THE RELATIONSHIP BETWEEN BORROWING INTEREST RATES AND NONPERFORMING LOANS IN DEPOSIT TAKING MICRO FINANCE INSTITUTIONS IN KENYA

BY

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DECLARATION

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

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This Research Project has been submitted for examination with my approval as University Supervisor.

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Mr. Mirie Mwangi

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DEDICATION

This Project is dedicated to my wife Alphy, my daughters Joy and Regis for being very supportive throughout my studies.

ABSTRACT

Over the last five years, the country has witnessed a tremendous increase in the number of the Deposit Taking Microfinance Institutions. This can be attributed to the fact that some of the Microfinance Institutions have transformed themselves into the Deposit Taking Microfinance Institutions. Although this institutions were established to assist low income by providing cheaper credit, it has however not been the case as borrowing interest rates have been on the increase over the years .The borrowers now have to contend with the additional funds demanded by the DTMs and those who are unable to repay end up being defaulters. The objective of this study therefore was to find out whether there exists a relationship between borrowing interest rates and the level of nonperforming loans in the 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 four DTMs was analyzed for five years (2008-2012) using SPSS statistical software and results presented in graphs, regressions and coefficients. Test of significance was further carried out. The results showed that there was no significant relationship between borrowing interest rates and nonperforming loans in the Deposit Taking Microfinance Institutions Kenya. This study therefore concludes that there could be other factors which could be responsible for the nonperforming loans in the DTMs in Kenya. The study therefore recommends further study to be carried out on other variables which could be responsible for the nonperforming loans such as judicial processes and corporate governance.

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ABBREVIATIONS

AMFI	-	Association of Microfinance Institutions
CBK	-	Central Bank of Kenya
CBS	-	Central Bureau of Statistics
DTM	-	Deposit Taking Microfinance
ILO	-	International Labor Organization
FI	-	Financial Institution
GDP	-	Gross Domestic Product
KWFT	-	Kenya Women Finance Trust
LIBOR	-	London Interbank Overnight Rate
MFIs	-	Microfinance Institutions
NBFIs	-	Nonbank Financial Institutions
NPLs	-	Nonperforming loans
WB	-	World Bank

CHAPTER ONE

INTRODUCTION

1.1 Background

The seeds for Microfinance in its current form were planted during the period 1950 to 1980 when small loans were extended to poor borrowers who could not post meaningful collateral. 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 Suresh (2012). Robinson (2001) states 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 but were also capable of chalking up the excellent payment records. Credit services can perform some of the same services as savings and can allow enterprises and families to make some important investments sooner. Enterprises use credit as a source of short-term working capital and long term investments (Besley, 2004)

Microfinance Institutions sector in many developing countries particularly in the sub-Saharan Africa and East Asia although playing an important role of reaching the poor, is facing major problems. In 2006 ,the state Government of Andhra Pradesh in India shut down 50 branches of two major MFIs in Krishna District .This extreme action was precipitated when many micro loan borrowers complained to the state government about the high borrowing interest rates   and forced loan recovery practices due their inability to repay Suresh (2012. Nonperforming Loans therefore due to high borrowing interest

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rates have been pointed out as one of the major problems, thus causing financial instability in the financial services sector. It should be noted that in any economy, low levels of NPLs indicate a stable finance sector while high NPLs reflect an unstable finance sector (Sorge, 2004).

1.1.1 Interest Rates

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, and McConnell, 2009). According to Lloyd (2006) interest rates rank among the most crucial variables with macroeconomic word in the world of Finance. Interest rates changes influence many economic phenomenons including the level of consumer expenditure on durable goods, investments expenditures in plants, equipment and technology and also the way the wealth is distributed. It also influences financial assets such as stocks, bonds and foreign currencies. It as well determines incomes earned and savings on accounts of certificates deposits and others investments in the money markets.

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 as long as the borrowing arrangements are still outstanding. For lending and other financial intermediaries, interest rates 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 (Cargill,1991).

According to Saunder (1995) 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.

It has been noted that interest rates including those for the deposit taking microfinance institution are determined by three main factors. First is the expected rate of inflation. This 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 of the interest rate 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. Thirdly is 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 it which the Shilling depreciates (Reilly, 1979)

Bernstein (1996) argues that in recent years, many 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.

1.1.2 Non Performing Loans

Nonperforming loans can be defined as a credit facility in respect of which interest has remained unpaid for a period of two quarters. Meyer (2001) defines non performing loans as loans on which debtors failed to make contractual payments for a predetermined time. This, according to him is mainly concentrated in the Construction and real estate industry.

In 1989, the United States of America invented the resolution Trust corporation (RTC) mainly meant to deal with its own bad debts .ten years later RTC was credited with having retrieved US\$ 347.6Billion (about 90%) of the total NPLs. Chinese Government on the other hand wrote off about 100 billion Yuan from the four states banks through injection of the new capital. The Government there after decided to try the American approach, establishing the Cinda Assets Management Corporation to mop up an estimated 200 billion Yuan in NPLs Wen (1999) Japan real estate market boom in 1980s saw the value of the land shoot up by nearly six times to \$1.7trillion.many banks set up finance companies known as nonbanks to handle riskier loans for speculation in real estate which they were not otherwise allowed to lend. This helped inflate property and stock market values; however in 1989 the Governor of Japan was forced to intervene in

order to curb the resultant inflation. Interest rates rose from 4.9% to 8.9 % which adversely affected the real estate market. Consequently banks found themselves with huge NPLs portfolios, as debtors could no longer keep up with repayments .The ministry of Finance estimated that non banks had lent Y90trillion ($640billion) by the end of year (Holden, 1991).

Kruger and Tonnel (1999) indicate that Nonperforming loans have been viewed to constitute one of the most important factors causing reluctance for financial institutions to provide credit. They indicate that in high NPLs condition, banks increasingly tend to carry out internal consolidation to improve the asset quality rather than distributing credit. Also the high level of NPLs requires financial institutions to raise provisions for loan loss that decreases the institution`s revenue and reduces the funds for new lending. Some of the factors leading to non-performing loans include: Moral hazard and adverse selection .Moral hazard contributes to highly imprudent and in some cases fraudulent, lending strategies of many banks. large share of bad debts is attributed to insider loans, often unsecured in high risk ventures such as real estate .some banks also suffer from adverse selection of the borrowers driven by the rates which local banks charge to compensate for their high costs of funds (Kwack, 2000)

According to Collier and Paul (1993) lending to high risk borrowers at high interest rates is another cause NPLs. This involves elements of moral hazard on the part of the both banks and the NBFIs which are short of liquidity and prepared to pay above.-market interest rates for the interbank deposit and loans.

Macroeconomic stability is also another major cause of NPLs in any economy since the problem of poor loan quality faced both by banks and the MFIs are compounded by the economic Instability. Periods of high and volatile inflation in the country with interest rates liberalized can led to high lending rates hence high NPLs (Collier, 1993).

The imprudent banking regulations in any country can as well lead to high NPLs in any economy as the banking and MFIs is not properly regulated (Kariuki, 1993). Length litigation process has also led to increased rate of NPLs as lending institutions have in many occasions been frustrated when pursuing the loan defaulters due to lengthy litigation process. The required statutory notices to the defaulter which are usually three in number, take seven months .Although lending institution give sufficient notices to securities ,costly and Inefficient delays are occasioned by court injunctions given usually on the days of sale stopping the realization (Hempel, et, al, 1994).

Its argued that the non-performing loans are one of the major causes of economic stagnation problems .The occurrence of nonperforming loans in the banking sector is a clear indicator that the institutions profitability will decline .From this point of view, the eradication of nonperforming loans is a necessary condition to improve the bank`s performance and consequently improve any country's economic status (Kasey and Watson, 1991).

1.1.3 Relationship between Borrowing Interest Rates and Non-performing loans

Saunder (2000) points out that loans can be made either fixed rates of interest or floating rate. A fixed rate of interest is set at the beginning of the contract period. This rate remains in force over the loans contract period no matter what happens to the market rates. In floating rate, contractual terms the loan rate can be periodically adjusted according to a formula so that the interest rate risk is transferred in large part from the bank to the borrower unlike fixed rate, which the bank bears all the interest rate risk. He concludes that interest rate is the biggest Contributor of NPLs since the borrower might not afford the high interest rate.

Block and Hit (1992) explain that in incase the MFIs like any other commercial banks gave out a loan at a base lending rate of 15 percent, then it gets more income than when the base rate is lower. This means that the banks 'anticipation of more income is substituted by more loss to the commercial banks .When the opposite happens, that is the base lending rate increases which is to the advantage of the commercial banks, the customers find it difficult to service their loans and thus the problem of excessive loan default.

Pandey (1997) states that financial institutions play an important role of financial Intermediation in the economy, by channeling funds from savers to investors .This is possible through mobilizing of deposits and advancing credit, which consequently influences money supply. Savers have trust in the banks and therefore their money with

the hope of being paid back with interest .Financial Institutions on the other hand lend money, trusting that the borrowers will repay with interest .Failure by borrowers to repay loans therefore has adverse effects on the financial institutions capability to pay depositors and this results into non Performing loans.

1.1.4 Microfinance Institution and Interest rates in Kenya

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. CBS (1999) A microfinance is a 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) 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. During 1970s, Government agencies were set up and their main aim was to provide credit facilities to those who had no credit access facilities. This is because 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 (Dondo, 1999)

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.Some of the DTMs in Kenya include Faulu, Rafiki, Remu, SMEP, Uwezo, and Kenya Women Finance Trust. Some of these DTMs have been operation for close to thirty years such as KWFT and have really played a very important role in empowering the poor especially women and local communities economically.

The interest rates charged with the MFIs 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. 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

Stieglitz and Weiss (1981) advance arguments against high interest rates. They point out those attempts 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). MFIs could monitor the behavior of borrowers but information is at a cost and also, not perfect. 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).Sukrishnallal (2005) carried out an econometric case study on the determinants of nonperforming loans and they found out that banks which charge high interest rates and lend excessively were likely to incur higher levels of NPLs. Kwack, (2000) in his study, found out that a high corporate leverage ratio affects the level of Non-performing loans

.A troubled real estate sector could be another contributing force to rising non-performing loans .He further found out that 3 month LIBOR interest rates are very significant in explaining financial crisis .He further points out that the corporations are not as risky as individuals due to their size and quality of assets. Using the Granger causality test (1996), the model indicated a causal relationship between the Non-performing loans and interest.

Non-performing loans have been a hindrance to development not only in Kenya but the world all over .Oloo (2001) traced the genesis of NPLs in Kenya and attributed it to external environment in which the Kenyan financial sector was operating. Sharp increase in Interest rates ensured and there after it was forced to mop up the excess liquidity and the country experienced the highest rate of nonperforming loans leading to some financial institutions going under receivership. Tireito (2012) carried out a study on the relationship between interest rates and Nonperforming loans covering period 2008 to 2012 on commercial banks in Kenya. He found out that there was a significant relationship between interest rates and non-performing loans

The MFIs have part of their core business giving loans to specified target groups. In so doing ,they are motivated in receiving returns mainly from interest rates charged on loans to sustain their own operations .However, the recipients of the loans have been unable to service the repayment of the interest and principal when due ,especially in periods of rising lending rates by MFIs. This leads us to the question; what is the nature and strength of the relationship between borrowing interest rates and non performing loans in the

Deposit taking microfinance institutions in Kenya, given the changes in their operation since the enactment of the Microfinance Act in 2008? Is the relationship witnessed over the years calling upon the Deposit taking microfinance institutions to review their lending interest rates?

1.3 Research Objective

The objective of the study was to establish the relationship between borrowing interest rates and non performing loans in deposit taking microfinance institutions in Kenya.

1.4 Value of the Study

This research will be important to the following groups:

The information obtained from this study will help the government properly manage the interest rates as the main regulator as well take contingent measures in ensuring that the Nonperforming loans are effectively contained. The Government can as well use the published financial statements to plan on tax revenue for each individual DTMs.

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 non-performing loans in their institution. It is also important for other DTMs to do comparison with other DTMs in the same industry

Investors who have invested in the DTMs are interested in the firm's earnings which can be affected by the level of non-performing loans and by extension the return on their investments. This research will also be useful to other researchers and scholars as appoint of reference and source of secondary data on the relationship between interest rates and nonperforming loans in the Deposit Taking Microfinance Institutions. It may also form a basis of further research in this particular field.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter summarizes the information from other researchers who have carried out research in similar field of study. The specific areas covered are review of literature on the theories that guide the study mainly on the interest rates and nonperforming loans, empirical studies on the relationship between these two variables, summery and conclusion of the chapter.

2.2 Theoretical Review

The general aim is to try and explain how borrowing interest rates are determined in the market. There are diverse writers and scholars who have tried to explain how interest rates are determined by the forces of demand and supply of funds in the Market. It is however important to note that most policy makers in the government through their respective Central banks sometimes determine the rates with predetermined objectives which may not necessary originate from the forces of demand and supply.

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 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.

According to Saunders (2010), investors prefer to hold short term securities because they can be converted into cash with little risk of capital loss .i.e. fall in price of the security below its original purchase price. Thus, investors must be offered a liquidity premium to buy longer securities which have a higher risk of capital loss. This Theory was advanced by Keynes .He argued further that people's ability to save depend upon their level of income. He further indicated that the rate of interest played a secondary role in influencing how to save. He chose to explain interest as a result of an interaction between supply of money and demand for money.

Howels and Brain (2008) define liquidity preference as the preference for holding the financial wealth in the form of short term assets rather than long term assets based principally on the fear that long term assets will lose capital value over time. As a result therefore there is a shift towards greater liquidity preference wherever confidence in financial markets fall.

The general idea of the liquidity preference theory was developed by JM Keynes`s within a simplified model in which there is only two types of financial assets money, the liquid and the bonds with no maturity, the illiquid assets .According to him ,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 (Howel and Bain,2008).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 lending rate, and the response in loan repayments from the lenders view point. On the other hand the borrowers will only invest where the returns on their investment profile exceed the borrowing rates.

2.2.2 Loanable Funds Theory

Loanable funds framework can be used to explain the phenomena of the behavior of interest rates. Its well known that the level of interest rates tends to rise in periods in which the rate of inflation increases .In this framework the interest rates is the price paid for the right to borrow and utilize loanable funds (Harvey,1993).

Spending units in the society issue claims in order to finance expenditure in excess of receipts is referred to as Deficit. The supply of these claims constituents a demand for loanable funds or demand for credit by deficit. On the other side of the market, surplus units (savers) seek to purchase financial claims i.e. supply of loanable funds or credit to the market (Apps and Grocher, 1993) the supply of loanable funds comes from three sources: personal savings, increase the supply of money provided by the banking systems, and net decrease (if any) in the desire on the part of the public to hold money balances .The supply of loanable funds is a function of interest and income that is

$SL=SL(Y, r)$ Where SL =supply of loanable funds income level; r-interest level.

According to Saunders (2010), interest rates theory is determined just like the demand and supply of goods is determined since the supply of loanable funds increases as interest rates increase, other factors remaining constant. This means more funds supplied as interest rates increase(reward for supplying funds is higher).Sounder (2010) goes further to explain the demand of loanable funds as being higher as interest rates fall. Other factors being constant ,,more funds are demanded as interest rates decrease(cost of borrowing is lower).This point out that the supply and demand of funds and consequently rate depend on whether you are a supplier of funds ,in which case demands higher interest rate or you are a borrower /consumer in which case you require lower interest rate.

Saunders (2010) identifies two factors among others that cause demand for the curves of the loanable funds to shift; Economic conditions, and monetary expansion .As the underlying economic conditions (inflation rate, unemployment rate, and economic growth) improve in the countries, the flow of funds to the country increases .This reflects a lower risk level consequently increase capital inflow from other countries. This increases the supply of loanable funds at every rate of interest and supply curve shifts down to the right. The converse is when funds are moved out of the economy .In this case, the supply of funds decreases and the equilibrium interest rate rises, while the equilibrium quantity of funds traded decreases.

According to Thygerson (1989) the equilibrium is interest rate is that rate which equates supply and demand of loanable funds and as long as competitive forces apply in the financial system there is a natural mechanism to bring interest rates to the equilibrium.

The MFIs like any other financial institutions will prefer to loan funds in times of rising interest rates. However, the borrowers who mainly are low and irregular income earners will prefer loanable fund when the interest rates are low.

2.2.3 Segmented Market Theory

This theory of the term structure, sometimes called the hedging theory asserts that securities of different maturities are poor substitutes for another .this is alleged to be true from the point of view of both those who supply loanable funds (lenders)and those who demand loan able funds(borrowers) (Lloyds,1979).This theory regards short term and long term interest rates as being determined in relatively separate markets .These markets are separated for institutional reasons .Given the institutional factors that determine the maturity spectrum in which buyers and sellers of securities will operate there exists restrictions on the degree of substitutability among securities of differing maturities (Roberts,1980)

According to Lasher (2008**)** 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

Market segmentation theory is based on institutional practices being followed by the commercial banks, insurance companies, and investment trusts. (Kinyura,2011).He further notes that while the commercial banks mostly deal in short term securities, insurance companies and investment trusts mostly deal in the long term securities. 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 borrows and settings (urban or rural)

2.3 Empirical Review

Kwack (2000) in his study, found out that a high corporate leverage ratio affects the level of non-performing loans .A troubled real estate sector could be another contributing force to rising non-performing loans .He further found out that 3 month LIBOR interest rates are very significant in explaining financial crisis .He further points out that the corporations are not as risky as individuals due to their size and quality of assets. Using the Granger causality test (1996), the model indicated a causal relationship between the Non-performing loans and interest.

Bernstein (1996) developed a model in which he showed that the level of nonperforming loans is a significant determinant of the level of bank costs, as well as the estimates of scale of Economies in banking. Allan, Madura, and Wiant (1995) and, Myer, and Webb (1996) have found out that bank stocks are very sensitive to changes in real estate market return Siddigui, Malik and Shah (2012) carried out a study on the impact of interest rates volatility on Nonperforming loans in Pakistan .The Research covered the periods between 1996 and 2012.The researchers used weighted average lending interest rates as published quarterly by the state bank of Pakistan .the study focused on 21 commercial banks and the weighted average NPLs was obtained from the financial statements. The study

concluded that rising NPLs in Pakistan are significantly but not solely impacted by the volatility in the cost of borrowing.

In his study Verasco (2004) in Eastern Asia (China) on the level of NPLs in the country and indicated that the vulnerabilities in domestic and international financial systems in the light of non-performing loans scenario continued to be moderate in global growth but with significant downside risks of uncertainties. He noted that the recovery underway in many regional economies was well entrenched, but might weaken should downside risks materialize. However in a number of economies, addressing nonperforming loans problems was regarded as a continuing challenge, especially in the context of deflationary pressures. He noted that significant ongoing efforts were needed to restructure and dispose off past stocks of NPLs and to strengthen credit cultures to limit new NPLs. He recommended further reforms in the financial sector and methods such as consolidation and privatization to be pursued vigorously. Yixin Haou (2003) in his study looked into nonperforming loans problems in commercial banks in China using the threshold regression technique. It was found that the non-performing loans have non-linear negative effect on banks' lending behavior

Gaitho (2010) carried out an investigation on the causes of nonperforming loans in Kenya, she found out that the main causes of nonperforming loans in Kenya were; the national economic downturn, which lead to depression for business in general; reduced buying ability of consumers; insider lending and owner concentration; inadequate procedures of credit assessment and management misuse of loans; plus legal delays. Ongweso (2006) in her study on relationship between interest rates and non performing

loans in Kenya using 38 banks. She found out that there is a weak relationship between interest rates and non performing loans.

Wanyonyi (2008) carried out a study on the relationship between the use of the Cs of credit and the Nonperforming loans of MFIs using 50 MFIs in Kenya, he found out that the Loan repayment rate for the MFIs is 90% because the loans are given out in groups and once one defaults, the whole group can deny the individual from getting any loan hence low default rate. Tireito (2012) carried out a study on the relationship between interest rates and Nonperforming loans covering period 2008 to 2012 on commercial banks in Kenya. He used 45 banks in Kenya in his study. He found out that there was a significant relationship between interest rates and non-performing loans.

2.4 Summary and Conclusion

The studies done so far in this area have focused mainly on the relationship between interest rates and nonperforming loans in the commercial banking sector as indicated by Ongweso (2006) and Kwack (2000), Siddigui, Malik and Shah (2012) carried out a study on the impact of interest rates volatility on Nonperforming loans in Pakistan. Others like Wanyonyi (2008) on the study on the relationship between the use of the Cs of credit and the Nonperforming loans of MFIs in Kenya. Hence a need to determine whether there exists a relationship between borrowing interest rates and non performing loans in deposit taking MFIs in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methods that were adopted by the study in obtaining information on the relationship between borrowing interest rates and non-performing loans in the Deposit taking microfinance Institutions in Kenya. The chapter also describes and explains the research instruments that were used in the study. This chapter is thus structured into research design, target population, data Collection, and data analysis techniques.

3.2 Research design

The research design used in this study was be both cross sectional and descriptive survey method aimed at establishing the relationship between Nonperforming loans and borrowing interest rates of deposit taking microfinance institutions. This method was preferred because it allows for prudent comparison of the research findings. A period of 5 years covering DTMs registered with Central Bank of Kenya and operating in Kenya from 2008 to 2012.

3.3 Population of the Study

The target population in this study was eight Deposit Taking Microfinance Institution in Kenya (appendix I). However due to incomplete information from all the eight deposit taking microfinance institutions, four DTMs were analyzed for a period of five years from 2008 to 2012 (Appendix II) and therefore no sampling was used.

3.4 Data collection

The study entailed the use of secondary data obtained from the following sources; Data on borrowing interest rates trends and monthly averages were obtained from the individual DTMs. Annual financial statements and banking supervision reports on the DTMs under consideration on the NPLs obtained from the Central Bank and some cases the DTMs themselves. The researcher also used secondary data from the Association of Microfinance Institutions in Kenya (AMFIs).Due to the bulkiness of the data required, yearly averages of borrowing interest rates and nonperforming loans were obtained .The data collection form consisted of the year under Consideration, the average borrowing interest rates and average ratio of nonperforming loans (appendix III)

3.5 Data Analysis

The study was concerned with causal relationship between borrowing interest rates and non performing Loans of the DTMs in Kenya. Linear Regression was used to analyze the data. The study established a link between borrowing interest rates and non-performing loans using the bivariate regression analysis. Cooper and Emory (1995) stated that bivariate regression analysis varies over arrange of +1 through to 0 to -1.

The Pearson product moment coefficient (r) was used to establish the association between the variables (NPLs and Interest rates) based on the population data. A co efficient of determination (R^2) was performed to determine how much of the dependent variable comes about as a result of the independent variable being tested. The researcher tested R^2 at 95% significance level.

Regression analysis was used to determine the nature of relationship. The Graph was essential for understanding the relationship between the variables as they provide the means for visual Inspection of data that a list of values from the variables could not. The Bivariate regression analysis is expressed as follows:

$Y = a + \beta X + \varepsilon$.

Where

Y= Average Non performing loans. The ratio of NPLs=Nonperforming loans/Gross Loans, Moyer (1990). The expected outcome should be an increase in Nonperforming loans when the interest rate increases and vice versa.

ε=is the error term assumed to have zero mean and independent across time period

β=coefficient (ratio of magnitude of change in relation to nonperforming loans when the interest rate changes)

α= constant (Level of non-performing loans when the interest rate is 0)

X= Average borrowing Interest rate. The expected outcome is that there should be an increase in nonperforming loans, when the interest rate increases. It will also be derived as follows

Operationalization of the variables

Variable	Indicators	Measurement
Nonperforming loans	Growth in NPLs	Default rate
Borrowing interest rate	Increase in borrowing interest rates in the DTMS	DTMs lending rates

Data collected was analyzed by statistical social package for social sciences. (SPSS)

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

The research objective of this study was to establish the relationship between borrowings interest rates and nonperforming loans in the Deposit taking Microfinance Institutions in Kenya. This chapter presents the analysis and the findings with regard to this objective and discussions on the same.

4.2 Characteristics of the Respondents

The secondary data was obtained from the Central Bank of Kenya particularly on the nonperforming loans. However Borrowing Interest rates were obtained from Individual deposit taking microfinance Institutions. Data from Association of microfinance institutions were also useful. Only four out of the eight Deposit taking Microfinance Institutions operated for five year, while three operated for two year and one for only one month. Data analysis was done for the four DTMs which operated for the five years while the other four were omitted in the analysis since they were not operational for the full five years .This was meant to achieve consistency in reporting and hence allow useful comparison.

4.3 Data Analysis and Results

Table 4.1: Descriptive Statistics

		Non-performing loans
N	Valid	20
Mean		7.4965
Median		7
Mode		5
Std. Deviation		4.669380974
Minimum		0
Maximum		19
a. Multiple modes exist. The smallest value is shown		

Source: Research Data 2013

Table4.1 indicates that 7.5% on averages are nonperforming loans on the DTMs in Kenya per year in the five years that was analyzed. The table also shows that the nonperforming loans rate ranged between 0 and19 percent per year. The most common rate of nonperforming loans was 5%.The spread on the nonperforming

Figure 4.1. Annual Average Borrowing Interest Rates
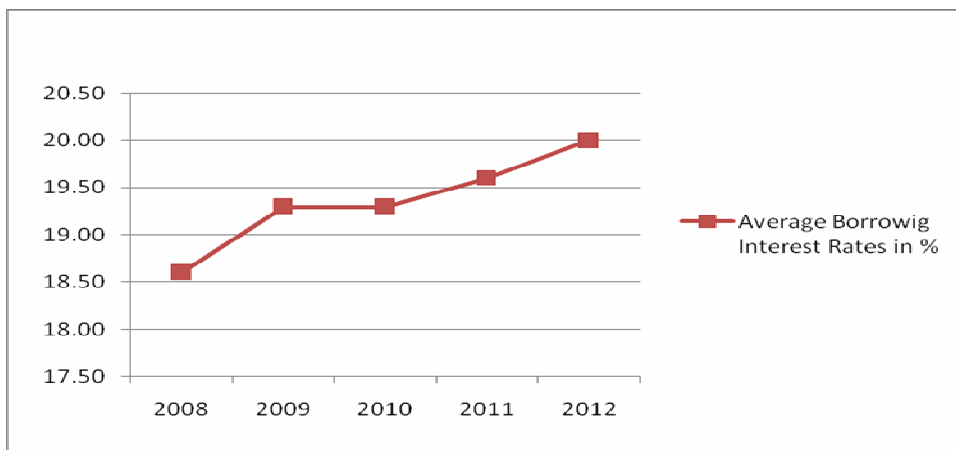
Source: Research Data 2013

Figure 4.1 above shows an upward trend in the borrowing interest rates over the years for the industry .While in the year 2008 the borrowing interest rates were at an average of 18.6% per annum in the year 2012 it had grown to 20%.

Figure 4.2. Annual Average Non-Performing Loans
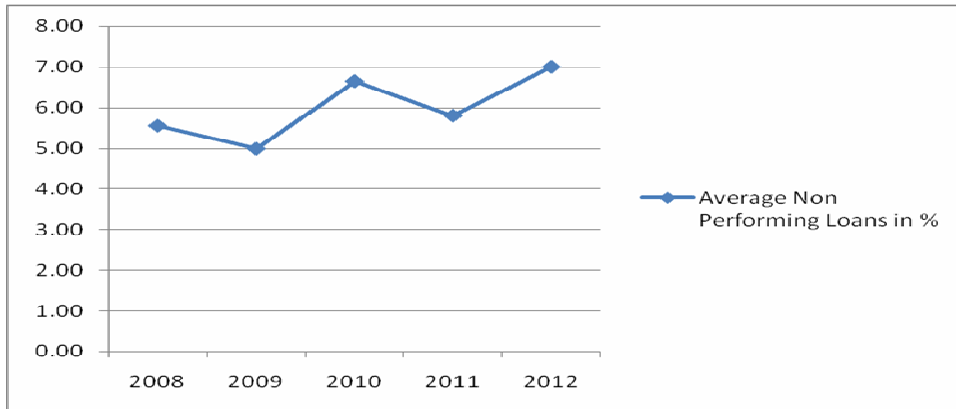
Source: Research Data 2013

Figure 4.2 above indicates an increasing in the average nonperforming loans over the years for the industry. While in the ear 2008 the average nonperforming loans stood at 5.5 % per annum, in the year 2012 it stood at an average of 7%

Table 4.2: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.3507	1	29.3507	1.3726	0.256
	Residual	384.9086	18	21.3838		
	Total	414.2593	19			
a. Predictors: (Constant), Borrowing interest rates						
b. Dependent Variable: Non-performing loans						

Source: Research Data 2013

The ANOVA table 4.2 above Shows regression sum of squares of 29.35 out of total variation of 414.26 pointing to the fact that about 7.1% variations in the dependent variable is explained by the model. In addition, the significance value of the F-statistic is more than 0.05 which means that the variation in the dependent variable explained by the model could be by chance.

Table 4.3: Model Summary

	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.266178493	0.07085099	0.019231601	4.6242632
a. Predictors: (Constant), Borrowing interest rates				

Source: Research Data 2013

The Table 4.3 Shows that there is a positive relationship between borrowing interest rates and non performing loans which is weak (0.266). The regression results further indicates that about 7.1% of the variation in Nonperforming Loans can be accounted for by the model (adjusted R^2 of 0.019).

Table 4.4: Regression Coefficient

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			Std. Error	Beta		
1	(Constant)	4.6615232	2.6314857		1.7714416	0.0934169
	Borrowing interest rates	0.1171478	0.0999925	0.2661785	1.1715654	0.2566466

a. Dependent Variable: Non-performing loans

Source: Research Data 2013

The Table 4.4 above shows the regression coefficient and the regression equation is as follows.

$Y = a + \beta X$

$NPLs = 4.66 + 0.117x$

The significance value of borrowing interest rates as a predictor is more than the p-value 0.05 indicating that the variable is not significant in nonperforming loans .The β Coefficient of borrowing interest rates is positive indicating that there exists an insignificant positive relationship between nonperforming loans and borrowing interest rates .Specifically, the results indicate that nonperforming loans as measured by the ratio of nonperforming loans to Gross loans would increase by 0.117 for every one percent increase in the Borrowing Interest rates. In fact from the standardized coefficients, borrowing interest rates contributes 0.27 to the model.

4.4 Conclusion

This study shows that from the year 2008 to 2012 there is a general increase in the borrowing interest rates and nonperforming loans The study further shows a weak relationship between borrowing interest rates and nonperforming loans (R=0.266) It can therefore be argued that the higher the borrowing interest rates the higher the nonperforming loans in the DTMs .The study indicates that   the contribution of borrowing interest rates to nonperforming is quite insignificant (R squared 7.1%). This indicates that   that other factors rather than the borrowing interest rates could be responsible for the variance in the nonperforming loans in the Deposit taking

microfinance in Kenya.. In addition, the results show that the value of borrowing interest rates as a predictor is more than 0.05 indicating that the variable is not significant in the nonperforming loans. The regression equation also indicates that there is 0.117 increase nonperforming loans for every one percent increase in borrowing interest rates.

CHAPTER FIVE

SUMMARY , CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

From the secondary data collected and analyzed, the following summary of findings, conclusions and recommendations were made based on the objectives of the study which was to establish whether there exists a relationship between borrowing interest rates and non performing loans in the deposit taking microfinance institutions in Kenya**.**

5.2 Summary of the Results

The Study established that only 7.1% (R squared) of the variance in the nonperforming loans can be accounted for by the borrowing interest rates. This implies that other factors besides the borrowing interest rates could be greatly responsible for the increase in nonperforming loans in the deposit taking microfinance institutions in Kenya such as corporate governance, credit appraisal risk assessments, long litigation process and various economic growth indicators.

The study as well shows that interest rates and nonperforming loans have a weak a positive relationship (R= 0.27) It therefore can be argued that the higher the borrowing Interest rates the higher the nonperforming loans and vice versa although the relationship is not very significant.

5.3 Conclusion

We can therefore conclude that the there is a relationship between borrowing interest rates and nonperforming loans in the deposit taking microfinance instructions in Kenya However the analysis indicates a weak relationship implying that a greater proportion of the non performing loans could be attributed to other factors other than borrowing interest rates.

5.4 Limitation of the Study

The secondary data used especially on nonperforming loans was from central bank of Kenya website and association of Micro Finance institutions in Kenya. This data may to some extent might be manipulated by management to suit their objective and not for the public interest commonly known as window dressing.

The DTM industry in Kenya only became operational in the year 2008 when the Microfinance Act was enacted. This sector therefore is still in formative stages as five year is not adequate, a longer period with more deposit taking microfinance institutions could have yielded different results.

Getting data that is not publicly available mainly on borrowing interest rates from Individual deposit taking microfinance institutions was not easy as they were not corporative for fear that it could land into the hands of their competitors . We should therefore have the Deposit taking microfinance Institutions reporting to Central bank on their lending rates like the banks.

5.5 Recommendations

Although the lending rates are regulated by Central Bank, the bank supervisory department is not strict enough to ensure that the rule is followed as some of the Deposit taking microfinance are charging exorbitant interest rates to the customers which contribute to high nonperforming loans.

While all measure are being done by the regulator to ensure low levels of nonperforming loans, it is important for the Deposit taking microfinance institutions to institute training activities so that the borrowers can invest in more viable ventures considering that most of them are low income earners so that they can adequately service the loans.

The Deposit taking microfinance institutions should institute better credit appraisal techniques so that they can reduce the rate of loan defaulters in the institutions. The government should also ensure shorter litigation processes so that the loan defaulters are penalized within a shorter period and the money recovered.

5.6 Suggestions for Further Study

As earlier stated the effects of borrowing interest rates on nonperforming loans in the deposit taking microfinance institution had not been carried out. However many other factors can affect nonperforming loans in the DTMs such as judicial processes and corporate governance further research can be carried out on the relationship between capital structure and performance in the deposit taking microfinance institutions.

Further study should be carried out to determine the relationship between borrowing interest rates and nonperforming loans on all the Microfinance Institutions in Kenya which are of different sizes and also operated as MFIs in Kenya for quite a long period of time. It will also be useful to carry out a study with an objective of determining the impact and effectiveness of the government regulations on the deposit taking microfinance especially after the enactment of the Microfinance Act in 2008.

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APPENDICES

Appendix I: List Of the Registered DTMs in Kenya as of 31st December 2012.

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

Source: Central Bank of Kenya Website

Appendix II: Table to be used in the collection of average Non performing loans Yearly average for each year 2008 - 2012

	Institution	Average Borrowing interest rate	Average Gross loans	Average Nonperforming loans	Percentage of nonperforming loans
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				

Source: Central Bank of Kenya Website

Appendix III: Gross loans and NPLS

Faulu

Year	2008	2009	2010	2011	2012
NPLS as per Financial Statements	100,804,544.40	153,354,909.00	214,716,171.80	171,260,000.00	262,208,000.00
Gross loans as per Financial Statements	2,938,908,000.00	3,006,959,000.00	2,677,259,000.00	3,237,624,000.00	4,949,198,000.00

KWFT

Year	2008	2009	2010	2011	2012
NPLS as per Financial Statements	124,522,145.40	116,076,475.80	1,253,521,723.20	783,978,160.00	772,392,960.00
Gross loans as per Financial Statements	6,694,739,000.00	10,182,147,000.00	12,277,392,000.00	11,199,688,000.00	12,873,216,000.00

SMEP

Year	2008	2009	2010	2011	2012
NPLS as per Financial Statements	92,264,285.25	98,355,966.51	-	144,508,100.00	276,286,410.00
Gross loans as per Financial Statements	881,225,265.00	939,407,512.00	1,181,881,528.00	1,445,081,000.00	1,454,139,000.00

SUMAC

Year	2008	2009	2010	2011	2012
NPLS as per Financial Statements	2,078,400.00	912,000.00	966,718.65	1,293,250.00	1,179,000.00
Gross loans as per Financial Statements	17,320,000.00	11,400,000.00	6,444,791.00	18,475,000.00	23,580,000.00

Appendix IV: Borrowing Interest rates

Faulu					
	Borrowing Interest Rate Per Month				
Month	**2008**	**2009**	**2010**	**2011**	**2012**
Jan	1.33	1.46	1.46	1.5	1.5
February	1.33	1.46	1.46	1.5	1.5
March	1.33	1.46	1.46	1.5	1.5
April	1.33	1.46	1.46	1.5	1.5
May	1.33	1.46	1.46	1.5	1.5
June	1.33	1.46	1.46	1.5	1.5
July	1.33	1.46	1.46	1.5	1.5
August	1.33	1.46	1.46	1.5	1.5
September	1.33	1.46	1.46	1.5	1.5
October	1.33	1.46	1.46	1.5	1.5
November	1.33	1.46	1.46	1.5	1.5
December	1.33	1.46	1.46	1.5	1.5

KWFT					
	Borrowing Interest Rate Per Month				
Month	**2008**	**2009**	**2010**	**2011**	**2012**
Jan	1.5	1.67	1.67	1.67	1.67
February	1.5	1.67	1.67	1.67	1.67
March	1.5	1.67	1.67	1.67	1.67
April	1.5	1.67	1.67	1.67	1.67
May	1.5	1.67	1.67	1.67	1.67
June	1.5	1.67	1.67	1.67	1.67
July	1.5	1.67	1.67	1.67	1.67
August	1.5	1.67	1.67	1.67	1.67
September	1.5	1.67	1.67	1.67	1.67
October	1.5	1.67	1.67	1.67	1.67
November	1.5	1.67	1.67	1.67	1.67
December	1.5	1.67	1.67	1.67	1.67

SMEP					
	Borrowing Interest Rate Per Month				
Month	**2008**	**2009**	**2010**	**2011**	**2012**
Jan	1.5	1.5	1.5	1.67	1.67
February	1.5	1.5	1.5	1.67	1.67
March	1.5	1.5	1.5	1.67	1.67
April	1.5	1.5	1.5	1.67	1.67
May	1.5	1.5	1.5	1.67	1.67
June	1.5	1.5	1.5	1.67	1.67
July	1.5	1.5	1.5	1.67	1.67
August	1.5	1.5	1.5	1.67	1.67
September	1.5	1.5	1.5	1.67	1.67
October	1.5	1.5	1.5	1.67	1.67
November	1.5	1.5	1.5	1.67	1.67
December	1.5	1.5	1.5	1.67	1.67

SUMAC					
	Borrowing Interest Rate Per Month				
Month	**2008**	**2009**	**2010**	**2011**	**2012**
Jan	3.5	3.5	3.5	3.5	3.5
February	3.5	3.5	3.5	3.5	3.5
March	3.5	3.5	3.5	3.5	3.5
April	3.5	3.5	3.5	3.5	3.5
May	3.5	3.5	3.5	3.5	3.5
June	3.5	3.5	3.5	3.5	3.5
July	3.5	3.5	3.5	3.5	3.5
August	3.5	3.5	3.5	3.5	3.5
September	3.5	3.5	3.5	3.5	3.5
October	3.5	3.5	3.5	3.5	3.5
November	3.5	3.5	3.5	3.5	3.5
December	3.5	3.5	3.5	3.5	3.5

Appendix V : Annual Average Nonperforming loans and Borrowing Interest Rates for the Four DTMs as %

Name Of the DTM	Variables	Period				
		2008	2009	2010	2011	2012
Faulu	Nonperforming loans	3.43	5.1	8.02	5	5
	Borrowing Interest rates	16	17.5	17.5	18	18
KWFT	Nonperforming loans	1.86	1.14	10.21	7	6
	Borrowing Interest rates	18	20	20	20	20
SMEP	Nonperforming loans	10.47	10.7	0	10	19
	Borrowing Interest rates	17	17	17	18	20
SUMAC	Nonperforming loans	12	8	15	7	5
	Borrowing Interest rates	42	42	42	42	42

Source: Central Bank of Kenya, Individual DTMs and AMFI

Appendix VI: Annual AverageNon-performing loans

Year	Faulu	KWFT	SMEP	SUMAC	TOTAL	Average
2008	3.43	1.86	10.47	12.00	27.76	5.552
2009	5.10	1.14	10.70	8.00	24.94	4.988
2010	8.02	10.21	0.00	15.00	33.23	6.646
2011	5.00	7.00	10.00	7.00	29.00	5.800
2012	5.00	6.00	19.00	5.00	35.00	7.000

Source: Central Bank of Kenya, Individual DTMs and AMFI

Appendix VII: Annual Average Borrowing Interest Rates

Year	Faulu	KWFT	SMEP	SUMAC	TOTAL	Average
2008	16	18	17	42	93.00	18.60
2009	17.5	20	17	42	96.50	19.30
2010	17.5	20	17	42	96.50	19.30
2011	18	20	18	42	98.00	19.60
2012	18	20	20	42	100.00	20.00

Source: Central Bank of Kenya, Individual DTMs and AMFI