owner's capital (i.e. risk capital) employed in the firm.

In the case of CRDB bank Tanzania, Return on equity was used to show how efficient the management of the bank was utilizing its equity base to generate returns for the investors.

- **Return on Assets - ROA**

Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. Calculated by dividing a company's annual earnings by its total assets, ROA is displayed as a percentage. Sometimes this is referred to as "return on investment"

The formula for return on assets is:

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}}$$

ROA was used to show efficient CRDB bank Tanzania management was at using its assets to generate earnings.

Note: Some investors add interest expense back into net income when performing this calculation because they'd like to use operating returns before cost of borrowing.

3.8 Reliability and Validity

Reliability and validity are the two most important quality control variables in research design. Therefore, it was very important for the researcher to ensure that the research results are reliable and valid. Validity and reliability are the two factors which any qualitative researcher should think about while designing a study, analyzing results and judging the quality of study.

3.8.1 Reliability

According to Joppe (2000), reliability refers to the extent to which results are consistent over time and an accurate representation of the total population under study and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable.

The issue of reliability was considered through structuring various questions that were associated to the research objectives, which ensured the reliability of the data collected. The use of appropriate sampling techniques such as purposive sampling and selection of appropriate sampling size were highly employed. Finally the researcher worked closely with his research supervisor to assess the research instruments such as questionnaire before they were dispersed to be used in data collection.

3.8.2 Validity

Validity refers to the degree to which the study accurately corresponds with the specific concept the researcher is attempting to measure. Validity is a measure of accuracy on whether the instruments of measurement are actually measuring what they were intended to measure (Fidell and Tabachnick, 2007). The validity of data collection tools was guaranteed regarding comments from supervisor, administration of tools by the researcher himself and testing of some tool through pilot study before the actual data collection. Testing was conducted by distributing some set of questionnaires to specific number of respondents.

3.9 Chapter Summary

This chapter has discussed the design of the study, types and sources of data, data collection methods, validity issues, data analysis methods, ethical considerations and limitations that a researcher faced. Purposely was to provide a picture on the ways a researcher constructed and conducted his research in order to achieve the desired objectives.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Chapter Overview

This chapter presents the findings and discussion of the results obtained from the field. This part covers four research questions that guided the study. The chapter starts by presenting the description of the sample of the population, focusing on sex, age, and marital status. Impact of mobile banking on financial performance, frequency of use of mobile banking, analysis is made to find out the effect of mobile banking on total income, the effect of mobile banking on return on total assets, the effect of mobile banking on profitability of CRDB bank and lastly the effect of mobile banking on customer deposits at CRDB bank. Furthermore in depth discussion are made purposely to correlate the obtained data from different respondents. The discussion of the finding bases on the specific objectives has been separated in two parts, one for qualitative data and the other one for quantitative data. Finally the chapter summary is provided.

4.2 Response Rate

Primary data was collected using a questionnaire. One hundred (100) questionnaires were issued to CRDB bank Tanzania employees. Eighty (80) questionnaires were returned representing an 80% response rate. All of them were useful for the study. Thus it gave the researcher the opportunity to collect enough data for the study.Table 4.1: Response rate

	Frequency	**Percentage (%)**
Returned questionnaires	80	80
Un returned questionnaires	20	20
Total	**100**	**100**

4.3 Demographic characteristics of the study population

The study considers the importance of analyzing the characteristics of a study population as it helps in data interpretation. The sample for this study was drawn from the different departments of CRDB bank Tanzania. The respondents were asked about their age, sex, education and marital status, as these variables were deemed important in interpretation of the data.

4.3.1: Sex

Here the study was interested in finding out the sex of the respondents at CRDB bank Tanzania and it is illustrated in the table below.

Table 4.2: Sex of the respondents

Sex of the respondents	Frequency	Percentage (%)
Male	46	58
Female	34	42
Total	**80**	**100**

The results showed that 46 or 58 % of the total number of respondents were male while female respondents constituted 34 or 42 % of the total number of respondents.

Generally the findings of the study show that there were more male respondents than female respondents in this study. The intention was to have equal numbers of male and female respondents in this study. However, this was difficult to achieve due to differences in their number in each department in CRDB bank Tanzania. The difference has no effect on the findings since what is required is the response that indicates views.

4.3.2 Age

The age distribution of the respondents was seen as an important aspect in the selection of the sample. This seems to have some implication on the understanding of various aspects in the employment matters.

Table 4.3 : Age of respondents

Age group	Frequency	Percentage (%)
20-29	20	25
30-39	24	30
40-49	30	37.5
50 and above	6	7.5
Total	**80**	**100**

The results showed that 20(25%) of the respondents were between 20 to 29 years. 24(30%) of the total number of respondents were in the age group of 30 to 39 years.

The findings of the study showed that 30(37.5%) of the total number of respondents were between 40 to 49 years. This was the age group with most respondents. This age group is usually in the employment and that they understand various issues related to their employment. The findings also showed that the age group of 50 and above had the least number of respondents and they were 6(7.5%) of the total number of respondents.

Generally the study findings of the study indicated that CRDB bank Tanzania had a young and strong labour force and had a low rate of retirement. This means that employees of the bank are still productive (young and skilled) to handle the changing technology of M-banking.

4.3.3: Respondents by Marital Status

Marital status was considered as an important element during this study and so the study found out the marital status of respondents at CRDB bank Tanzania.

Table 4.4: Marital status at CRDB bank Tanzania

Marital status	Frequency	Percentage (%)
Single	22	28
Married	54	68
Widowed	2	2
Divorced	2	2
Total	**80**	**100**

The results showed that 22(28%) of total respondents were single and this was the second biggest portion of respondents. The results also showed that 54(68%) of the total number of respondent were married and this was the largest portion of respondents. Only 2(2%) of the total number of respondents were widowed. 2(2%) of the total number of respondents were divorced.

Generally the study findings showed that there was a massive difference of marital status among different respondents of the study with married employees constituting the biggest number of employees, followed by singles and the last category with the smallest number was the divorced and widowed. This means that there will be minimal labor turnover.

4.3.4 Respondents by Education Level

Education level was considered as an important attribute when assessing the impact of mobile banking on the performance of commercial banks in Tanzania at CRDB bank Tanzania. This was because, education was assumed to have a crucial role in enabling respondents to understand different questions on the impact of mobile and internet banking on the performance of the banking sector at CRDB bank Tanzania.

Table 4.5: Education level

Education Level	Frequency	Percentage (%)
Diploma and below	6	8
Degree	60	75
Masters	12	15
Professional and above qualifications	2	2
Total	**80**	**100**

The results showed that 6(8%) of the total number of respondents were diploma and other certificates below holders. 60(75%) of respondents were degree holders. 12 (15%) of the total number of respondents were masters holders. Only 2(2%) of the total number of respondents had other qualifications which included PhD qualification and other professional qualifications.

Generally the study findings showed that CRDB bank Tanzania had employees who were well educated and skilled since they had employees falling in all academic qualification groups with the degrees qualification constituting the biggest portion of employees followed by masters' holders and other qualifications had the least number of respondents. This means that employees of the bank are skilled or can be easy be trained to handle the changing technology of M-banking.

4.3.5 Period worked by respondents.

Here the study will be interested in finding out the number of years the respondent had worked with CRDB bank Tanzania.

Table 4.6 ;The period of working with CRDB bank Tanzania.

Response	Frequency	Percentage(%)
Less than 1 year	3	3.8
1-2 years	30	37.5
3-4 year	26	32.5
More than 4 years	21	26
Total	**80**	**100**

The findings of the study showed that 3(3.8%) of the total number of respondents had worked for less than 1 year, 30(37.5%) of the total number of respondents had worked for a period of 1-2 years, 26(32.5%) of the total number of respondents had worked for a period of 3-4 years and 21(26%) of the total number of respondents had worked for more than 4 years.

Generally, the findings of the study showed that CRDB bank Tanzania had a capability of retaining majority of its employees who are skilled and with experience to deal with mobile banking or employees are comfortable with the bank technology.

4.4 To determine the effect of mobile banking on total income of CRDB Bank Tanzania.

Here the study was interested in determining the effect of mobile banking on total income of CRDB bank Tanzania.

4.4.1 Analysis of whether mobile banking has an impact on the performance of CRDB Bank Tanzania.

Here the study was interested in finding out whether mobile banking an impact on the performance of CRDB bank Tanzania.

Table 4.7; Impact on the performance of CRDB bank Tanzania

Response	Frequency	Percentage (%)
Yes	76	94.9
No	1	1.3
Not sure	2	2.5
Don't know	1	1.3
TOTAL	**80**	**100**

The findings of the study showed that 76(94.9%) of the total number of respondents acknowledged that mobile banking had an impact on the performance of CRDB bank Tanzania. 1(1.3%) of the total number of respondents acknowledged that mobile banking had no impact on the performance of CRDB bank Tanzania.

The findings showed that 2(2.5%) of the total number of respondents were not sure where mobile banking had an impact on the performance of CRDB bank Tanzania. 1(1.3%) of the total number of respondents were did not know whether mobile banking had an impact on the performance of CRDB bank Tanzania.

Generally from the findings of the study, it can be noted that mobile banking had an impact on the performance of CRDB bank Tanzania and this was supported by the highest number of respondents that was 76(94.9%) of the total number of respondents.

4.4.2 Use mobile banking to deliver services

Here the study was interested in finding out whether CRDB bank Tanzania uses mobile banking to deliver services to its customers.

Table 4.8: Usage of mobile banking deliver services to customers

Response	Frequency	Percentage (%)
Yes	80	100
No	0	0
Not sure	0	0
Don't know	0	0
TOTAL	**80**	**100**

The findings of the study showed that CRDB bank Tanzania uses mobile banking to deliver services to its customers and this was supported by 80(100%) of the total number of respondents.

None of the respondents were not sure, didn't know that that CRDB bank Tanzania uses mobile banking to deliver services to its customers.

Generally the findings showed that CRDB bank Tanzania uses mobile banking to deliver services to its customers and this was supported by all respondents.

4.4.3 Effect of mobile banking on total income of CRDB bank Tanzania

Here the study was interested in finding out the effect of mobile banking on incomes of CRDB bank Tanzania.

Table 4.9: Effect of mobile banking on total income of CRDB bank Tanzania.

	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**	**Total**
Mobile banking has had a positive effect of increasing commission fee based income	0	0	70(87.5%)	10(12.5%)	**80(100%)**
Mobile banking has influenced positively the increase of interest based income	0	0	60(75%)	20(25%)	**80(100%)**
Mobile banking has expanded the income generating potential of the bank	0	0	12(30%)	28(70%)	**40(100%)**

The findings of the study show that 70(87.5%) of the total number of respondents agreed that Mobile banking has had a positive effect of increasing commission fee based income. 10(12.5%) of the total number of respondents strongly agreed that Mobile banking has had a positive effect of increasing commission fee based income. There were no respondents who disagreed or strongly disagreed that Mobile banking has had a positive effect of increasing commission fee based income.

The findings of the study show that 60(75%) of the total number of respondents agreed that Mobile banking has influenced positively the increase of interest based income. 20(25%) of the total number of respondents strongly agreed that Mobile banking has influenced positively the increase of interest based income. There were no respondents

who disagreed or strongly disagreed that Mobile banking has influenced positively the increase of interest based income.

The findings of the study show that 24(30%) of the total number of respondents agreed that Mobile banking has expanded the income generating potential of the bank. 56(70%) of the total number of respondents strongly agreed that Mobile banking has expanded the income generating potential of the bank. There were no respondents who disagreed or strongly disagreed that Mobile banking has expanded the income generating potential of the bank.

Generally the findings of the study indicated that majority of the respondents agreed that Mobile banking has had a positive effect of increasing commission fee based income, Mobile banking had influenced positively the increase of interest based income, and lastly Mobile banking has expanded the income generating potential of CRDB bank Tanzania.

4.5 Establishing whether mobile banking had effect on return on total assets of CRDB bank Tanzania.

Here the study was interested in finding out whether mobile banking had effect on return on total assets of CRDB bank Tanzania.

4.5.1 Effect of mobile banking on return on assets

Here the study was interested in finding out the impact of mobile banking on return on assets of CRDB bank Tanzania. This was assessed from two perspectives which are; user perspectives as shown in Table 4.10 and from CRDB bank published financial statements as shown in Table 4.11. Results are as follows:

Table 4.10 Effect of mobile banking on return on assets at CRDB bank Tanzania

	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**	**Total**
Mobile banking influence reduction of operational costs and hence better return on assets for the bank	0	2(2.5%)	62(77.5%)	16(20%)	**80(100%)**
Mobile banking investments have payback period of less than 3 years and hence good return on assets	0	4(5%)	62(77.5%)	14(17.5%)	**80(100%)**
Incomes from mobile banking have had positive impact on bank income margins	0	2(2.5%)	60(75%)	18(22.5%)	**80(100%)**

The findings of the study show that 62(77.5%) of the total number of respondents agreed that Mobile banking influence reduction of operational costs and hence better return on assets for the bank. 16(20%) of the total number of respondents strongly agreed that Mobile banking influence reduction of operational costs and hence better return on assets for the bank. 2(2.5%) f the total number of respondents disagreed that Mobile banking influence reduction of operational costs and hence better return on assets for the bank. There were no respondents who strongly disagreed that Mobile banking influence reduction of operational costs and hence better return on assets for the bank.

The findings of the study show that 62(77.5%) of the total number of respondents agreed that Mobile banking investments have payback period of less than 3 years and hence good return on assets. 14(17.5%) of the total number of respondents strongly agreed that Mobile banking investments have payback period of less than 3 years and hence good return on assets. 4(5%) f the total number of respondents disagreed that Mobile banking investments have payback period of less than 3 years and hence good return on assets. There were no respondents who strongly disagreed that Mobile banking investments have payback period of less than 3 years and hence good return on assets.

The findings of the study show that 60(75%) of the total number of respondents agreed that Incomes from mobile banking have had positive impact on bank income margins. 18(22.5%) of the total number of respondents strongly agreed that Incomes from mobile banking have had positive impact on bank income margins. 2(2.5%) f the total number of respondents disagreed that Incomes from mobile banking have had positive impact on bank income margins. There were no respondents who strongly disagreed that Incomes from mobile banking have had positive impact on bank income margins.

Generally the findings of the study as shown in Table 4.10 indicated that majority of the respondents agreed that Mobile banking influence reduction of operational costs and hence better return on assets of CRDB bank Tanzania, Mobile banking investments have payback period of less than 3 years and hence good return on assets, and lastly Incomes from mobile banking have had positive impact on CRDB bank Tanzania income margins.

Consequently**,** The return on asset was calculated by dividing the net income obtained by CRDB bank Tanzania by Total asset and then multiplied by 100% as shown in appendix one.

Table 4.11; Return on asset for the financial years of 2005, 2006, 2007, 2013, 2014 and 2015

YEAR	2005	2006	2007	2013	2014	2015
RETURN ON ASSET	2.51%	2.95%	3.57%	2.37%	2.27%	2.39%

See appendix 1 for details

The findings of the study indicated that the return on asset was 3.37% in the financial year of 2007. This was highest ratio for all the years under review and was just one year before the introduction of mobile banking into CRDB banking operations. It implied that CRDB bank Tanzania was in a better position in efficiently used of its resources to generate the income for the 2005, 2006 and 2007 financial years which were before mobile banking had been introduced.

The findings of the study indicated that in the financial year 2013 the return on equity ratio was 2.37% and 2014 and 2015 was 2.27% and 2.39% respectively. These three years are after the introduction mobile banking at CRDB bank Tanzania. In these three years' return on asset ratio had dropped compared to the years before the introduction of mobile banking.

Generally the findings as shown in Table 4.3.4of indicated that CRDB bank Tanzania had seen a drop in the return on asset ratio implying a drop in the percentages of amount net income generated as compared to the Total assets of CRDB bank Tanzania after mobile banking had been incorporated in the services of CRDB bank Tanzania.

In summary, when considering the introduction of mobile banking and other factors like expansion on CRDB banking activities, bigger investments in technologies and increases in number commercial banks and other financial institutions in Tanzania, the impact of mobile banking still has a positive impact on the performance of CRDB bank

4.6 To establish the effect of mobile banking on profitability of CRDB bank Tanzania.

Here the study was interested in establishing whether mobile banking had any effect on the profitability of CRDB bank Tanzania.

4.6.1 Effect of mobile phones on CRDB bank Tanzania performance

Here the study was interested in finding out the effect of mobile phones on the performance of CRDB bank Tanzania.

Table 4.12 Effect of mobile phones on CRDB bank Tanzania performance

	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**	**Total**
Use of mobile phones has increased customer access to bank services	2(2.5%)	4(5%)	36(45%)	38(47.5%)	**80(100%)**
Use of mobile phones has added to more profitable business avenues to the bank	1(1.3%)	2(2.5%)	41(51%)	36(45%)	**80(100%)**
The use of mobile phones has improved the level of deposits for the bank	2(2.5%)	10(12.5%)	56(70%)	12(15%)	**80(100%)**
Mobile phones have led to more retail customers than corporate customers to the bank	0	2(2.5%)	52(65%)	13(32.5%)	**80(100%)**

The findings of the study show that 36(45%) of the total number of respondents agreed that the use of mobile phones has increased customer access to bank services. 38(47.5%) of the total number of respondents strongly agreed that the Use of mobile

phones has increased customer access to bank services. 2(2.5%) f the total number of respondents disagreed that Use of mobile phones has increased customer access to bank services. 1(2%) of the total number of respondents strongly disagreed that Use of mobile phones has increased customer access to bank service.

The findings of the study show that 41(51%) of the total number of respondents agreed that the Use of mobile phones has added to more profitable business avenues to the bank. 36(45%) of the total number of respondents strongly agreed that the Use of mobile phones has added to more profitable business avenues to the bank. 2(2.5%) f the total number of respondents disagreed that Use of mobile phones has added to more profitable business avenues to the bank. 1(1.3%) of the total number of respondents strongly disagreed that Use of mobile phones has added to more profitable business avenues to the bank.

The findings of the study show that 56(70%) of the total number of respondents agreed that The use of mobile phones has improved the level of deposits for the bank. 12(15%) of the total number of respondents strongly agreed that The use of mobile phones has improved the level of deposits for the bank. 10(12.5%) f the total number of respondents disagreed The use of mobile phones has improved the level of deposits for the bank t. 2(2.5%) of the total number of respondents strongly disagreed that The use of mobile phones has improved the level of deposits for the bank.

The findings of the study show that 52(65%) of the total number of respondents agreed that Mobile phones have led to more retail customers than corporate customers to the bank. 26(32.5%) of the total number of respondents strongly agreed that Mobile phones have led to more retail customers than corporate customers to the bank. 2(2.5%) f the total number of respondents disagreed that Mobile phones have led to more retail customers than corporate customers to the bank. There were no respondents who strongly disagreed that Mobile phones have led to more retail customers than corporate customers to the bank.

Generally the findings of the study indicated that majority of the respondents agreed that, the use of mobile phones has increased customer access to bank services, use of mobile phones has added to more profitable business avenues to the bank, the use of mobile phones has improved the level of deposits for the bank and lastly mobile phones have led to more retail customers than corporate customers to the bank.

4.6.2 Influence of mobile banking on CRDB bank Tanzania profitability

Here the study was interested in finding out the impact of mobile banking on profitability of CRDB bank Tanzania. The assessment of profitability of CRDB bank was determined from two perspectives which are user perceptive as shown in table 4.12 and from published financial statements where net profit margin and return on equity were computed as shown in Table 4.13 and 4.14. The results are as follows:

Table 4.13 Mobile banking influence on CRDB bank Tanzania profitability

	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**	**Total**
Income from mobile banking has high margin hence contributing positively to bank annual profitability	0	2(2.5%)	68(85%)	10(12.5%)	**80(100%)**
Mobile banking has low maintenance costs leading to high levels of profitability over their economic lifetime	0	2(2.5%)	66(82.5%)	12(15%)	**80(100%)**
Investment in mobile banking is mostly motivated by profits to the bank	14(17.5%)	48(60%)	16(20%)	2(2.5%)	**80(100%)**

The findings of the study show that 68(85%) of the total number of respondents agreed that Income from mobile banking has high margin hence contributing positively to bank annual profitability. 10(12.5%) of the total number of respondents strongly agreed that Income from mobile banking has high margin hence contributing positively to bank annual profitability.2(2.5%) f the total number of respondents disagreed that Income from mobile banking has high margin hence contributing positively to bank annual profitability. There were no respondents who strongly disagreed that Income from mobile banking has high margin hence contributing positively to bank annual profitability

The findings of the study show that 66(82.5%) of the total number of respondents agreed that Mobile banking has low maintenance costs leading to high levels of profitability over their economic lifetime. 12(15%) of the total number of respondents strongly agreed that Mobile banking has low maintenance costs leading to high levels of profitability over their economic lifetime. 2(2.5%) f the total number of respondents disagreed that Mobile banking has low maintenance costs leading to high levels of profitability over their economic lifetime. There were no respondents who strongly disagreed that Mobile banking has low maintenance costs leading to high levels of profitability over their economic lifetime.

The findings of the study show that 14(17.5%) of the total number of respondents agreed that Investment in mobile banking is mostly motivated by profits to the bank. 2(2.5%) of the total number of respondents strongly agreed that Investment in mobile banking is mostly motivated by profits to the bank. 48(60%) of the total number of respondents disagreed that Investment in mobile banking is mostly motivated by profits to the bank. 14(17.5%) of the total number of respondents strongly disagreed that Investment in mobile banking is mostly motivated by profits to the bank.

Generally the findings of the study indicated that majority of the respondents agreed that Income from mobile banking has high margin hence contributing positively to bank annual profitability, Investment in mobile banking is mostly motivated by profits to the bank. On the hand majority of the respondents disagreed that that Investment in mobile banking is mostly motivated by profits to the bank.

Consequently, the net profit margin was derived by dividing the net income obtained by CRDB bank Tanzania by Total income received by the bank and then multiplied by 100% as shown in appendix two.

Table 4.14: Net profit margins for the financial years of 2005, 2006, 2007, 2013, 2014 and 2015

YEAR	2005	2006	2007	2013	2014	2015
NET PROFIT MARGIN	28.98%	28.29%	29.90%	23.60%	22.54%	22.40%

See appendix 2 for details

The findings of the study indicated that in the financial year 2007, the net profit margin was 29.9%. This was the highest ratio among the years chosen for the study. This was also the highest ratio among the years chosen for the study before CRDB bank Tanzania added mobile banking to the services offered to its customers. This implies that CRDB bank Tanzania was efficiently operating.

Further findings of the study indicated that in the financial year 2013, the net profit margin was 23.60%.This was a drop in net profit margin which also implying a drop in the efficiency of operation. This was some years after mobile banking had been incorporated in the services of CRDB bank Tanzania.

The findings of the study indicated that in the financial year 2015, the net profit margin was 22.40%.The findings indicate a further drop in the net profit margin implying a drop in the efficiency of operation after mobile banking had been incorporated in the services of CRDB bank Tanzania.

Generally the findings of the study indicated that CRDB bank Tanzania had seen a drop in the net profit margin implying a drop in the efficiency of operation after mobile banking had been incorporated in the services of CRDB bank Tanzania. According to respondents from CRDB bank, when considering the introduction of mobile banking and other factors like expansion on CRDB banking activities, bigger investments in technologies and increases in number commercial banks and other financial institutions in Tanzania, the impact of mobile banking still has a positive impact on the performance of CRDB bank

Furthermore, the return on equity ratio was derived by dividing the net income obtained by CRDB bank Tanzania by Total equity and then multiplied by 100% as shown in **appendix 3**

Table 4.15 Return on equity for the financial years of 2006, 2007, 2013 and 2014

YEAR	2005	2006	2007	2013	2014	2015
NET PROFIT MARGIN	41.72%	38.2%	35.7%	22.45%	22.36%	18.76%

See appendix 3 for details

The findings of the study showed that in the financial year 2005, the return on equity was 41.72%. This was the highest ratio among the years selected for study. This implies that in that financial year CRDB bank Tanzania was in a better position and shareholders earned more for their investment in CRDB bank Tanzania.

The findings of the study indicated that in the financial year 2006, the return on equity was 38.7%. This was second highest and a drop from the previous year. This was before mobile banking had been introduced at CRDB bank Tanzania.

The findings of the study indicated that in the financial year 2013, the return on equity was 22.45%. This was some years after full incorporation of mobile banking at CRDB bank Tanzania. The finding indicates that CRDB bank Tanzania's position had dropped and shareholders earned less percentage for their investment in the bank.

The findings of the study indicated that in the financial year 2015, the return on equity was 18.76%. This ratio had dropped compared to the previous years applied in this study.

Generally the findings of the study indicated that CRDB bank Tanzania had seen a drop in the return on Equity implying a drop in the percentages of amount received by Shareholders compared to their investments into the bank operation after mobile banking had been incorporated in the services of CRDB bank Tanzania. When considering the introduction of mobile banking and other factors like expansion on CRDB banking activities, bigger investments in technologies and increases in number

commercial banks and other financial institutions in Tanzania, the impact of mobile banking still has a positive impact on the performance of CRDB bank

4.6.3 How often customers use the following services

The purpose of this analysis was to find out how often customers use of the various services offered by CRDB bank Tanzania through their mobile phones.

Table 4.16; How often customers use of the various services offered by CRDB bank Tanzania through their mobile phones.

Service	Very often	Often	Sometimes	Never	Total
Deposit cash	48(60%)	16(20%)	6(7.5%)	2(2.5%)	**80(100%)**
Send money	56(70%)	16(20%)	6(7.5%)	2(2.5%)	**80(100%)**
Withdraw cash	58(72.5%)	16(20%)	4(5%)	2(2.5%)	**80(100%)**
Pay bill	24(30%)	30(37.5%)	24(30%)	2(2.5%)	**80(100%)**
Purchase commodities	24(30%)	24(30%)	30(37.5%)	2(2.5%)	**80(100%)**

The findings of the study showed that 48(60%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to deposit cash. This was followed by 16(20%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to deposit cash. The findings also showed that 6(7.5%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to deposit cash and

lastly 2(2.5%) of the total number of respondents at CRDB bank Tanzania never used their mobile phones to deposit cash.

The findings of the study showed that 56(70%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to send money. This was followed by 16(20%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to send money. The findings also showed that 6(7.5%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to send money and lastly 2(2.5%) of the total number of respondents at CRDB bank Tanzania never used their mobile phones to send money.

The findings of the study showed that 58(72.5%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to withdraw cash. This was followed by 16(20%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to withdraw cash. The findings also showed that 4(5%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to withdraw cash and lastly 2(2.5%) of the total number of respondents at CRDB bank Tanzania never used their mobile phones to withdraw cash.

The findings of the study showed that 24(30%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to pay bills. The findings showed that 30(37.5%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to pay bills. The findings also showed that 24(30%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to pay bills and lastly 2(2.5%) of the total number of respondents at CRDB bank Tanzania never used their mobile phones to pay bills.

The findings of the study showed that 24(30%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to purchase commodities. The findings showed that 24(30%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to purchase commodities. The findings also showed that 30(37.5%) of the total number of respondents at CRDB bank Tanzania used their mobile phones to purchase commodities and lastly 2(2.5%) of the total number of respondents at CRDB bank Tanzania never used their mobile phones to purchase commodities.

Generally the findings of the study showed that customers used their mobile phones to firstly withdraw cash, secondly to send money, thirdly to deposit cash, fourthly pay bills and lastly to purchase commodities.

4.6.4 Frequency of customers use the banking services at CRDB bank Tanzania

Here the study was interested in finding out how often customers use of the following banking offered by CRDB bank Tanzania through their mobile phones.

Table 4.17: Frequency of customers use the banking services at CRDB bank

Service	Very often	Often	Sometimes	Never	Total
Deposit cash	4(10%)	32(40%)	26(32.5%)	14(17.5%)	**80(100%)**
Send money	6(7.5%)	34(42.5%)	30(37.5%)	10(12.5%)	**80(100%)**
Withdraw cash	10(12.5%)	32(40%)	30(37.5%)	8(10%)	**80(100%)**
Pay bill	9(11.3%)	37(45.7%)	30(38%)	4(5%)	**80(100%)**
Purchase commodities	20(25%)	30(37.5%)	30(37.5%)	0	**80(100%)**

The findings of the study showed that 32(40%) of the total number of respondents often deposited cash at CRDB bank Tanzania through their mobile phones. This was followed by 26(32.5%) of the total number of respondents who sometimes deposited cash at CRDB bank Tanzania through their mobile phones. The findings of the study also showed that 14(17.5%) of the total number of respondents never deposited cash at CRDB bank Tanzania through their mobile phones and lastly 4(10%) of the total number of respondents very often deposited cash at CRDB bank Tanzania through their mobile phones.

The findings of the study showed that 34(42.5%) of the total numbers of respondents often send money at CRDB bank Tanzania through their mobile phones. This was followed by 30(37.5%) of the total number of respondents who sometimes send money

at CRDB bank Tanzania through their mobile phones. The findings of the study also showed that 10(12.5%) of the total number of respondents never send money at CRDB bank Tanzania through their mobile phones and lastly 6(7.5%) of the total number of respondents very often send money at CRDB bank Tanzania through their mobile phones.

The findings of the study showed that 32(40%) of the total numbers of respondents often withdraw cash at CRDB bank Tanzania through their mobile phones. This was followed by 30(37.5%) of the total number of respondents who sometimes withdraw cash at CRDB bank Tanzania through their mobile phones. The findings of the study also showed that 8(10%) of the total number of respondents never withdraw cash at CRDB bank Tanzania through their mobile phones and lastly 10(12.5%) of the total number of respondents very often withdraw cash at CRDB bank Tanzania through their mobile phones.

The findings of the study showed that 37(45.7%) of the total number of respondents often pay bill at CRDB bank Tanzania through their mobile phones. This was followed by 30(38%) of the total number of respondents who sometimes pay bill cash at CRDB bank Tanzania through their mobile phones. The findings of the study also showed that 4(5%) of the total number of respondents never pay bill at CRDB bank Tanzania through their mobile phones and lastly 9(11.3%) of the total number of respondents very often pay bill at CRDB bank Tanzania through their mobile phones.

The findings of the study showed that 30(37.5%) of the total number of respondents often purchased commodities at CRDB bank Tanzania through their mobile phones. This was followed by 30(37.5%) of the total number of respondents who sometimes purchased commodities at CRDB bank Tanzania through their mobile phones. The findings of the study also showed that there were no respondents who never purchased commodities at CRDB bank Tanzania through their mobile phones and lastly 20(25%) of the total number of respondents very often purchased commodities at CRDB bank Tanzania through their mobile phones.

Generally the findings of the study indicated that the respondents often used mobile banking to deposit cash, send money, withdraw cash, pay bill and lastly purchase commodities

4.7 Determining the effect of mobile banking on customer deposits at CRDB bank Tanzania.

Here the study was interested in determining the effect of mobile banking on customer deposits at CRDB bank Tanzania.

4.7.1 Registration with the CRDB Bank to get access to mobile banking

Here the study is interested in finding out whether one needs to register with the CRDB bank Tanzania in order to get access to mobile banking.

Table4.18: Need to register with the CRDB bank Tanzania to get access to mobile banking.

Response	Frequency	Percentage (%)
Yes	80	100
No	0	0
Don't know	0	0
Total	**80**	**100**

The findings of the study showed that 80(100%) of the total number of respondents agreed that one needs to register with the CRDB bank Tanzania to have access to mobile banking services.

The findings of the study showed that there were no respondents who were not sure or said no that there is need to register with the bank to access to mobile banking services

Generally the findings showed that one needs not to register with the bank to get access to mobile banking services.

4.7.2 Access mobile banking services any time 24 hours at CRDB bank Tanzania.

Here the study was interesting in finding out whether one can access mobile banking services any time 24 hours at CRDB bank Tanzania.

Table 4.19; Access mobile banking services any time 24 hours at CRDB bank Tanzania.

Response	Frequency	Percentage (%)
Strongly agree	56	70
Agree	24	30
Disagree	0	0
Strongly disagree	0	0
Total	**80**	**100**

Interpretation

The findings of the study showed that 56(70%) of the total number of respondents strongly agreed that one can access mobile and internet banking at any time 24 hours at CRDB bank Tanzania.

The findings show that 24(30%) of the total number of respondents agreed that one can access mobile and internet banking at any time 24 hours at CRDB bank Tanzania.

The findings of the study showed that no respondents disagreed or strongly disagreed that one can access mobile and internet banking at any time 24 hours at CRDB bank Tanzania.

Generally from the different responses obtained on whether one can access mobile money services any time 24 hours, all responses revealed that majority of the respondents strongly agree and the second biggest portion agreed that mobile banking services can be accessed any time 24 hours at CRDB bank Tanzania.

4.7.3 Whether mobile services increase customer access to the financial services as well as convenience.

Here the study is interested in finding out whether mobile and internet banking service increases customer access to the financial services as well as convenience at CRDB bank Tanzania.

Table4.20; Mobile banking services increase customer access to the financial services as well as convenience

Response	Frequency	Percentage
Strongly agree	62	77.5
Agree	18	22.5
Disagree	0	0
Strongly disagree	0	0
Total	**80**	**100**

The findings of the study showed that 62(77.5%) of the total number of respondents strongly agreed that Mobile and internet banking service increase customer access to the financial services as well as convenience at CRDB bank Tanzania.

The findings of the study showed that 18(22.5%) of the total number of respondents agreed that Mobile and internet banking service increase customer access to the financial services as well as convenience at CRDB bank Tanzania.

The findings of the study showed that none of the respondents disagreed or strongly disagreed that Mobile and internet banking service increase customer access to the financial services as well as convenience at CRDB bank Tanzania.

Generally the findings of the study showed that that Mobile banking service increased customer access to the financial services as well as convenience at CRDB bank Tanzania and this was supported by most of the respondents agreeing.

4.7.4 Whether Mobile banking service is one way of coping with the ever changing customer expectations.

Here the study is interested in finding out whether Mobile banking service is one way of coping with the ever changing customer expectations.

Table 4.21; Mobile banking service is one way of coping with the ever changing customer expectations

Response	Frequency	Percentage (%)
Strongly agree	26	32.5
Agree	54	67.5
Disagree	0	0
Strongly disagree	0	0
Total	**80**	**100**

The findings of the study showed that 26(32.5%) of the total number of respondents strongly agreed that Mobile banking service is one way of coping with the ever changing customer expectations at CRDB bank Tanzania.

The findings of the study showed that 54(67.5%) of the total number of respondents agreed that Mobile banking service is one way of coping with the ever changing customer expectations at CRDB bank Tanzania.

The findings of the study showed that there were no respondents who disagreed or strongly disagreed that Mobile banking service is one way of coping with the ever changing customer expectations at CRDB bank Tanzania.

Generally the findings of the study showed that most respondents agreed with the fact that Mobile banking service is one way of coping with the ever changing customer expectations.

4.7.5 Growth in usage of mobile banking since its introduction at CRDB bank Tanzania.

Here the study was interested in determining the growth in usage of mobile banking by surveying the customer turnout level since the introduction of mobile banking at CRDB bank Tanzania.

4.7.6 Customer turnout level since introduction of mobile banking

Here the study was interested determining the customer turnout level since the introduction of mobile banking.

Table 4:22, Customer turnout level since introduction of mobile banking

Rating	**Frequency**	**Percentage**
Extremely high	22	27.5
High	56	70
Low	2	2.5
Total	**80**	**100**

The findings of the study showed that customer turnover at CRDB bank Tanzania since the introduction of mobile banking was extremely high and this was represented by 22(27.5%) of the total number of respondents.

The findings of the study showed that customer turnover at CRDB bank Tanzania since the introduction of mobile banking was high and this was represented by 56(70%) of the total number of respondents.

The findings of the study showed that customer turnover at CRDB bank Tanzania since the introduction of mobile banking in 2008 was low and this was represented by 2(2.5%) of the total number of respondents (ibid…)

Generally the findings of the study showed that that customer turnover at CRDB bank Tanzania since the introduction of mobile banking was high. This finding implies that there was opportunity for growth in revenue in the future since more customers were being attracted at CRDB bank Tanzania.

4.7.7 Influence of mobile banking on customer deposits

Here the study was interested in finding the influence of mobile banking on deposits at CRDB bank Tanzania.

Table4.23: Influence of mobile banking on customer deposits

	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**	**Total**
Mobile banking services have attracted more retail depositors for the bank	0	2(2.5%)	44(55%)	34(42.5%)	**80(100%)**
Mobile banking services have enabled customers to access their deposits with ease for withdrawal	0	8(10%)	40(50%)	32(40%)	**80(100%)**
Mobile banking services have attracted corporate depositors and deposits	6(7.5%)	54(67.5%)	16(20%)	4(5%)	**80(100%)**

The findings of the study show that 44(55%) of the total number of respondents agreed that Mobile banking services have attracted more retail depositors for the bank. 34(42.5%) of the total number of respondents strongly agreed that Mobile banking services have attracted more retail depositors for the bank. 2(2.5%) f the total number

of respondents disagreed that Mobile banking services have attracted more retail depositors for the bank. There were no respondents who strongly disagreed that Mobile banking services have attracted more retail depositors for the bank.

The findings of the study show that 40(50%) of the total number of respondents agreed that Mobile banking services have enabled customers to access their deposits with ease for withdrawal. 32(40%) of the total number of respondents strongly agreed that Mobile banking services have enabled customers to access their deposits with ease for withdrawal. 8(10%) of the total number of respondents disagreed that Mobile banking services have enabled customers to access their deposits with ease for withdrawal. There were no respondents who strongly disagreed that Mobile banking services have enabled customers to access their deposits with ease for withdrawal.

The findings of the study show that 16(20%) of the total number of respondents agreed that Mobile banking services have attracted corporate depositors and deposits. 4(5%) of the total number of respondents strongly agreed that Mobile banking services have attracted corporate depositors and deposits. 54(67.5%) of the total number of respondents disagreed that Mobile banking services have attracted corporate depositors and deposits. 6(7.5%) of the total number of respondents strongly disagreed that Mobile banking services have attracted corporate depositors and deposits.

Generally the findings of the study indicated that majority of the respondents agreed that Mobile banking services have attracted more retail depositors for the bank, and Mobile banking services have enabled customers to access their deposits with ease for withdrawal. On the hand majority of the respondents disagreed that Mobile banking services have attracted corporate depositors and deposits.

4.7.8 Whether Mobile banking is more reliable and confidential.

Here the study is interested in finding out whether Mobile banking more, reliable and confidential at CRDB bank Tanzania.

Table 4.24; Reliability and confidentiality of Mobile banking at CRDB bank Tanzania.

Response	Frequency	Percentage (%)
Strongly agree	70	87.5
Agree	10	12.5
Disagree	0	0
Strongly disagree	0	0
Total	**80**	**100**

The findings of the study indicated that 70(87.5%) of the total number of respondents strongly agreed that Mobile banking more secured, reliable and confidential at CRDB bank Tanzania.

The findings of the study showed that 10(12.5%) of the total number of respondents agreed that Mobile banking more secure, reliable and confidential at CRDB bank Tanzania.

The findings of the study showed that none of the respondents disagreed or strongly disagreed that that Mobile banking more secure, reliable and confidential at CRDB bank Tanzania.

Generally the findings of the study showed that Mobile banking was more secure, reliable and confidential at CRDB bank Tanzania and this was supported by the all the respondents agreeing.

4.8 The challenges of mobile banking in relation to CRDB bank in Tanzania

The researcher also assessed for the challenges faced by the Bank through the use of mobile banking.

Table 4.25 challenges of M-banking

	Strong agree	agree	Neutral	Disagree	Strong disagree	Percentage
Insecurity caused by malicious persons	2	1	0	0	0	3.80%
Counterfeit card fraud	0	0	0	0	0	0%
Stolen cards	10	0	0	0	0	12.50%
Take a large share of bank resources	67	0	0	0	0	83.80%

Source: field data (2016)

The finding of the study indicate that 67(83.8%) of the respondents agreed that, despite of the benefits however mobile banking has a challenge as it takes a large share of bank resources, consequently 10(12.5%) of the respondents agreed stolen cards are also a challenge faced by CRDB bank on the execution of mobile bank. Additionally 3(3.8%) of the respondents agreed that malicious persons is another challenge of M-banking. However no participant (0%) thought that there could be a possibility of counterfeit cards fraud at the bank. This finding also confirmed with (Tiwari, Buse and Herstatt, 2007). Therefore informants admitted that they usually train and provide education to their customers on the importance of keeping their cards and information on a confidential manner.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Chapter Overview

This study investigated the effect of mobile banking on financial performance of commercial banks in Tanzania. Financial performance indicators that were studied are, income, return on assets, profitability and customer deposits. This chapter summarizes the findings of the study and makes conclusions upon which recommendations are drawn. Suggestions for further study are also captured as a way of filling the gaps identified in the study. The study pursued four objectives upon which conclusions are aligned to.

5.2 Summary of the Study

Evidence from previous studies on whether mobile banking influences financial performance showed that there is mixed results based on the operating environment and the level of adoption. In Tanzania there is a high level of adoption of mobile banking in the banking sector. Before the actual final data collection, a pilot study was conducted where the content validity and reliability of the questionnaires were tested. The validity was enhanced through discussion of the questionnaire contents with CRDB bank Tanzania randomly selected bank employees. The reliability was tested through statistical package for social sciences (SPSS). The study sample had 100 questionnaires distributed and 80 were duly completed and returned for analysis. This represented a response rate of 80% which according to Mugenda and Mugenda (2003) is good response rate.

The major findings of the study were that mobile banking; had an impact on the performance of CRDB bank Tanzania, CRDB bank Tanzania uses mobile banking to deliver services to its customers, has had a positive effect of increasing commission fee based income, Mobile banking had influenced positively the increase of interest based income, and lastly Mobile banking has expanded the income generating potential of CRDB bank Tanzania, influenced reduction of operational costs and hence better return, the use of mobile phones has increased customer access to bank services, use

of mobile phones has added to more profitable business avenues to the bank, the use of mobile phones has improved the level of deposits for the bank and lastly mobile phones have led to more retail customers than corporate customers to the bank, Income from mobile banking has high margin hence contributing positively to bank annual profitability, Investment in mobile banking is mostly motivated by profits to the bank. On the hand majority of the respondents disagreed that that Investment in mobile banking is mostly motivated by profits to the bank, that customers used their mobile phones to firstly to withdraw cash, secondly to send money, thirdly to deposit cash, fourthly pay bills and lastly to purchase commodities, attracted more retail depositors for the bank, and Mobile banking services have enabled customers to access their deposits with ease for withdrawal. Despite of the fact that mobile bank has positive impact on banks performance however majority of the participants agree that mobile banks take large number of banks Recourses. Additionally banks is worried of the customer stolen cards which if not be taken seriously could discourage customer from using this technology

5.3 Conclusion

Based on the findings of the study, it can be concluded that mobile banking influenced financial performance of commercial banks in Tanzania positively. The adoption of mobile banking by CRDB bank Tanzania has a high potential of improving financial performance and hence better returns to the shareholders. The versatility of mobile banking has made its adoption rate to be high among both the bank and its customers. CRDB bank Tanzania has continued to perform well even when other banks show lagged performance. This can be explained by the use of mobile banking which has enabled banks to start making income away from traditional sources like interest, trade and asset financing. CRDB bank Tanzania has been able to make more commission income from transactions done on mobile phones

The findings of the study showed that mobile banking had an impact on the performance of CRDB bank Tanzania. This is supported by the study carried out by by Pooja and Singh (2009) that noted that banks mobile and internet services were larger, more profitable, had higher asset quality, lower administrative expenses and were more efficient compared to the non-internet banks.

The findings of the study showed that majority of the respondents agreed that mobile banking had influenced positively the increase of interest based income, and lastly Mobile banking has expanded the income generating potential of CRDB bank Tanzania. This is in line with the study carried out by Misati, et al (2010) that noted that mobile banking had expanded the range of services that a bank could offer and hence expanded incomes for banks. The study was also supported by Porteus (2006) who noted that mobile banking helped to increase bank incomes and profitability.

The findings of the study further indicated that majority of the respondents agreed that, the use of mobile phones has increased customer access to bank services, use of mobile phones has added to more profitable business avenues to the bank, the use of mobile phones has improved the level of deposits for the bank and lastly mobile phones have led to more retail customers than corporate customers to the bank. This is supported by the study carried out by Aker and Mbiti (2010) that noted that there is a strong correlation between mobile phone coverage and firm performance. Also the study of Rayhan, et al; (2012), noted that mobile phone coverage was key in enhancing banks' performance in terms for profitability and deposits growth.

5.4 Recommendations

There is a positive impact of mobile banking on the performance of CRDB bank Tanzania and therefore it should continue investing mobile banking and other innovation delivery channels because they are able to control their costs much better as compared to investment in brick and mortar or physical branches. The volume of transactions that can be processed on channels like the internet and mobile 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. CRDB bank

Tanzania should explore more ways of maximizing its utilization and returns from mobile banking.

Mobile banking and other service delivery ways are aggressively and continuously being adopted in Tanzania, the commercial banks should provide incentives for research and development to research scientists who would continue to invest their time and skills in discovering more bank innovations. It is recommended that the commercial banks also pursues a strategy to provide incentives for technology transfer from more developed economies in order to promote the adoption of world class innovations.

CRDB bank Tanzania management should develop strong measures to regulate the total expenditures of bank since in mostly in the financial years after the introduction of mobile banking it was difficult to notice its financial contribution.

Since mobile phones have been found to have a major influence in delivering technology driven banking services. It is recommended that CRDB bank Tanzania continues to create sustainable business linkages and collaborations with mobile phone service providers such as Vodacom, Tigo, Airtel and halotel. Findings revealed that mobile phones had a moderating effect and this can be attributed to the level of penetration and ease of access of mobile phones to the public. CRDB bank Tanzania should leverage on mobile phones in order to grow their business and customer base. The Government of Tanzania should continue to offer more incentives for technologies that use mobile phones as their delivery platforms.

5.5 Contribution of the Study to Existing Knowledge

It has been found that there are few studies specific to Tanzania on the link of financial innovations and performance of commercial banks. This study therefore intends to contribute to the body of literatures in which the effects of mobile banking to the banks performance specifically in Tanzania will be known .This study also contribute to Mobile banking interventions.

5.5 Areas for Further Research

This study only concentrated on the impact of mobile banking on financial performance of CRDB bank Tanzania. There is a need for a study to be carried out including all bank innovations such as ATMs, Credit cards, internet banking just to mention a few. A

further study is recommended to include innovations like agency banking; securitization and credit guarantees and their influence on the financial performance of commercial banks in Tanzania by also consider customers of the banks.

REFERENCES

Abaenewe, Z (2013); Electronic Banking And Bank Performance In Nigeria. West African Journal of Industrial and Academic Research

Abubakar A.(2014); The Effects of Electronic Banking on Growth of Deposit Money Banks in Nigeria. European Journal of Business and Management www.iiste.org ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online) Vol.6, No.33, 2014

Adewoye, J.(2013); Impact of Mobile Banking on Service Delivery in the Nigerian Commercial Banks. International Review of Management and Business Research Vol. 2 Issue.2

Aker, J. C. (2008). Does digital divide or provide? the impact of mobile phones on grain markets in Niger. BREAD Working Paper 177.

Aker, J. C. (2010). Information from markets near and far: mobile phones and agricultural markets in Niger. American Economic Journal: Applied Economics, 2(3): 46–59.

Aker, J. C., & Mbiti, I. M. (2010). Mobile phones and economic development in Africa Journal of Economic Perspectives, 24(3),207–232, Summer 2010

Al-Jabir, I. M. (2012). Mobile banking adoption: application of diffusion of innovation theory, Journal of Electronic Commerce Research, VOL 13, NO 4, 2012

Arnaboldi, F., & Claeys, P. (2008). Financial innovation in internet banking: A comparative analysis. Available at SSRN: http://ssrn.com/abstract=109409. Retrieved on 18th August 2011

Barnes, S.J. (2003). Enterprise mobility: Concepts and examples. International Journal of Mobile Communications, 1(4), 341-359.

BCG, Boston Consulting Group. (2009). BCG Innovation 2009 Report

Bradley L. and Stewart, K. (2003) Delphi Study of Internet banking, MCB UP Limited pp. 272-281

Bhavana J. (2012), The impact of electronic banking on bank services: The indian experience. Tactful Management Research Journal

Bisignano, J. (1992). Banking competition, regulation and the philosophy of financial development: a search for first principles,' in the internationalization of capital markets and the regulatory response, John Fingleton (ed.). London: Graham and Trotman.

Business Dictionary. (2011). Online website resource available at http://www.businessdictionary.com Retrieved on 30th July 2011

Babbie, E. (2002). Survey Research Methods (2nded). Belmont: Wodsworth

Cgap,(2014), Vodacom Tanzania and CBA Launched M-Pawa, a Mobile Money Banking Product, Retrieved on 14th of June 2015 from

http://www.microfinancegateway.org/p/site/m/template.rc/1.1.21703/, 2014.

Chale R. and Mbamba U.(2014); The role of mobile money services on growth of small and medium enterprises in Tanzania: Evidence from Kinondoni district in Dar es salaam region

Cicea, C., & Hincu, D. (2009). Performance evaluation methods in commercial banks and associated risks for managing assets and liabilities. Communications of the IBIMA,7, ISSN:1943-7765

Ceylan, O., and Emre, O. (2011). The Impact of internet-banking on brick and mortar branches: The case of Turkey,Bogazici University, Fordham University – Center for International Policy Studies (CIPS), April 06, 2011

Ceylan, O., Emre, O., & Aslı, D. (2008) The impact of internet-banking on bank profitability- The case of Turkey. Oxford Business &Economics Conference Program ISBN : 978-0-9742114-7-3

Cooper, D.R. and Emory, C.W., (1995), Business Research Methods (5th Edition), Irwin, Chicago.

Cooper, D.R. and Schindler, P.S., (2001), Business Research Methods. Seventh Edition, Irwin/McGraw-Hill, New York.

Dardac, N., & Barbu, T. (2005). Monedă, bănci şi politici monetare, Editura ASE, 2005

Darrat, F. (1999). Are Financial Deepening And Economic Growth Causally Related? Another Look at The evidence. International Economic Journal Volume 13, Number 3, Autumn 1999

Davidson et al(2012), Building a Network of Mobile Money Agent, Retrieved on 20th April 2015 from http://www.mmublog.org/agent-networks.

Dawson, C. (2002). Practical Research Methods: A user friendly guide to research. How To Books Ltd, 3 Newtec Place, United Kingdom.

DeKool, D. (2004). Monitoring and Utilization: Surveillance, Struggle, Symbol or Source of Inspiration? EGPA Conference, Ljubljana, September 2004.

DeYoung, R. (2005). The performance of internet-based business models: Evidence from the banking industry. Journal of Business 78 (3), 893–947.

Dew, K. (2007). Innovation Segregation by two australian merchant banks: A private alternative to the financial patent for protecting financial innovations and informing investors. Working Paper, available at http://ssrn.com/abstract=995960, accessed on 22 September 2011.

Diamond, D. W., and Dybvig P. H., (1983), Bank Runs, Deposit Insurance, and liquidity, Journal of Political Economy; 91(3), pp. 401-19

Di Castri, and Simone,(2013) "Mobile Money: Enabling Regulatory Solutions," GSMA, London, United Kingdom. Available at http://www. gsma. com/mobilefordevelopment/wp-content/uploads/2013/02/MMU-Enabling- Regulatory-Solutions-di-Castri-2013. pdf.

Dinh V et al(2015); Measuring the Impacts of Internet Banking to Bank Performance: Evidence from Vietnam. Journal of Internet Banking and Commerce, August 2015, vol. 20, no. 2

Egland, K. et al (1998). Banking over the Internet. Quarterly Journal of Office of Comptroller of the Currency, Vol.17 No 4, December.

Furst, K. et al(2000a), “Who offers Internet Banking?” Quarterly Journal, Office of the Comptroller of the Currency, Vol. 19 No. 2, June, pp. 27-46.

Furst, K.(2000b), Internet Banking: Developments and Prospects”, Economic and Policy Analysis, Working Paper No. 2000-9, Office of Comptroller of the Currency, September.

Furst, K., et al (2002a), “Internet Banking: Developments and Prospects”, Working Paper, Center for Information Policy Research, Harvard University, April.

Furst, K., et al(2002b), “Internet Banking”, Journal of Financial Services Research, Vol. 22 No. 1&2, August, pp. 93-117

Furst K. et al(2001), Internet Banking: Market Developments and Regulatory Issues. Manuscript, the Society of Government Economists, Washington D.C.

Gehling, R., D. Turner and B. Rutherford. (2007). Defining the Proposed Factors for Small Business Online Banking: Interviewing the IT professionals. Journal of Financial Services Marketing 12(3): 189-196.Gartner Research.

Glesne, C. (2006). Becoming qualitative researchers: an introduction (3rd ed.). New York, NY: Pearson Education, Inc.

Geoffrey M.(2014); The Pros And Cons Of Internet Banks. Retrieved on 30th of April 2016 from http://www.investopedia.com/articles/pf/11/benefits-and-drawbacks- of-internet-banks.asp

Greuning, H.V., & Bratanovic, S. B. (2004). Analyzing and Managing Banking Risk: A Framework for Assessing Corporate Governance and Financial Risk. The World Bank, Washington D.C.

Gustke C.(2014). 5 reasons to use mobile banking. Retrieved on 27th of April 2016 from http://www.bankrate.com/finance/savings/5-reasons-to-use-mobile-banking-1.aspx

Hasan, I., Schmiedel, H., & Song, L. (2009). Retail payments: Integration and innovation. Return to retail banking and payments. ECB, Working Paper Series No 1135, December 2009.

Hendrickson, J., & Nichols, M. W. (2011). Small bank performance: The case of U.S. commercial banks. Journal of Money, Investment and Banking, 20 (2011).

Hirtle, B. J., & Stiroh, K.J. (2007). The return to retail and the performance of U.S. banks. Journal of Banking and Finance, 31, 1101-1133

Husni A. and Noor Mousa A(2011); The Impact of E-Banking on Bank Profitability: Evidence from Jordan. Middle Eastern Finance and Economics ISSN: 1450-2889 Issue 13 (2011) © EuroJournals Publishing, Inc. 2011.http://www.eurojournals.com/MEFE.htm

Ingraham, P. (2005). Performance: Promises to keep and miles to go. In: Public Administration Review 65 (4), S. 390-395.

It'sallaboutmoney.com(2016);Types Of Mobile Banking. Retrieved on 30th of April 2016 from http://www.itsallaboutmoney.com/convenience-banking/mobile-banking/thing-you-should-do-for-a-safe-mobile-banking-experience/

Iftekhar, H., Schmiedel, H., & Song, L. (2009). Return to retail banking and payments. Working Paper Series 1135, European Central Bank

ITU (2014). ITU releases 2014 ICT figures. Retrieved 12 27, 2014, from Mobile-broadband penetration approaching 32 per cent Three billion Internet users by end

International Telecommunication Union. (2009). Information Society Statistical Profiles 2009: Africa. Geneva: International Telecommunications Union.

International Telecommunication Union. (2008). World Telecommunication Indicators Database. Geneva: International Telecommunications Union.

Ivatury, G., & Pickens, M. (2006). Mobile phone banking and low-income customers: Evidence from South Africa. Washington, DC: Consultative group to assist the poor (CGAP) and the United Nations Foundation.

Jayawardhena, C., & Foley, P. (2000). Changes in the banking sector: The case of internet banking in the UK. Internet Research: Electronic Networking Applications and Policy, 10,(1), 19-30

Jensen, R. T. (2007). The digital provide: Information (Technology), market performance and welfare in the South Indian fisheries sector. Quarterly Journal of Economics, 122(3), 879–924.

Joppe, M. (2000).The Research Process. Retrieved February 25, 1998, fromhttp://www.ryerson.ca/~mjoppe/rp.htm

Josiah A and Nancy k.(2012); The Relationship between Electronic Banking and Financial Performance among Commercial Banks in Kenya. Journal of Finance and Investment Analysis, vol.1, no.3, 2012, 99-118 . ISSN: 2241-0988 (print version), 2241-0996 (online). Scienpress Ltd, 2012

Karjaluoto, H., Mattila, M., & Pento, T. (2002). Factors underlying attitude formation towards online banking in Finland. International Journal of Bank Marketing, 20 (6), 261-272

Kemppainen, K. (2003). Competition and regulation in European retail payment systems. Bank of Finland Discussion Papers.

Kim, M., Chung, N., and Lee, C. (2010).The effect of perceived trust on electronic commerce: Shopping online for tourism products and services in South Korea. Tourism Management, In Press, Corrected Proof doi:10.1016/j.tourman.2010.01.011 Management. Vol. 29 (8), pp. 390-398.poor (CGAP) and the United Nations Foundation.

Klonner, S., & Nolen, P. (2008). Does ICT benefit the poor? Evidence from South Africa. http://privatewww.essex.ac.uk/~pjnolen/KlonnerNolenCellPhonesSouthAfrica.pdf . accessed on 12th April 2012.

Koivu, T. (2002). Do efficient banking sectors accelerate economic growth in transition countries? Bank of Finland Institute for Economies in Transition

Kothari, C. R. (1998). Research Methodology: Methods and Techniques (7th ed.). New Delhi, India.

Kothari, C.R (2006), Research Methodology: Methods and Techniques, 7th Edition, New Delhi, India

Kothari, C. (2004). Research Methodology: Methods & Techniques. 2nd edition. New age International Publishers, New Delhi, India.

Kwaku M.(2014); Impact of E-Banking on the Profitability of Banks in Ghana. Research Journal of Finance and Accounting. ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online). Vol.5, No.22, 2014

Lavrakas, P. (2008). Encyclopedia of Survey Research Methods Vol. 1 & 2. Sage Publications, Los Angeles, United States of America.

Lee, K.S., Lee, H.S., & Kim, S.Y. (2007). Factors influencing the adoption behavior of mobile banking: a South Korean perspective. Journal of Internet Banking and Commerce, 12(2).

Leland, H. and Pyle, D. (1977) Informational Asymmetries, Financial Structure

Liu, C. 2008. The Relationship between Digital Capital of Internet Banking and Business Performance. International Journal of Electronic Finance 2(1): 18-30.

Lyte B.(2015); 5 Dangers of Mobile Banking — And How to Avoid Them. Retrieved from http://www.wisebread.com/5-dangers-of-mobile-banking-and-how-to-avoid-them

Mabrouk, A., & Mamoghli, C. (2010). Dynamic of financial innovation and performance of banking firms: Context of an emerging banking industry. International Research Journal of Finance and Economics, 5, 2010

Madhyam, M and Stichele V.(2010), Evidence of the effect of trust building technology in Banking sector liberalization in Uganda

Mago S and Chitokwindo S.(2014). The Impact of Mobile Banking on Financial Inclusion In Zimbabwe:A Case for Masvingo Province.Mediterranean Journal of Social Sciences. MCSER Publishing, Rome-Italy Vol 5 No 9

Mahdi, S., & Mehrdad, A. (2010). E-banking in emerging economy: Empirical evidence of Iran. International Journal of Economics and Finance, 2(1), 201-209

Mari, S. (2003). Adoption of Mobile Banking in Finland. Retrieved on 05/30/15 from: https://jyx.jyu.fi

Mari, S. and Minna, M. (2004). Mobile Banking and Consumer Behavior: New Insights into the Diffusion Pattern, Journal of Financial Services Marketing, Vol. 8, pp. 354– 366.

Masamila B.(2014), state of mobile banking in Tanzania and security issues. International Journal of Network Security & Its Applications (IJNSA), Vol.6, No.4, July 2014

Mavhiki S et al(2015), Impact of mobile banking on traditional banking practices in zimbabwe. International Journal of Economics, Commerce and Management. United Kingdom Vol. III, Issue 1, Jan 2015

Mason, E. and Bramble, W.(1997). Research in education and the behavioral sciences: Concepts and methods. Madison, WI: Brown & Benchmark

McMillan, J. and Schumacher, S. (2001). Research in education: A conceptual introduction (5th ed.). New York: Longman.

Misati, R. N. M., Njoroge, L., Kamau, A., & Ouma, S. (2010). Financial innovation and monetary policy transmission in Kenya. Retrieved on the 5th of June2016 from http://www.eurojournals.com/finance.htm

Modell, S. (2004). Measurement myths in the public sector: A research note. Financial Accountability & Management, 20(1), 39–55.

Moynihan, D. P. (2005). Goal-based learning and the future of performance management. Public Administration Review, 65, 203–216

Mugembe.D (2008) Electronic banking and effective financial performance

Mugenda, O.M. &Mugenda, A.G. (2003). Research Methods: Quantitative and Qualitative Approaches. Nairobi: Acts Press

Munyoki S(2015); Effect of mobile banking on the financial performance of banking institutions in kenya. The strategic busines and change. Journal of Management

Mutua W.(2010); Effects of mobile banking on the financial performance of commercial banks in Kenya. a research project submitted in partial fulfillment for the requirements of the award of degree of master of business administration, school of business, university of Nairobi

Mwangi P.(2014); Effect of bank innovations on financial performance of commercial banks in Kenya. Retrieved on 30th of April 2016 from http://ir.jkuat.ac.ke/handle/123456789/1238

Mwendwa J. et al(2014), The Effects of Mobile Money Services on the Performance of the Banking Institutions: A Case of Kakamega Town.The International Journal Of Engineering And Science (IJES). ISSN (e): 2319 – 1813 ISSN (p): 2319 – 1805. www.theijes.com The IJES Page 16

Nader, A. (2011). The effect of banking expansion on profit efficiency of Saudi banks. 2nd International Conference on Business and Economic Research (2nd ICBER 2011) Proceeding 269.

Nadia, M., Anthony, S., & Scholnick, B. (2003). Is there a customer relationship effect from bank ATM surcharges? NYU Stern School of Business Department of Finance Working Paper No. 03-020

Namara P. (2014); Electronic banking and financial performance of commerical banks a case study of standard chartered bank, mbarara branch. A research report submitted to the department of business studies, faculty of business and development studies in partial fulfillment of the requirements for the award of a bachelor's degree in business administration of bishop stuart university

Nasikye (2009) A frame work for mobile banking in Uganda

Nyang'ate M.(2015); Relationship between banking technologies and financial performance of commercial banks in Kenya. International Journal of Economics, Commerce and Management. United Kingdom Vol. III, Issue 11, November 2015

Nyangena A.(2015); Effects of electronic banking on financial performance of commercial banks in Kenya; survey study of banks in kenya. International Journal of Social Sciences Management and Entrepreneurship 2(2):63-74 Nov. 2015.ISSN 2411-7323. © SAGE GLOBAL PUBLISHERS, 2015

Nyangosi, R., & Arora, J. S. (2011). Emergence of information technology in the kenyan banking sector: An empirical study

Nofie, I. (2011). The diffusion of electronic banking in Indonesia, Manchester Business School

Okiro K and Ndungu J(2013). The impact of mobile and internet banking on performance of financial institutions in Kenya. European Scientific Journal May 2013 edition vol.9, No.13 ISSN: 1857 – 7881 (Print) e - ISSN 1857-7431

Periasamy .P,(2010). A textbook of Financial cost and Management accounting. Revised Edition Himalaya Publishing House, MUMBAI. DELHI

Porteous, D. (2006), The Enabling Environment for Mobile Banking in Africa', Commissioned by Department for International Development, Banking Frontier Associates, Boston, USA.

Pooja M and Balwinder S.(2009);The Impact of Internet Banking on Bank Performance and Risk: The Indian Experience. Eurasian Journal of Business and Economics 2009, 2 (4), 43-62.

Rachael W.(2010); Effects of mobile banking on the financial performance of commercial banks in Kenya. a research project submitted in partial fulfilment for the requirements of the award of degree of master of business administration,

Rayhan, J.S., Sohel, S.M., Islam, A., & Mahjabin, S. (2012). Problems and prospects of mobile banking in Bangladesh. Journal of Arts, Science & Commerce. E-ISSN 2229-4686/ISSN 2231-4172

Richard L.(2009); Mobile Banking. Retrieved on 27th of April 2016 from http://www.investopedia.com/terms/m/mobile-banking.asp

Richard L.(2009); Online Banking. Retrieved on 27th of April 2016 from http://www.investopedia.com/terms/o/online-banking.asp

Rwegoshora,H(2006). Basic research methods in social science, Research design data collection and analysis: a training, Mzumbe Morogoro, Tanzania.

Salami C and Ogbeta M.(2014); E-Commerce and Banking Performance in Nigeria. Journal of Information Engineering and Applications. ISSN 2224-5782 (print) ISSN 2225-0506 (online). Vol.4, No.5, 2014

Scholtens, B. and Wensveen, D. (2003). The theory of financial intermediation: an essay on what it does (not) explain, SUERF – The European Money and FinanceForum, 50:10, 20- 16

Schwab, D. (2005). Research Methods for Organizational Studies. 2nd ed. Lawrence Erlbaum Associates, London, United Kingdom.

Simpson, J. (2002). The impact of the internet in banking: observations and evidence from developed and emerging markets. Telematics and Informatics, 19, 315-330.

Sohail, M. and Shanmugham, B. (2003) E-banking and customer preferences in Malaysia: An empirical investigation, Information Sciences, Vol. 150, No. 3/4: 207-217, 2003.

Srinivas (2013). Ownership structure and financial performance of Commercial banks: a comparative study of two major banks in Tanzania. Galaxy International Interdisciplinary Research Journal giirj, Vol.1 (2), (2013)

Schindler P. S and Cooper, D. R. (2000). Business Research Methods. (7th Ed.) New York: Irwin / McGraw-Hill.

Tabachnick, G. and Fidell, L. (2007). Experimental Designs Using ANOVA. Belmont, CA: Duxbury.

Tabachnick, B. and Fidell, L.(2006). Multivariate analysis of grouped data. Invited workshop presented to the meeting of the Western Psychological Association, Palm Springs, CA

Tiwari (2006); The mobile commerce prospects: A strategic analysis of opportunities in the banking sector

Tiwari, R. and Buse, S. (2006), 'The Mobile Commerce Prospects: A strategic Analysis of Opportunities in the Banking Sector', Research project, Hamburg University, Germany,Retrieved on 30th of April 2016 from http://www1.uni-hamburg.de/m-commerce/index_e.html

Tiwari, R., et al (2006), 'Mobile Banking as Business Strategy: Impact of Mobile Technologies on Customer Behavior and its Implications for Banks', Research project, Hamburg University, Germany, retrieved on 30 April 2016 from http://www1.uni-hamburg.de/m-commerce/index_e.html

Tiwari, R. et al (2007), 'From Electronic to Mobile Commerce: Technology Convergence Enables Innovative Business Services', Research project, Hamburg University, Germany, retrieved on 30th April 2016 from http://www1.uni-hamburg.de/m-commerce/index_e.html

Turihamwe A(2014), Mobile banking and financial performance of commercial banks in Uganda. case study standard chartered bank (Uganda) limited Mbarara branch. A research report submitted to the faculty of business and development studies in partial fulfillment of requirements for the award of bachelors' degree in business administration of bishop stuart university.

Vakkuri, J., & Meklin, P. (2006) Ambiguity in performance measurement: A Theoretical approach to organisational uses of performance Measurement. Financial Accountability & Management, 22(3), 235–250.

Vodacom,(2008), Send Money by Phone with Vodacom M-Pesa, Retrieved on 20th of may 2015 from http://www.vodacom.co.tz/docs/, 2008.

Wang, Y.S., Wang, Y.M., Lin, H.H., & Tang, T.I. (2003). Determinants of user acceptance of internet banking: an empirical study. International Journal of Service Industry Management, 14(5), 501–519.

Williams, D. W. (2003). Measuring government in the early twentieth century. Public Administration Review 63(6): 643–59.

World Bank. (2009a). World Development Indicators. Washington, DC: World Bank. http://publications.worldbank.org/WDI/.

World Bank. (2009b). Migration and Remittances Trend 2009. Migration and Development Brief 11.

Zawadi (2013). Comparative Analysis of Financial Performance of commercial Banks in Tanzania. Research Journal of Finance and Accounting. Vol.4, No.19, 2013

Zeph C. et al(2013); Electronic Banking And Bank Performance In Nigeria. Retrieved from http://www.ajol.info/index.php/wajiar/article/viewFile/87447/77139

Zikmund, G.W., Babin, B.J., Carr,C.J. & Griffin, M.(2010). Business Research Methods 8th ed. South-Western, Cengage Learning

APPENDIX ONE:

LETTER OF INTRODUCTION

QUESTIONNAIRE THAT INTENDS TO INVESTIGATE THE IMPACT OF MOBILE BANKING ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN TANZANIA: THE CASE OF CRDB BANK TANZANIA.

Dear Respondent,

RE: REQUEST FOR RESEARCH DATA

I am a Masters student at St John's University of Tanzania. In partial fulfillment of the requirements for the award of Master of Science in Finance course, I am required to conduct a study on the impact of mobile banking on the performance of commercial banks in Tanzania.

The questionnaire should not take more than 30 minutes to fill. Please note there is no right or wrong answer, so feel free to give the answer you think is correct. Strict confidentiality will be maintained and all the information collected through this questionnaire will remain confidential. The information you provide will not be used for any other purpose apart from its intended academic use.

I thank you in advance for your co-operation.

Tadei.Abdala

APPENDIX TWO

QUESTIONNAIRE

SECTION A: PERSONAL INFORMATION

1. What is your Gender? Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (√)

Male	
Female	

2. How old are you? Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (√)

20- 29years	
30-39 years	
40- 49 years	
50 and above	

3. What is your marital status? Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (√)

Single	
Married	
Widowed	
Divorced	

4. What is your Level of education? Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (√)

Diploma and below	
Degree	

Masters	
Professional and above qualifications	

5. For how long have you worked for CRB bank Tanzania? Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (√)

Less than 1 year	
1-2 years	
3-4 year	
More than 4 years	

SCTION B: TO DETERMINE THE EFFECT OF MOBILE BANKING ON TOTAL INCOME OF CRDB BANK.

1. Does mobile banking have an impact on the performance of CRDB bank Tanzania? Kindly respond with the response that matches you opinion. Please tick as appropriate in the box using a tick (√)

Yes	
No	
Not sure	
Don't know	

2. Does CRDB bank Tanzania use mobile banking to deliver services to its customers? Kindly respond with the response that matches you opinion. Please tick as appropriate in the box using a tick (√)

Yes	

No	
Not sure	
Don't know	

3. Does mobile banking have any effect on incomes of CRDB bank Tanzania? Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (√)

	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**
Mobile banking has had a positive effect of increasing commission fee based income				
Mobile banking has influenced positively the increase of interest based income				
Mobile banking has expanded the income generating potential of the bank				

SECTION C: TO ESTABLISH THE EFFECT OF MOBILE BANKING ON RETURN ON TOTAL ASSETS OF CRDB BANK TANZANIA.

1. Does mobile banking have effect on return on assets? Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (√)

	Strongly disagree	**Disagree**	**Agree**	**Strongly agree**
Mobile banking influence reduction of operational costs and hence better return on assets for the bank				
Mobile banking investments have payback period of less than 3 years and hence good return on assets				
Incomes from mobile banking have had positive impact on bank income margins				

SECTION D: TO ESTABLISH THE EFFECT OF MOBILE BANKING ON PROFITABILITY OF CRDB BANK TANZANIA.

1. Do mobile phones services have an effect on bank performance?

	Strongly disagree	Disagree	Agree	Strongly agree

Use of mobile phones has increased customer access to bank services				
Use of mobile phones has added to more profitable business avenues to the bank				
The use of mobile phones has improved the level of deposits for the bank				
Mobile phones have led to more retail customers than corporate customers to the bank				

2. Does influence of mobile banking the profitability of CRDB bank Tanzania? Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (√)

	Strongly disagree	Disagree	Agree	Strongly agree

Income from mobile banking has high margin hence contributing positively to bank annual profitability				
Mobile banking has low maintenance costs leading to high levels of profitability over their economic lifetime				
Investment in mobile banking is mostly motivated by profits to the bank				

3. How often do customers use the following mobile and internet banking services offered by the CRDB Dodoma branch through their mobile phones?

   Use a scale of 1-4 where;

   4= very Often,

   3= Often,

   2 = Sometimes,

   1= Never

SERVICES	**1**	**2**	**3**	**4**
Deposit cash				
Withdraw cash				
Send money				
Check balances				

Purchase commodities				

SECTION E: TO DETERMINE THE EFFECT OF MOBILE BANKING ON CUSTOMER DEPOSITS AT CRDB BANK TANZANIA.

1. Does one need to register with the CRDB bank Tanzania to get access to mobile internet banking? Kindly respond with the response that matches you opinion. Please tick as appropriate in the box using a tick (√)

Yes	
No	
Not sure	
Don't know	

2. Can one access mobile banking services any time 24 hours at CRDB bank Tanzania? Kindly respond with the response that matches you opinion. Please tick as appropriate in the box using a tick (√)

Extremely high	
High	
Low	

3. Can payments of utility bills be done through mobile banking service at CRDB bank Tanzania? Kindly respond with the response that matches you opinion. Please tick as appropriate in the box using a tick (√)

Yes	
No	

Not sure	
Don't know	

4. Does Mobile and internet banking service increase customer access to the financial services as well as convenience? Kindly respond with the response that matches you opinion. Please tick as appropriate in the box using a tick (√)

Strongly agree	
Agree	
Disagree	
Strongly disagree	

5. Is Mobile banking service is one way of coping with the ever changing customer expectations

Strongly agree	
Agree	
Disagree	
Strongly disagree	

6. Has mobile banking service increased customer turn out at CRDB bank Tanzania?

Strongly agree	
Agree	
Disagree	

Strongly disagree	

7. Does mobile banking have an effect on deposits at CRDB bank Tanzania? Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (√)

	Strongly disagree	Disagree	Agree	Strongly agree
Mobile banking services have attracted more retail depositors for the bank				
Mobile banking services have enabled customers to access their deposits with ease for withdrawal				
Mobile banking services have attracted corporate depositors and deposits				

8. Are Mobile and internet banking more secured, reliable and confidential?

Strongly agree	
Agree	
Disagree	
Strongly disagree	

THANK YOU FOR YOUR COOPERATION

APPENDIX ONE: RETURN ON ASSET

YEAR	NET PROFIT	TOTAL ASSET	COMPUTATION	RETURN ON ASSET
2005	18,680	744,612	=18,680/744,612*100%	2.51%
2006	26,484	898,303	=26,484/898,303*100%	2.95%
2007	37,325	1,142,669	=37,325/1,142,669*100%	3.57%
2013	80,543	3,558,668	=80,543/3,558,668*100%	2.374%
2014	95,645	4,210,097	=95,645/4,210,097/*100%	2.27%
2015	128,978	5,407,817	128,978/5,407,817*100%	2.39%

APPENDIX TWO:NET PROFIT MARGIN

Data are in TZS'Milions

YEAR	NET PROFIT	SALES	COMPUTATION	NET PROFIT MARGIN
2005	18,680	64,458	=18,680/64,458*100%	28.98%
2006	26,484	93,616	=26,484/93,616*100%	28.29%
2007	37,325	124,833	=37,325/124,833*100%	29.90%
2013	80,543	341,284	=80,543/341,284*100%	23.60%
2014	95,645	424,336	=95,645/424336*100%	22.54%
2015	128,978	575,795	=128,978/575,795*100%	22.40%

APPENDIX THREE: RETURNS ON EQUITY

YEAR	NET PROFIT	TOTAL EQUITY	COMPUTATION	RETU ON EQUIT RATIO
2005	18,680	44,777	=18,680/44,777*100%	41.72%
2006	26,484	69,406	=26,484/69,406*100%	38.20%
2007	37,325	104,628	=37,325/104,628*100%	35.70%
2013	80,543	317,432	=80,543/317,432/*100%	22.45%
2014	95,645	375,750	=95,645/375,750*100%	22.36%

2015	128,978	441,151	=128,978/441,151*100%	18.76%