

**THE EFFECT OF LENDING INTEREST RATES ON FINANCIAL  
PERFORMANCE OF DEPOSIT TAKING MICRO FINANCE  
INSTITUTIONS IN KENYA.**

**BY**

**NGUMI SAMUEL MWANGI**

**D63/61129/2013**

**A RESEARCH PROJECT SUBMITTED IN PARTIAL  
FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF  
MASTER OF SCIENCE IN FINANCE, SCHOOL OF BUSINESS,  
UNIVERSITY OF NAIROBI**

**OCTOBER 2014**

## **DECLARATION**

This Research Project is my original work and has not been presented for a degree in any other university.

Signed \_\_\_\_\_

Date: \_\_\_\_\_

NGUMI SAMUEL MWANGI

REG NO: D63/61129/2013

This Research Project has been submitted with my approval as the university supervisor.

**Signed:** .....

**Date:** .....

MR. HERICK ONDIGO

LECTURER,

DEPARTMENT OF FINANCE & ACCOUNTING,

UNIVERSITY OF NAIROBI

## **ACKNOWLEDGEMENTS**

I thank God for His grace and sustenance that has enabled me complete this paper successfully.

I extend my sincere thanks to my supervisor, Mr. Herrick Ondigo for his patience, support, objective criticisms and great advice without which I could not have come this far.

I would like to thank my family and friends, who were always willing to help and give their guidance and best suggestions when in need. My research would not have been possible without them.

## **DEDICATION**

This project is dedicated to my family for the love, patience and faith they had in me throughout the study period and the entire course.

To my wife Lydiah and my daughter Lisa who have remained sources of inspiration for everything I set out to achieve.

I also dedicate this research project to my many friends who have supported me throughout the process. I will always appreciate all they have done.

## **ABSTRACT**

Over the last five years, the country has witnessed a tremendous increase in the number of the Deposit Taking Microfinance Institutions. The objective of this study was to find out whether there exists a relationship between lending interest rates and the financial performance of Deposit Taking Microfinance Institutions in Kenya. The study involved collecting secondary data from Central Bank of Kenya, individual Deposit Taking Microfinance Institutions and the Association of Microfinance Institutions in Kenya. Consequently data for nine DTMs was analyzed for five years (2009-2013) using multivariate regression model. The study found out that a strong relationship exists between lending interest rates and financial performance of DTMs. To test the significance of the findings, analysis of variance (ANOVA) was done. The research recommends that DTMs should judiciously manage their interest rate to improve their financial performance since it has a positive effect on their financial performance and also recommends for income source diversification.

## TABLE OF CONTENTS

<b>DECLARATION</b> .....	<b>ii</b>
<b>ACKNOWLEDGEMENTS</b> .....	<b>iii</b>
<b>DEDICATION</b> .....	<b>iv</b>
<b>ABSTRACT</b> .....	<b>v</b>
<b>LIST OF TABLES</b> .....	<b>viii</b>
<b>LIST OF ABBREVIATIONS</b> .....	<b>ix</b>
<b>CHAPTER ONE</b> .....	<b>1</b>
<b>INTRODUCTION</b> .....	<b>1</b>
1.1 Background of the Study.....	1
1.1.1 Lending Interest Rates .....	2
1.1.2 Financial Performance .....	5
1.1.3 Effect of Lending Interest Rates on Financial Performance.....	7
1.1.4 Deposit Taking MFIs in Kenya .....	8
1.2 Research Problem.....	10
1.3 Research Objective.....	11
1.4 Value of the Study.....	12
<b>CHAPTER TWO</b> .....	<b>13</b>
<b>LITERATURE REVIEW</b> .....	<b>13</b>
2.1 Introduction .....	13
2.2 Theoretical Review .....	13
2.2.1 Liquidity Preference Theory.....	13
2.2.2 Market Segmentation Theory .....	15
2.2.3 Expectations Theory .....	16
2.3 Determinants of Financial Performance of MFIs.....	16
2.4 Empirical Review .....	18
2.5 Summary of Literature Review .....	22
<b>CHAPTER THREE</b> .....	<b>23</b>
<b>RESEARCH METHODOLOGY</b> .....	<b>23</b>
3.1 Introduction .....	23

3.2 Research Design.....	23
3.3 Population.....	23
3.4 Data Collection.....	24
3.5 Data Analysis .....	24
3.5.1 Analytical Model .....	24
3.5.2 Test of Significance .....	25
<b>CHAPTER FOUR.....</b>	<b>26</b>
<b>DATA ANALYSIS, RESULTS AND DISCUSSIONS .....</b>	<b>26</b>
4.1 Introduction .....	26
4.2 Descriptive Statistics .....	26
4.3 Pearson Correlation Analysis .....	28
4.4 Linear Regression Analysis.....	29
4.5 Interpretation of the Findings.....	32
<b>CHAPTER FIVE .....</b>	<b>34</b>
<b>SUMMARY, CONCLUSION AND RECOMMENDATIONS .....</b>	<b>34</b>
5.1 Introduction .....	34
5.2 Summary .....	34
5.3 Conclusion.....	35
5.4 Recommendation for Policy.....	36
5.5 Limitations of the Study.....	38
5.6 Suggestions for Further Research .....	38
<b>REFERENCES.....</b>	<b>40</b>
<b>APPENDICES .....</b>	<b>45</b>
Appendix I: List of the Registered DTMs in Kenya as of 31st December 2013. ....	45
Appendix II: Data Collection Form .....	46
Appendix III: Raw Data .....	47

## LIST OF TABLES

Table 4.1: Descriptive Statistics .....	26
Table 4.2: Correlation Matrix .....	29
Table 4.3: Model Summary .....	30
Table 4.4: Analysis of Variance.....	30
Table 4.5: Regression Coefficients .....	31

## **LIST OF ABBREVIATIONS**

AMI: Association of Microfinance Institutions

CBK: Central Bank of Kenya

DTM: Deposit Taking Microfinance

EPS: Earnings per share

FI: Financial Institution

MFIs: Microfinance Institutions

ROA: Return on Assets

ROE: Return on Equity

SEACEN: South East Asian Central Banks

SPSS: Statistical Package for Social Science

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of the Study**

The World Bank defines the microfinance institutions as those institutions that engage in relatively small financial transactions using various methodologies to serve low income households, micro enterprises, small scale farmers and others who lack access to the traditional banking services.

In Kenya, the Microfinance institutions can be traced back before independence. The colonial Government did not provide credit facilities to the African people and hence informal credit groups such as Merry go rounds were formed within the societies in rural areas and clan levels. Microfinance is business receiving money by way of deposits and interest on deposits which is lent to others or used to finance the business, or providing loans or other facilities to micro or small enterprises and low income households (Microfinance Act, 2006).

Dondo (1999) asserts that the Government and donor community assumed that the poor required cheap credit and as a result credit unions were set up in effort to mobilize savings amongst poor people. Kamau (2008) indicates that the overall objective of the MFI should be to balance between risk and returning in a way that it maximizes the MFI's market value to the owners. She notes that the objective of the interest rates is to earn the highest margin it can in a manner consistent with reasonable stability in the interest margin.

Suresh (2012) also argues that many MFIs began and found sustainable models of lending to the poor including NGOs, non-bank financial institutions, and village banks, basically restricted to loans. Robinson (2001) indicated that 1980s represented the turning point in the history of microfinance in the MFIs when pioneers such as Mohammad Yunus founded the Grameen Bank in Bangladesh. This initiative clearly demonstrated for the first time that poor borrowers, especially women were not only willing to take on small scale projects funded by loans.

Kenya has witnessed an increase in the number of Microfinance Institutions (MFIs) in the last decade. These institutions are established to target the poor by providing cheaper credit. Despite this, most of the poor are not able to access the credit since borrowing interest rates have been on the increase over the years. Chung (2013) asserts that Microfinance institutions (MFIs) high interest rates have been at the center of controversy from the beginning of microfinance. Microfinance as a concept has been applied exclusively in attaining financial inclusion of parties earlier excluded from the formal financial system. The borrowers now have to contend with the additional funds demanded by the MFIs to meet their operational expenses and for on lending to their customers. This has an effect on the financial performance of the MFIs. The objective of this study, therefore, was to find out whether there exist a relationship between lending interest rates and the financial performance of DTMs in Kenya.

### **1.1.1 Lending Interest Rates**

Crowley (2007) defined interest rate as money borrower pays for the use of money they borrow from a lender/financial institutions or fee paid on borrowed assets. Fisher (1930)

considered interest rate as the price of money and the link between income and capital. He defined interest rate as the price of money or the “per cent of premium paid on money at one date in terms of money to be in hand one year later”. Therefore, interest on loans is the price the lender charges the borrower for using the borrowed funds.

According to Lloyd (2006) and McConnell (2009), interest rates are a price paid for borrowing funds expressed as a percentage per year. It can also be defined as the price a borrower needs to pay to the lender for transferring purchasing power to the future. Lloyd (2006) continues to argue that interest rates rank among the most crucial variables with macroeconomic word in the world of Finance.

In their study, Gardner and Cooperman (2005) found out that interest rates represent the cost of borrowing capital for a given period of time. Price changes are anticipated in the real world and these expectations are part of the process that determines interest rates. Keynes (1936) indicates that rate of interest represent the cost of borrowing capital for given period of time, given that borrowing is a significant source of finance for the firms, interest rate are of great importance to them since it greatly affects their income and by extension their operations. According to Cargill (1991), interest rates for lending and other financial intermediaries represent both a composition for the loss in value of the loaned capital arising mainly from inflation as well as profit margin to compensate the lender for the default risk he exposes himself to during the loan period.

Saunders (1995) asserts that interest rates influence the overall economic activity including the flow of goods, services and financial assets within the economy and as well as the whole world. He points out that interest rates relates to the present value to the

future value of money. A high interest rate leads to a high discount rate thus the present value of money. On the other hand, a low interest rate leads to a future cash flow at a lower discount rate.

Reilly (1979) noted that interest rates including those for the deposit taking microfinance institution are determined by three main factors: inflation, level of government borrowing and risk involved. He further found out that inflation sets the floor for the interest rate. No institution can lend at a rate lower than the expected inflation rate over the similar period. The second determinants is the level of Government borrowing from the public, this rate forms the basis for the commercial banks and microfinance institutions while fixing their interest rates. The risk involved on the money borrowed referred to a risk premium which is the implicitly included in the interest rate parity. This means that when the country's currency depreciates, the interest rate must be higher than the rate which the Shilling depreciates.

According to a study by Bernstein (1996), developing countries have liberalized interest rates by allowing the markets forces to determine interest rates. Hence uncompetitive banking systems, inadequate regulatory framework and borrowers that are insensitive to interest rates undermine the efficiency of market based credit allocation and disrupt the transmission of monetary signals with adverse consequences for macroeconomic policy.

In her study, Naude (1995) found out that interest rates were maintained below the market rates and direct control of credit was the primary monetary control instrument of the authorities. The Kenyan government adopted the CBK amendment Act (the Donde Act) in 2001. The act allows CBK to regulate interest rates. Interest rate influences the

overall level of economic activity, flow of goods and services and financial assets within the economy. It is believed that fluctuations of market interest rates exert significant influence on the performance of commercial banks. According to Samuelson (1945), under general conditions, financial institutions' profits increase with rising interest rates. He argued that the banking system as a whole is immeasurably helped rather than hindered by an increase in interest rates.

Interest rates are set by the Monetary Policy Committee (MPC) of the Central Bank of Kenya and are used to control inflation. MPC maintained CBR at 18% in 2013 implying that Commercial banks and DTMs charged loans in excess of this rate (CBK Annual Report, 2012/2013).

### **1.1.2 Financial Performance**

Financial performance is an indicator of how profitable a company is relative to its total assets. It is measured by return on asset (Nduati, 2013). There has been a wide variety of definitions of firm performance that have been proposed in the literature. Performance is the ability to sustain income stability and growth. A profitable banking sector is better able to withstand negative shocks and contribute to the stability of the financial systems.

The overall financial performance of the Banking industry in Kenya in the last two decades has been improving. However, this doesn't mean that all players in the industry are profitable; there are those that are declaring losses (Oloo, 2009). This does not leave out the Microfinance Institutions.

Over the past two decades, institutions that make microloans to low-income borrowers in developing and transition economies have focused increasingly on making their lending

operations financially sustainable by charging interest rates that are high enough to cover all their costs. They argue that doing so will best ensure the permanence and expansion of the services they provide (Rosenberg et al, 2009). Profit is the ultimate goal of these micro finance institutions. However, this does not mean that MFIs have no other goals. They could also have additional social and economic goals.

To measure the profitability of DTMs there are variety of ratios used of which Return on Asset, Return on Equity and Net Margin are the major ones (Murthy and Sree, 2003). Financial measures are expressed in monetary units. The techniques widely used for analytical purposes include; ratio analysis, trend analysis and cross sectional analysis. A ratio is a mathematical expression of an amount in terms of another. Chandra, (2005) noted that ratio analysis gives an objective picture of a company's financial performance because ratios eliminate the size effect. Two different firms whose sizes differ can be compared.

According to Winfield and Curry (1994), computation of financial ratios can be grouped into five broad categories namely; liquidity, leverage, turnover, profitability and valuation ratios. Analysis and assessment of MFIs financial performance calls for the use of various financial ratios. Profitability, Economic efficiency, Operational efficiency, cost of operation, asset quality and size was used to analyze financial performance in this study. Profitability ratios were used to analyze financial performance of MFIs in Kenya. Profitability ratios consist of tests used to evaluate a firms earning performance.

The major types of profitability ratios are calculated in relation to sales and investments. Profitability in relation to sales ratios includes; gross profit margin, net profit margin,

contribution ratio, operating expenses ratio while profitability in relation to investments includes; return on investments (ROI), return on equity (ROE) and return on total assets.

Robinson (1995) asserts that the potential impact of interest rates on Commercial Banks financial performance has long been a concern for policy makers and bankers. Banks and to the extension Micro finance institutions earnings are therefore affected by unanticipated changes in interest rates. The exposure of banks profitability and net worth to unanticipated changes in interest rates is what is meant by the term interest rates risk.

MFIs are facing a double challenge: they have to provide both financial services to the poor and also cover their costs in order to avoid bankruptcy (sustainability). Hence to assess MFIs performance both dimensions must be taken into account (Meyer, 1990).

### **1.1.3 Effect of Lending Interest Rates on Financial Performance**

The level of interest rates charged by Commercial Banks and other financial institutions in Kenya has remained high and has faced a lot of criticism from time to time. Despite the efforts by the Government to bring it down they have still remained high. These high interest rates are against the regulation in the current finance bill which proposes that interest rates should be pegged against the Treasury bill /maximum interest rate that a bank or any financial institution may charge for a loan or monetary advance (Ngugi, 2004).

Finance Bill (2011) bill states that no interest rate should exceed four percent of the base lending rate of the central bank. This however may not be applicable if the financial institution that is making losses. Since these rates can be justified by high transaction costs and risks associated with micro lending, it is often difficult to differentiate between

sustainability, profitability and greed (Fernando, 2006). This is because lending to the poor and so the MFIs has to make much more money as possible up front to cover the cost of the loan due to the assumed high likelihood that the borrower will default at some point. CBK has also come up with a bench mark lending rate which commercial Banks and DTMs are supposed to comply with in their lending.

The impact of interest rate on bank's profits operates via two main channels of the revenues side. First, a rise in interest rate scales up the amount of income a bank earns on new assets it acquires. But, the speed of revenue adjustment will be a function of speed of interest rate adjustment. Second, the effect hinges on the amount of loans and securities held (Were and Wambua, 2013).

A rise in interest rates is good for MFIs due to higher returns on new investments, increased profit margins on loans. As a result of this i.e. increase in interest rates which lead to good financial performance of the financial institution sends signal of good returns in the form of dividends. Interest on loans is behind a banks dismal profitability (Njihia, 2005).

#### **1.1.4 Deposit Taking MFIs in Kenya**

Kenya's microfinance sector comprises of nearly 250 MFIs, with only 50 of these being registered with their umbrella body, Association of Microfinance institutions (AMI). Only nine of these are licensed by CBK to take deposits. The remaining institutions are unregulated by the Central Bank and offer microfinance services in combination with other services (Microfinance (amendment Act), 2013).

A report by Association of Microfinance Institutions in 2013 indicated that the registered MFIs had a stable assets growth of 30.4% over the period under consideration and were worth over KES 220 billion as of December 2011, up from KES 129 billion as of December 2009. It is worth mentioning that Equity Bank independently accounted for 80.4% of the segment's total assets. Actually, the segment's asset growth, without commercial banks, was less strong, and fairly stagnant in 2012, with DTMs recording an adverse growth even with the improved number of deposit taking licenses approved that year.

The interest rates charged by the DTMs in Kenya have remained high and has faced a lot of criticism from time to time. Despite the efforts by the Government to bring it down they have still remained high. These high interest rates are against the regulation in the current finance bill which proposes that interest rates should be pegged against the Treasury bill /maximum interest rate that a bank or any financial institution may charge for a loan or monetary advance. The bill states that no interest rate should exceed four percent of the base lending rate of the central bank (Finance Bill, 2011). This however may not be applicable if the financial institution that is making losses. Since these rates can be justified by high transaction costs and risks associated with micro lending, it is often difficult to differentiate between sustainability, profitability and greed Fernando (2006). This is because lending to the poor and so the MFIs has to make much more money as possible up front to cover the cost of the loan due to the assumed high likelihood that the borrower will default at some point.

## **1.2 Research Problem**

Stiglitz and Weiss (1981) advanced arguments against high interest rates. They pointed out that attempt to charge higher interest rate negatively affects the quality of a bank's loan because of two effects: incentive and adverse selection effects. First, it raises the overall riskiness of the portfolio of assets. Rising interest rates reduces the returns on all projects and makes less risky projects unprofitable (incentive effect). This makes firms switch to more risky projects as interest rates rise. Secondly, MFIs like banks have to screen borrowers. This is because at a high borrowing interest rate, borrowers may be less worried about the prospect of nonpayment (adverse selection effect). This implies that the rational profit maximizing MFIs will practice credit rationing which defeats the assumption generally made in financial liberalization literature, that of interest rate liberalization eliminating credit rationing.

Under inadequate supervision, adverse selection of borrowers may occur because the probability of repayment of the loan is negatively related to the interest rates charged by the MFIs. A financial institution can be assumed to be maximizing expected profits, which will depend on the interest rates as well as the probability of repayment, the bank's expected profit could peak at non market clearing interest (Diaz-Alejando, 1985).

Mang'eli (2012) in his research study points out that interest rate spread affect the performance of commercial banks, as it increase the cost of loans charged on the borrowers, regulations on interest rates have far reaching effects on performance of financial institutions since they determine the interest rate spread in banks and also help mitigate moral hazards incidental to performance of commercial banks, credit risk

management technique remotely affects the value of a bank's interest rate spread as interest rates are benchmarked against the associated NPLs and NPLs is attributable to high cost of loans. Despite MFIs having a leeway of charging high lending interest rates which makes them record impressive financial performance some banks are actually reporting losses or very small margins despite the fact that they are being controlled by the same regulatory body CBK.

Gardner et al., (2005) indicates that Interest rates determine the profitability of Commercial Banks among other factors. High interest rates have remained a macroeconomic problem that has been difficult to eliminate. Economic observers and academicians in Kenya have pointed out that high interest rates are regressive to the economic development of the country.

These studies however did not study the effects of lending interest rates on performance of DTMs in Kenya. This leaves the effect of lending interest rates on the financial performance of DTMs in Kenya as being not fully researched on yet the country has witnessed a surge in the number of DTMs in the recent years. It is imperative that the gap be filled hence the study set to answer the following question. What is the effect of lending interest rates on the financial performance of the DTMs in Kenya?

### **1.3 Research Objective**

To investigate the effect of lending interest rate on the financial performance of deposit taking microfinance institutions in Kenya

#### **1.4 Value of the Study**

This research will be of the following practical value: The Government can use the published financial statements to plan on tax revenue for each individual DTM.

The management of various DTMs will be interested in every aspect of the financial analysis since it is their responsibility to ensure that the firm's financial condition is sound through effective and efficient application of the available resources. Most importantly is the evaluation by management on how effective they are responding to the challenge of interest rate volatility in their institution. It is also important for other DTMs to do comparison with other DTMs in the same industry.

This study aims at contributing to the theory of effect of interest rates and financial performance making a case for applicability. DTMs' managers will better placed in understanding the effect of interest rate on the financial performance of DTMs given that a good proportion of the DTMs revenue is derived from loans advanced to customers.

It will be beneficial to researchers and academicians by creating a platform for further research study on related topics; it will also act as a resourceful tool for other academicians who intend to undertake the same topic in their area of specialization.

This research study will also help to highlight other important variables that require further research; this may be focusing of other variables that have effect on the financial performance of DTMs in Kenya.

Finally the study will help CBK in policy formulation aimed at controlling and regulating interest rates in Kenya.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

There are a number of studies that have attempted to develop theoretical and empirical works to understand the effects of lending interest rate on financial performance of deposit taking MFIs. The review provides empirical studies on lending interest rate in MFIs and their financial performance and thereafter provides a summary of the literature review.

#### **2.2 Theoretical Review**

This section sheds light on the theoretical framework supported by different authors' views on lending interest rates and the various theories of lending interest rates.

##### **2.2.1 Liquidity Preference Theory**

The liquidity preference approach views interest rates from the supply and demand of the stock of money in the financial system. The concept was first developed by Keynes (1936) where he stated that the demand for money is expressed as a function of level of income and interest rate.  $MD=(Y, r)$  where: MD = money demanded; Y =Level of income r = interest rate. This framework holds that the interest rate is determined by the interaction of supply and demand of money stock. According to Keynes (1936) money is demanded mainly for the following motives; transaction, precautionary and speculative motive. He further stated that investors will always prefer short term securities to long term securities. To encourage them hold long term bonds, long term securities should yield higher interests than short term bonds. Therefore, the yield curve will always be

upward sloping. It is based on the observation that, all else being equal, people prefer to hold on to cash (liquidity) and that they will demand a premium for investing in non-liquid assets such as bonds, stocks, and real estate. The theory suggests that the premium demanded for parting with cash increases as the term for getting the cash back increases. Auerbach (1988) postulates that the rate in the increase of this premium, however, slows down with the increase in the period for getting the cash back. In financial terms, this theory is expressed as "forward rates should exceed the future spot rates".

According to Reilly and Norton (2006), the theory of liquidity preference holds that long term securities should provide higher returns than short term obligations because investors are willing to sacrifice some yields to invest in short maturity obligations to avoid the higher price volatility of long maturity bonds.

According to Howels and Bain (2007), an increased preference for liquidity in the model is equivalent to increased demand for money and therefore demand for money increases wherever more people think interest rates are likely to rise than believes they are likely to fall. The study seeks to identify the rationale of the liquidity preference theory on the relationship between the money supply in form of loans by MFIs in times of rising and or falling lending rate, and the financial performance of the lender. On the other hand the borrowers will only invest where the returns on their investment profile exceed the borrowing rates.

### **2.2.2 Market Segmentation Theory**

This theory asserts that, long term and short term security markets are independent and there is no causal relationship. Supply and demand forces in different maturity segments of market determine rate for that particular segment. The theory was first developed by Culbertson (1957). The theory assumes that investors have strict maturity preferences. In this case pension funds with long term liabilities would invest in similar bonds while banks would operate in a shorter horizon. This implies existence of “separated” market segments each having interest rate determined by its own supply-demand interaction.

Auerbach (1988) indicated that the yield curve is constructed by connecting the equilibrium points. This theory asserts that securities of different maturities are poor substitutes for one another since they do not belong to the same market segments. Moreover, Lasher (2008) states that each market segment has its own supply and demand picture with independent set of forces pushing the curves back and forth, meaning that market interest rate in each segment is independently determined and not related to the market rate in other segments.

Kinyura (2011) found out that market segmentation theory is based on institutional practices being followed by commercial banks, microfinance institutions, insurance companies, and investment trusts. The market segmentation theory according to him overlooks the fact that there is an overlap between the markets. In Kenya most MFIs target youth groups and women group in their target customer profile. The loans are given for varying maturity periods as well as prices in terms borrowing interest rates. MFIs also consider geographical location of the borrowers and settings- urban or rural.

### **2.2.3 Expectations Theory**

Lutz (1940) developed expectations theory. He stated that the theory is built on the premise of expectations that people will have in regard to future conditions. If investors expect future interest rates to be high, they will prefer to hold long term securities and if the vice versa is true, they will prefer short term securities (Russel, 1992). Other expectations that will influence securities demand will include expectations on political conditions, expected inflation levels, among others. Investors expecting higher short-term interest rates are more likely to buy bonds maturing in the short term. If they were to invest money into a long term debt they might not be able to make as much interest according to Auerbach (1988).

The theory is based on the assumptions that investors have perfect knowledge about the future short term interest rates, there are no taxes or other costs involved in holding or trading and investors are assumed to be profit maximizes. With these assumptions the theory comes to the conclusion that a long term interest rate is an average of the expected future rates on short term bonds. Ignoring the compound interest factor this average will be a simple average. If the long term rate of interest is an average of the short term rates of interest, if the short term interest rates rise, the average will also rise and the long term interest will also rise. Thus the long term rate always moves in the same direction in which short term rates move (Bekaert, 1998).

### **2.3 Determinants of Financial Performance of MFIs**

The performance of an MFI is influenced by various factors such as lending interest rates, leverage, size of the firm, economic growth and risk.

### **2.3.1 Lending Interest Rate**

A higher percentage of revenues generated by MFIs come from interest income on lending. This means MFIs with quality loan portfolios tend to have a positive growth. Many investors prefer investing in MFIs with a positive growth since they are assured return on their investment (Fernando, 2006). According to Saunder (1995) lending interest rates influence the overall economic activity including the flow of goods, services and financial assets within the economy and as well as the whole world. He points out that interest rates relates to the present value to the future value of money.

### **2.3.2 Leverage**

Leverage also has an influence on firms' performance. According to Stiroh (2008), entities with higher profit rates will remain low leveraged because of their ability to finance their own sources. On the other hand, a high degree of leverage increases the risk of bankruptcy of companies. Total assets are considered to positively influence the company's financial performance, assets greater meaning less risk (Barton and Gordon, 1987).

### **2.3.3 Size of the Firm**

The size of the company can have a positive effect on financial performance because larger firms can use this advantage to get some financial benefits in business relations. Large companies have easier access to the most important factors of production, including human resources. Also, large organizations often get cheaper funding (Akhigbe and McNulty, 2005). Also, large organizations are able to get cheaper source of funds to

enable them to be competitive. Such funds however, come with conditions which can be easily met by large organizations (Morgan and Samolyk, 2009).

### **2.3.3 Risk and Economic Growth**

Risk and growth are two other important factors influencing a firm's financial performance. Since market value is conditioned by the company's results, the level of risk exposure can cause changes in its market value. Economic growth is another component that helps to achieve a better position on the financial markets, because market value also takes into consideration expected future profits (Bekan, 2011). Since market value is conditioned by the company's results, the level of risk exposure can cause changes in its market value and thereby how it is perceived in the market (Montgomery, 2008).

## **2.4 Empirical Review**

Saunders and Schumacher (2000) in a study in six European countries and the US using data from 614 banks for the period 1988 to 1995, found out that the regulatory requirements and interest rate volatility had significant effects on bank interest rate margin across these countries.

According to a study that was carried out by Wensheng (2002) on the impact of interest rate shocks on the performance of the banking sector, he found out that a rise in the Hong Kong dollar risk premium, signified by a widening of the spread between Hong Kong dollar and US dollar interest rates, would influence banks' profitability mainly through its impact on asset quality that affects provisioning charges and net interest margin. The objective of his study was to establish the impact of interest variation on the bank

performance where he sampled two banks and analyzed data from 1992 to 2002 a period of ten years.

In his study, Njihia (2005), found out that the loan component have a significant effect on quoted banks profit. If banks do not get enough deposits, capital adequacy level may be affected and extension of loans may not be done hence interest on deposits is an important consideration. Different degrees of elasticity leads to non-proportionate changes in the value of assets and liabilities as market interest rates change which then affect the value of the banking firm. The behavior of interest rate spread is critical in analyzing this issue

Boldbaatar (2006) carried out a study to establish if there was any relationship between commercial banks' interest rate spreads used in lending and deposit rates. The study intended to examine factors that affect interest rate spread in SEACEN countries banks. He sampled 40 banks from 6 different countries covering the period from 4th quarter of 1998 to 4th quarter of 2004. The data for study was obtained from financial statements which were distributed to member central banks. The study revealed that banks' spreads are influenced by bank specifics, market forces and the regulatory environment. The findings of the study indicate that the factors that increase the spread in the selected SEACEN countries include market concentration and credit risks. However, bigger banks tend to operate with lower spreads due to better managerial efficiency.

According to a study carried out by Grenade (2007) to establish the determinants of commercial Banks interest rate spreads in Eastern Caribbean Currency Union over the period 1993 to 2003. In his study, he sampled 8 foreign banks and 8 indigenous banks.

The study used panel data techniques to measure the relevance of micro and macro factors in determining commercial banks interest rate spread over the period. The results found out that spreads were strong and persistently showed little signs of narrowing. He also found out that foreign owned banks were operating with larger spreads compared to their indigenous counterparts. The results also indicated that the observed spreads were attributed to the high level of market concentration, high operating costs and non-performing loans and the regulation of savings deposit rate by the Central Bank.

Adofu and Audu (2010) used ordinary least square method to ascertain the assessment of the effects of interest rates deregulation in enhancing agricultural productivity in Nigeria. The study found out that interest rate play a significant role in enhancing economic activities and as such, monetary authorities should ensure appropriate determination of interest rate level that will break the double edge effect of interest rate on savers and local investors.

Rasheed (2010) used error correction model (ECM) to investigate interest rate determination in Nigeria. The study found out that as the Nigeria financial sector integrates more with global markets, returns on foreign assets will play a significant role in the determination of domestic interest rates.

Kipngetich (2011) using regression model to investigate the relationship between interest rates and ROE with financial performance as the independent variable and interest rate as the dependent variable established that there is a positive relationship between the two variables though the effect of interest rates on profitability is not significant in the all the financial institutions. In his view all the other factors which influence profitability needs

to be enhanced to in order to improve the financial performance of financial institutions in Kenya.

Mang'eli (2012) using descriptive research design in his study of relationship between interest rate spread and financial performance of commercial banks points out that interest rate spread affect the performance of commercial banks, as it increase the cost of loans charged on the borrowers, regulations on interest rates have far reaching effects on performance of commercial since they determine the interest rate spread in banks and also help mitigate moral hazards incidental to performance of commercial banks, credit risk management technique remotely affects the value of a bank's interest rate spread as interest rates are benchmarked against the associated Nonperforming loans. Nonperforming loans affect the performance of Commercial Banks due to the provision effect and follow up costs involved.

Onyekachi and Okoye (2013) examined the impact of bank lending rate on the performance of Nigerianian Deposit Money Banks between 2000 and 2010. It specifically determined the effects of lending rate and monetary policy rate on the performance of Nigerian Deposit Money Banks and analyzed how bank lending rate policy affects the performance of Nigerian deposit money banks. The study utilized secondary data econometrics in a regression, where time-series and quantitative design were combined and estimated. The result confirmed that the lending rate and monetary policy rate has significant and positive effects on the performance of Nigerian deposit money banks.

## **2.5 Summary of Literature Review**

The studies done so far in this area have focused mainly on the relationship between interest rates and financial performance in the commercial banking sector as indicated by Wensheng (2002), Boldbaatar (2006) and Njihia (2005). From the overview of these studies, it is apparent more light needs to be shed in this area of research by widening the scope of the study to concentrate on MFIs. It is thus imperative that the gaps be filled hence the study set to answer the following question. What is the effect of lending interest rates on the financial performance of deposit taking MFIs in Kenya?

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter explains the methods used by the study to fulfill its set objectives. It captures the research design, a description of the population, data collection and analysis.

#### **3.2 Research Design**

The research utilized descriptive research design. According to Mugenda and Mugenda (2003), descriptive research is a process of collecting data in order to test hypotheses or to answer questions concerning the current status of the subjects in the study. A descriptive study determines and reports the way things are. Descriptive research is used to describe characteristics of a population or phenomenon being studied. It does not answer questions about how/ when/why the characteristics occurred. Rather it addresses the “What” question hence descriptive research was found to be in tandem with the research question which sought to answer the question. What is the effect of lending interest rates on financial performance of MFIs in Kenya?

#### **3.3 Population**

The target population of this study was deposit taking MFIs regulated by CBK as at December 2013. By 31<sup>st</sup> December 2013, the deposit taking MFIs stood at 9. (Appendix 1)

### **3.4 Data Collection**

The study entailed use of secondary data obtained from the following sources; Data on borrowing interest rates trends and monthly averages from the individual deposit taking MFIs. Annual financial statements and banking supervision reports on the deposit taking MFIs under consideration were obtained from the Central Bank of Kenya Website and the deposit taking MFIs themselves. The study also used secondary data from the Association of Microfinance Institutions in Kenya (AMFIs). The study period was from 2009-2013.

### **3.5 Data Analysis**

The study used multivariate regression model to determine the relationship between the dependant and the independent variables. The study used Statistical package for Social Sciences-SPSS version 22, to aid in data analysis.

#### **3.5.1 Analytical Model**

A multivariate regression model for this study was  $Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$

$X_1$  = Lending interest rate

$X_2$  = Operating cost efficiency

$X_3$  = Management Efficiency

$\beta_i$  = Co-efficient of variable  $i$  that measures the responsiveness of a unit change in  $Y$  for a unit change in  $i$

$\varepsilon$  = Error term

Where;

Y = Financial performance as measured by ROA. ROA was measured by taking a ratio of Net profit after taxes/Total assets.

$\alpha$  = the regression constant

X<sub>1</sub> = Lending interest rate as measured by ratio of interest income to asset generating the income.

X<sub>2</sub> = Operating cost efficiency as measured by ratio of operating cost to net operating Income.

X<sub>3</sub> = Management Efficiency as measured by Non interest expense to total assets

The findings are shown in appendix III.

### **3.5.2 Test of Significance**

The Pearson product moment coefficient (R) was used to establish the association between the variables (Financial performance and Lending Interest rates) based on the population data. A coefficient of determination (R<sup>2</sup>) was performed to determine how much of the dependent variable comes about as a result of the independent variable being tested. The study tested R<sup>2</sup> at 95% significance level. To test the significance of the findings, analysis of variance (ANOVA) was done.

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND DISCUSSIONS

#### 4.1 Introduction

This chapter presents the findings on the effect of lending interest rates on financial performance of deposit taking micro finance institutions in Kenya. The study assessed all the 9 DTMs in Kenya within a five-year period; from 2009 to 2013. The data was collected on: net profit after taxes, total assets, interest income, loan and advances, operating cost, net operating income, non-interest expense. To achieve the study's objective, the data obtained was analyzed through multiple linear regression analysis.

#### 4.2 Descriptive Statistics

Table 4.1 gives the summary statistics of the main variables that have been included in the model including: minimum, maximum, mean, standard deviation, skewness and kurtosis.

**Table 4.1: Descriptive Statistics**

Statistic		ROA	Lending Interest Rate	Management Efficiency	Operating Cost Efficiency
N		33	33	33	33
Minimum		-.2100	.0740	.1440	.7669
Maximum		.9500	.2800	2.5840	2.9326
Mean		.02627	.21847	.39026	1.1485
Std. Deviation		.17588	.03769	.41068	.4824
Skewness	Statistic	4.685	-1.614	5.043	2.158
	Std. Error	.409	.409	.409	.409
Kurtosis	Statistic	25.556	5.682	27.421	5.032
	Std. Error	.798	.798	.798	.798

**Source: Research Findings**

The results showed that return on assets (ROA) had a mean of 0.0262 with a minimum of -0.2100, a maximum of 0.950 and standard deviation of 0.17588. This depicts that on average, the DTMs have been making profits within the five year period. However, some DTMs made huge losses given a minimum value of -0.210. This is also shown by standard deviation value which was higher than the mean value which depicts a high variability in performance. Maximum value of 0.950 show that some DTMs experienced very high profitability that almost equaled their asset value. This owes to the fact that financial sector is not capital intensive. ROA had skewness of 4.685 and kurtosis of 25.556. This depicts a positively skewed and highly peaked distribution.

Lending interest rate had a mean of 0.218, minimum of 0.074, maximum of 0.280 and a standard deviation value of 0.0377. This shows that on average, the DTMs charged high interest rates of 21.8%. Some DTM charged lending rates as high as 28% while others charged as low as 7.4%. There was less variability in lending interest rate charged from one DTM or from one period to the next given a standard deviation value of 3.8%. Lending interest rate had skewness of -1.614 and kurtosis of 5.682. This points to a negatively skewed and moderately highly peaked distribution. That is, most of the data were lower than the mean value of 21.8%.

Management efficiency had a mean of 0.390, minimum of 0.144, maximum of 2.584 and standard deviation value of 0.411. Thus, the DTM generally incurred non-interest expense of Ksh0.39 on every shilling invested in assets irrespective of its class. However, while some DTMs incurred as low as Ksh0.144 others incurred as high as Ksh2.584 on every shilling invested in assets. As depicted by the variance between minimum and maximum values, standard deviation value of 0.411 which is higher than the mean shows

that there was high variance in management efficiency; while some DTMs are efficient, some were not efficient in any sense as also depicted by the kurtosis. Management efficiency had skewness of 5.043 and kurtosis of 27.421. This depicts a positively skewed and very highly peaked distribution.

Operating cost efficiency had a mean of 1.1485, minimum of 0.7669 and maximum of 2.932. The descriptive statistics shows that on average, every shilling of income attracted Ksh1.1485 in operating costs. However, this figure was as low as Ksh0.7669 or as high as Ksh2.932. This is true to the low performance of the DTMs. Standard deviation value of Ksh0.4824 show high variability in the DTMs' operating cost efficiency. Skewness of 2.158 and kurtosis of 5.0321 depict positively skewed and moderately peaked distribution.

#### **4.3 Pearson Correlation Analysis**

After the descriptive analysis, the study conducted Pearson correlation analysis to indicate a linear association between the predicted and explanatory variables or among the latter. It, thus, help in determining the strengths of association in the model, that is, which variable best explained the relationship between lending rate and financial performance as measured ROA. It also helped in deciding which variable(s) to drop from the equation given low linear relationship or multicollinearity.

**Table 4.2: Correlation Matrix**

Variable	Statistics	ROA	Lending interest rate	Management Efficiency
Lending Interest Rate	Pearson Correlation	.602*	1	
	Sig. (2-tailed)	.026		
Management Efficiency	Pearson Correlation	-.453*	-.017	1
	Sig. (2-tailed)	.016	.924	
Operating Cost Efficiency	Pearson Correlation	-.494**	-0.369	0.399
	Sig. (2-tailed)	.009	.135	.607
	N	33	33	33

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

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

**Source: Research Findings**

From the Table 4.2, it can be deduced that there was a good, positive and significant correlation between ROA and lending interest rate given correlation value (R) of 0.602 at  $p = .026$ . There was a good, significant but negative correlation between ROA and: management efficiency ( $R = -.453$ ;  $p = .016$ ); and, operating cost efficiency ( $R = -.494$ ;  $p = .009$ ).

**4.4 Linear Regression Analysis**

The linear regression method used for this study was the least squares method. This was used to determine the line of best fit for the model through minimizing the sum of squares of the distances from the points to the line of best fit. The regression model was of the form:

$$ROA = \alpha + \beta_1 LEN + \beta_2 MGT + \beta_3 OPE + \varepsilon$$

Whereby ROA is return on assets,  $\alpha$  is regression constant,  $\alpha - \beta_3$  is regression coefficients, LEN is lending interest rate, MGT is management efficiency, OPE is operating cost efficiency, and  $\varepsilon$  is error term.

**Table 4.3: Model Summary**

<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
.630 <sup>a</sup>	.397	.316	.1744325

a. Predictors: (Constant), Operating Cost Efficiency, Lending Interest Rate, Management Efficiency

b. Dependent Variable: ROA

**Source: Research Findings**

The model had a Correlation value of 0.630 which depicts good linear relationship between predicted and explanatory variables. The model was also moderately strong owing to R-square values of 0.397 which was adjusted for errors to 0.316. This depicts that the independent variables explains only 31.6% of the changes in financial performance as measured by ROA.

**Table 4.4: Analysis of Variance (ANOVA)**

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	.107	3	.036	4.178	.035b
Residual	.882	29	.030		
Total	.990	32			

a. Dependent Variable: ROA

b. Predictors: (Constant), Operating Cost Efficiency, Lending Interest Rate, Management Efficiency

**Source: Research Findings**

Table 4.4 shows that the model was significant owing to F-test value of 4.178 at significance value of 0.035 ( $p < .05$ ). Belle (2008) stated that insignificant F-significance

indicates weak regression model as means of the groups (independent and dependent variables) are equal. Thus, the study's regression model was good.

**Table 4.5: Regression Coefficients**

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.053	.264		-.199	.843		
Lending interest rate	.720	.944	.154	.762	.024	.751	1.332
Management Efficiency	-.071	.113	-.165	-.628	.036	.445	2.250
Operating cost efficiency	-.044	.103	-.121	-.429	.016	.384	2.603

**Source: Research Findings**

a. Dependent Variable: ROA

From table 4.5 above, the following regression equation was established:

$$ROA = -0.053 + 0.720LEN - 0.071MGT - 0.044OPE \quad p = .035$$

From the model, when other factors (lending interest rate, management efficiency, operating cost efficiency) are at zero, the financial performance (ROA) will be -0.053.

Holding management efficiency and operating cost efficiency constant, a unit increase in lending interest rate would lead to 0.720 increase in DTMs' financial performance.

Holding other factors (lending interest rate, operating cost efficiency) constant, a unit increase in management efficiency would lead to a 0.071 decrease in DTMs' ROA.

Furthermore, holding lending interest rate and management efficiency constant, a unit increase in operating cost efficiency would lead to a 0.044 decrease in DTMs' ROA.

Variance Inflation Factors (VIF) shows that there is lack of collinearity amongst the independent variables as the VIF values were below the critical value of 10: lending interest rate (1.332), management efficiency (2.250) and operating cost efficiency (2.603). As stated by Studenmund (2006), the variance (the square of the estimate's standard deviation) of an estimated regression coefficient is increased because of collinearity. This depicts lack of collinearity problems in the model.

#### **4.5 Interpretation of the Findings**

The research sought to determine the effect of lending interest rates on the financial performance of the DTMs in Kenya.

The correlation matrix for the three variables shows that there are good correlations between individual independent variables and DTMs' financial performance as measured by ROA. However, only the correlation coefficient between lending interest rate and ROA was positive. There was negative correlation between management efficiency and operating cost efficiency as independent variables and ROA. That is, increase in lending interest rates would yield positive results on ROA, while management and operating cost efficiency would decrease ROA.

From the regression results, lending interest rate ( $p = .024$ ) was found to be significant in explaining DTM's financial performance (ROA) better than management efficiency ( $p = .036$ ) and operating cost efficiency ( $p = .016$ ). Management and operating cost efficiency led to negative financial performance. The explanatory variables explain 31.6% of the variation in the dependent variable. Jointly, all the variables were found to be significant as depicted from the F-statistic ( $p = .035$ ).

To test the significance of the findings, analysis of variance (ANOVA) was done. A p-value of 0.035 was registered indicating that the relationship was significant since the value is below the recommended value of 0.05 or less. An F-value of 4.178 also confirms the same findings since it's above the recommended value of 1 or below.

Pearson correlation analysis established that lending interest rates were positively related to financial performance while management efficiency and operating cost efficiency had a negative relation.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter provides a summary of the study, discussions and conclusions. The researchers then present the major limitations of the study and the recommendations for further research and for the policy and practice. The study sought to determine the effect of lending interest rates on financial performance of DTMs in Kenya.

#### **5.2 Summary**

The study employed annual secondary data on lending interest rates, DTMs' management and operating cost efficiency and ROA which were obtained DTMs' financial performance from the CBK and DTMs' offices. The study regression model expressed ROA as a function of lending interest rates, operating cost efficiency and management efficiency. The study covered a period from January 2009 to December 2013 and data were analyzed using multiple linear regression model.

The correlation matrix for the three variables shows that there are good correlations between individual independent variables and DTMs' financial performance as measured by ROA. However, only the correlation coefficient between lending interest rate and ROA was positive. There was negative correlation between management efficiency and operating cost efficiency as independent variables and ROA. That is, increase in lending interest rates would yield positive results on ROA, while management and operating cost efficiency would decrease ROA.

From the regression results, lending interest rate ( $p = .024$ ) was found to be significant in explaining DTM's financial performance (ROA) better than management efficiency ( $p = .036$ ) and operating cost efficiency ( $p = .016$ ). Management and operating cost efficiency led to negative financial performance. The explanatory variables explain 31.6% of the variation in the dependent variable. Jointly, all the variables were found to be significant as depicted from the F-statistic ( $p = .035$ ).

### **5.3 Conclusion**

DTMs' ability to improve informational asymmetries between borrowers and lenders and their ability to manage risks are the essence of their production. These abilities are integral components of their output and influence the managerial incentives to produce financial services prudently and efficiently.

The literature on financial intermediation suggests that commercial banks including DTMs, by screening and monitoring borrowers, can solve potential moral hazard and adverse selection problems caused by the imperfect information between borrowers and lenders.

Interest rate is the cost of borrowing and also the payment to a borrower of funds to the lenders of the use of money borrowed. The interest rate and loan and advances had a significant and positive impact on interest income. In a higher interest rate environment, an increase in lending rates usually larger than the increase in deposit rates, which result in pushing up the DTMs' spreads. When interest rate increases, lending rates tend to adjust more quickly as compare to deposit rates. Its effect the demand for and allocation

of available loanable funds. As higher interest rates discourage borrowing and encourage savings.

Lower interest rate encourage borrowing and economic growth i.e. the lower the interest rate, the higher the profit expectation as business are expected to pay certain percentage of the money borrowed (little) as interest for fund borrowed. Conversely, the higher the rate of interest the less the profit expectations

However, high rate of interest to the borrowers on lending has contributed to banks' failure in higher-risk segments of the credit market. This involved elements of moral hazard on the part of both the DTMs and their borrowers.

#### **5.4 Recommendation for Policy**

It is feared that further increase in the interest rate would slow the growth of advances and increase in the bad debts. Short term interest rate changes was a serious issue among shareholders, managers and analysts and most of the DTMs represent no serious threat on long term interest rate that would affect the performance and credit rating of financial institution.

The findings clearly suggested that main determinant of DTMs profitability are interest rate, loan and advances. The only way to increase DTMs profitability by way of having good quality portfolio in terms of assets, check and balance system developed to monitor closely such default risk and interest rate risk. Usually DTMs and other financial institutions have different policies in place to monitor the customer credit worthiness in the form of KYC, AML, watch list, credit rating and electronic credit information bureau.

The study recommends that DTMs in Kenya should assess their clients and charge lending interest rates accordingly. Ineffective lending interest rate policy increases the level of lending interest rates and consequently performance. The study also recommends that DTMs should apply stringent regulations on lending interest rates charged to regulate their lending interest rates and enhance periodic/regular credit risk monitoring of their loan portfolios to reduce the level of Loans performance.

The research recommends that DTMs should judiciously manage their interest rate to improve their financial performance since it has a positive effect on their financial performance and also recommends for income source diversification.

All the results suggest higher efficiency leads to lower lending interest rates. To increase efficiency, technology use and management quality need to be considered. Further, because the effect of efficiency on lending rates increases with the initial size of MFIs, governments need to consider the possibility of fostering mergers and acquisitions in this sector. Given the lending technology that most MFIs use, how much public policy could help increase efficiency will depend on how difficult is for loan officers to reach their target clients.

Loan portfolio performance was influenced by the extent to which the DTM can recover loans from its clients and the amount of returns that the portfolio yields. However, the study discovered that this can be achieved when the DTM lends at favourable interest rates such that the demand for the loans increases, the increasing demand for the loans should not however compromise the DTMs' credit management policies. The DTMs

should therefore ensure that the customers are adequately screened to eliminate those who cannot repay the loans.

### **5.5 Limitations of the Study**

A number of limitations could be pointed out for this study. Firstly, this descriptive and correlational study relied on secondary data which had already been compiled by DTMs from reporting to CBK. Data was used as they were obtained from the sources and the researcher had no means of verifying for the validity of the data which were assumed to be accurate for the purpose of this study. The study results are therefore subject to the validity of the data used.

Secondly, the study was conducted in DTMs and its results may not be generally applicable in other financial firms such as SACCOs, commercial banks and other MFIs that are not deposit taking.

Finally, the study used the ordinary least square regression method of analysis which may have its own weaknesses compared to other methods which may limit the general applicability of the study results.

### **5.6 Suggestions for Further Research**

The study recommends that future studies should take a holistic view of the effect of lending interest rates of financial performance by comparing these effects in financial sector subsectors such as commercial banks, SACCOs, DTMs and general MFIs. This would be useful for comparison reasons.

Future studies can also use primary data as this would help capture qualitative information that cannot be quantitatively captured in financial statements.

Finally, future studies could also look at the interest rate spread so as to capture market imperfections or intermediation issues in the relationship between lending interest rates and financial performance.

## REFERENCES

- Aburime, U., (2005). Determinants of bank profitability: Company – level evidence from Nigeria.
- Adofu, M.I. & Audu, S.I., (2010). An assessment of the effect of interest rates
- Akhigbe, A., & McNulty, J. (2005). Profit efficiency sources and differences among small and large U.S. Commercial Banks. *Journal of Economics and Finance*, 29, 289-300
- Auerbach, D. R. (1988). Money banking and financial markets. 3rd Edition, Maxwell Macmillan International Edition.
- Barton SL, Gordon PI. 1987. Corporate strategy: Useful perspective for the study of capital structure? *Academy of Management Review* 12, (1) 67-75.
- Bekan, S. (2011). Measurement of financial performance. Islamabad: Pakistan Institute of Development Economics.
- Bekaert, G. (1998). Regime Switches in Interest Rates. Cambridge, Mass.: National Bureau of Economic Research.
- Benstein, D. (1996). Asset quality and scale of economies in banking. *Journal of Economics and Business*, 48, (2), 157-166.
- Boldbaatar, D. (2006). Impact of interest rate spread shocks on the performance of banking sector. Malaysia:Lorong Universiti
- Cargill, T. F. (1991). Money, the financial instruments and monetary policy, 4th Edition New Jersey, Prentice Hall Publishers.
- Chandra, P. (2005). Investment Analysis and Portfolio Management, 2nd Edition. Tata Mcgraw Hill, New York.

Crowley, J. (2007) Interest Rate Spreads in English-Speaking African Countries. IMF

Working Paper 07 101.

CBK annual Report, 2012/2013 at <http://www.centralbank.go.ke>

Diaz-A. C. (1985) Good-bye financial repression, hello financial crash. J Development Economics 19, 1–24

Dondo, A. (1999). The status of MFIS in Kenya, Kenya Rural Enterprise Program, Nairobi, Unpublished MBA project University of Nairobi.

Fernando, N. A., (2006) Understanding and dealing with high interest rates on microcredit. Asian Development Bank

Gardner, M., Mills, D. and Cooperman, E. (2005). Managing financial institutions, 5th Edition. McGraw-Hill Higher Education.

Grenade KHI (2007) Determinants of commercial banks interest rate Spreads; Some empirical evidence from the Eastern Caribbean Currency Union. ECCB Staff research paper (07), 1.

Howels, P. & Bain, K. (2007). Financial Markets and Institutions, Pearson Education Publishers Ltd.

Kamau, J. W. (2008). Determinants of profitability of microfinance institutions in Kenya. Unpublished MBA project. University of Nairobi.

Kenya Finance Bill 2011.

Keynes, J.M. (1936). The general theory of employment, interest rate and money.

Harcourt Publishers

Kinyura, G. F. (2011). The determinants of lending rates of commercial banks in Kenya, Unpublished MBA Project, University of Nairobi.

- Kipngetch K. M., (2011) Relationship between Interest rate and Return on Equity. Un-published MBA project. University of Nairobi, Kenya.
- Lasher, W. (2008). Financial Management, a practical approach. South West College Publishers.
- Lloyd, B.T. (2006). Money, banking and financial markets. Kansas University Publishers, 9th edition.
- Lutz, F. (1940) The structure of interest rates, *Quarterly Journal of Economics* (55), 36–63
- Mang'eli, M. (2012) Relationship between Interest rates spread and financial performance of commercial banks in Kenya. Un-published MBA project, University of Nairobi, Kenya
- McConnel. C. (2009). Macroeconomics, principles, problems and policies. 4th Edition New Jersey, Prentice Hall Publishers.
- Meyer, S. (1990). Capital adequacy ratio, regulation and accounting .Choices in the Commercial Banks, *Journal of Accounting and Economics*.13 (12), 123-154
- Muhammad Y., (2009). Creating a world without poverty social business and the future of capitalism.
- Mugenda, O.M., & Mugenda, A.G. (1999) Research Methods: quantitative and qualitative approaches. Nairobi: ACTS press.
- Murthy, Y., Sree, R. (2003) A study on financial ratios of major commercial banks . Research Studies, College of Banking & Financial Studies, Sultanate of Oman.
- Naude, W. (1995). Financial liberation and interest rate risk management in sub-saharan Africa. Oxford Centre for the Study of African Economics. University of Oxford.

- Nduati P., (2013) The effect of interest rate spread on financial performance of commercial banks in Kenya. Un-published MBA project, University of Nairobi, Kenya.
- Ngugi, R. (2004). Determinants of interest spread in Kenya. Nairobi, Kenya: Kenya Institute for Public Policy Research and Analysis.
- Njihia, J. K. (2005). The Determinants of banks profitability; The case of Kenyan quoted Banks. Unpublished MBA project, University of Nairobi.
- Njuguna, S.N., & Ngugi R.W., (2000). Banking sector interest rate spread in Kenya. macroeconomic and econometric modeling. Kenya Institute for Public Policy Research and Analysis (KIPPRA) Discussion Paper No 5, 6-8
- Oloo, O. (2009) The Banking Survey 2009. Think Business. Nairobi
- Onyekachi, R. & Okoye, V. (2013), Effect of bank lending rate on the performance of Nigerian deposit money banks, unpublished research project, Ebonyi State University, Nigeria.
- Rasheed, O.A., (2010). Interest rate determinants in Nigeria. *International Research Journal of Finance and Economics*, 2(3) 1-2.
- Rasheed, O.A., (2010). Mergers and Acquisitions in the Nigerian Banking Industry: An Advocate of three Mega Banks. *European Journal of social Sciences*, 15(4) 556-561.
- Reilly, F.K & K.C. Brown (1979). Investments Analysis and portfolio management, 5<sup>th</sup> Edition.
- Reilly, F. K., Norton, E. A., (2006) Investments, 7th edition, Thomas South-Western, United States
- Robinson J.K. (1995) Interesting times for banks since Basle financial industry studies. Federal Reserve Bank of Dallas 1, 9-15.

- Robinson, M. (2001). *The microfinance revolution, sustainable finance for the poor*, Washington DC, World Bank.
- Rosenberg R.et al., (2009). The new money lenders journal of contemporary studies in economic and financial analysis, 92.
- Samuelson, P. A. (1945). The effect of interest rate increases on the banking system. *American Economic Review* 35, 16–27.
- Saunders, A. (1995). The Determinants of bank interest. *Journal of International Money and Finance*, 19, 813–832.
- Saunders, A. and L Shumacher (2000). The determinants of bank interest rate margins, an International study. *Journal of International Money and Finance*, 1 (4)813-832
- Simba, D., (2013) The relationship between borrowing interest rates and nonperforming loans in deposit taking micro finance institutions in Kenya. Un-published MBA project, University of Nairobi, Kenya.
- Stiglitz J.E. & Weiss A. (1981), "Credit rationing in markets with imperfect information", *American Economic Review* (71), 393-410.
- Suresh, P.N. (2012). Microfinance and financial inclusion. Unpublished research project Rajiv Gandhi National University of Law, Punjab, India.
- Wensheng P. (2005) Output gaps and inflation in mainland China. Working Paper 20, 2005
- Winfield, R. G. & Curry, S. (1994). *Success in investment* (5th Edition). John Murray Publishers, London.
- Were, R., & Wambua, S. (2013). Determinant of interest rate spread. Nairobi, Kenya: Kenya Institute for Public Policy Research and Analysis.

## APPENDICES

### Appendix I: List of the Registered DTMs in Kenya as of 31st December 2013.

1. Faulu Kenya DTM ltd
2. Kenya Women Finance Trust DTM Limited
3. SMEP Deposit Taking Microfinance Limited
4. Remu DTM Limited
5. Rafiki Deposit Taking Microfinance
6. UWEZO Deposit Taking Microfinance Limited
7. Century Deposit Taking Microfinance Limited
8. SUMAC DTM Limited
9. U&I Deposit Taking Microfinance Limited

Source: Central Bank of Kenya Website

**Appendix II: Data Collection Form**

**A. DTM PROFILE**

1. Name of DTM.....
2. Year of Establishment.....
3. Current Number of employees (Tick where appropriate)

Below 20 { } 21-50 { } 51-100 { } 101 and above { }

**B. FINANCIAL PERFORMANCE OF THE DTM FROM 2009-2013.**

<b>Year/ Performance measure</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
NET INCOME (Total Revenue – Total expenses)					
Total Assets (Current + Non-current Assets)					
ROA (Net income / Total Assets)					
Total Operating costs					
Total Non-interest expenses					

### Appendix III: Raw Data

<b>DTM</b>	<b>Year</b>	<b>ROA</b>	<b>Lending Interest Rate</b>	<b>Management Efficiency</b>	<b>Operating Cost Efficiency</b>
Faulu Kenya DTM Ltd	2009	-0.10%	20.20%	30.00%	110%
	2010	-3.00%	21.60%	38.40%	114%
	2011	0.20%	19.40%	32.90%	96%
	2012	0.70%	26.40%	27.60%	95%
	2013	95.00%	25.21%	34.70%	93%
Kenya Women Finance Trust DTM Limited	2009	4.30%	20.90%	18.70%	80%
	2010	1.60%	23.90%	22.00%	89%
	2011	1.50%	22.30%	24.50%	93%
	2012	0.90%	27.50%	27.90%	95%
	2013	1.80%	23.10%	18.80%	77%
SMEP Deposit Taking Microfinance Limited	2009	5.00%	19.10%	21.70%	94%
	2010	0.30%	18.60%	22.90%	97%
	2011	0.90%	21.70%	24.10%	95%
	2012	2.10%	23.90%	25.80%	88%
	2013	3.62%	21.82%	20.75%	78%
Remu DTM Limited	2011	-11.60%	19.20%	65.20%	178%
	2012	-4.90%	28.00%	52.50%	147%
	2013	0.12%	25.10%	51.60%	95%
Rafiki Deposit Taking Microfinance	2011	-3.50%	7.40%	38.80%	210%
	2012	0.40%	23.30%	45.50%	97%
	2013	0.32%	24.40%	42.61%	95%
UWEZO Deposit Taking Microfinance Limited	2011	-13.60%	17.10%	34.30%	190%
	2012	3.20%	23.50%	27.00%	81%
	2013	7.80%	19.60%	14.40%	77%
Century Deposit Taking Microfinance Limited	2012	-21.00%	21.40%	258.40%	293%
	2013	-6.60%	24.80%	17.30%	139%
SUMAC DTM Limited	2009	3.30%	18.00%	44.30%	83%
	2010	5.30%	20.90%	32.80%	77%
	2011	6.00%	24.60%	27.30%	80%
	2012	2.70%	25.10%	48.10%	92%
	2013	3.52%	21.52%	39.51%	97%
U&I Deposit Taking Microfinance Limited	2012	-2.50%	19.30%	26.10%	110%
	2013	2.90%	22.10%	31.40%	81%

**Source: Research Findings**