THE EFFECT OF INTEREST RATE SPREAD ON FINANCIAL PERFORMANCE OF DEPOSIT TAKING MICROFINANCE BANKS IN KENYA

BY

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OCTOBER 2014
DECLARATION

I declare that this Research Project is my original work and has not been submitted for examination in any other university.

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This Research Project has been submitted for examination with my approval as the University supervisor

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I also wish to recognize the special support from my friends Priscilla Kimani and Bernard Nga’ng’a
DEDICATION

This research work is dedicated to my family and friends: Special dedication goes to my brother Eric Ndichu who took interest and sacrificed to me see through school. To my parents and siblings for their love and support both morally and materially. Their encouragement and support has assisted me greatly in completion of this project.
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<tr>
<td>AMFI</td>
<td>Association of Microfinance Institutions</td>
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<td>APR</td>
<td>Annual Percentage Rate</td>
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<td>CBK</td>
<td>Central Bank of Kenya</td>
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<td>CMA</td>
<td>Capital Markets Authority</td>
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<td>DTMBs</td>
<td>Deposit Taking Microfinance Banks</td>
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<td>EBIT</td>
<td>Earnings before Interest and Taxes</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
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<td>GoK</td>
<td>Government of Kenya</td>
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<td>IRS</td>
<td>Interest Rates Spread</td>
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<td>KWFT</td>
<td>Kenya Women Finance Trust</td>
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<td>NPLs</td>
<td>Nonperforming Loans</td>
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<tr>
<td>MFI</td>
<td>Microfinance Institutions</td>
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<tr>
<td>OLS</td>
<td>Ordinary Least Squares</td>
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<tr>
<td>ROA</td>
<td>Return on Assets</td>
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<tr>
<td>ROE</td>
<td>Return on Equity</td>
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<tr>
<td>SMEP</td>
<td>Small and Micro Enterprise Programme</td>
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ABSTRACT

MFIs over the past have primarily focused on micro lending activity and ignored savings deposits, therefore deposit taking microfinance bank (DTMB) business can be called a venture still in its determining stages. The Microfinance Act which became operational on 2nd May 2008 saw most of the micro-finance institutions apply for licenses to allow them to take deposits in Kenya after year 2009. DTMBs have demonstrated a good outreach especially in the rural areas with improved financial performance and have managed to reach close to a third of clients who were previously excluded from financial access. This calls for special attention by government towards this business. DTMBs need to be effective, efficient and competitive in their operations. Interest rates spread, as sensitive variable influencing financial performance, ought to be adequately harmonized so that savers have the assurance that they are getting the best returns on their savings and that borrowers are getting rates appropriate to their investments. The main objective of the study was to establish the effect of interest rate spread and on the financial performance of DTMBs in Kenya. Additionally, the researcher wanted to ascertain the influence of other industry specific variables and macro-economic environment on DTMBs financial performance. The research study utilized descriptive research design and embraced systematic random sampling technique on selecting the four DTMBs in Kenya out of the nine existing in the country. Secondary data were analyzed and presented inform of tables and figures to provide a clear picture of how interest rates spread contribute in the success or failure of the DTMB business and to show the various characteristics and relationships among the variables in consideration. Findings showed that interest rate spread is statistically significant at 95% and 99% significant level with a negative correlation thus as IRS increases the financial performance of DTMBs decreases. The other controlling market (industry) specific and macro-economic environment variables, that is, leverage, non performing loans, liquidity ratio and GDP per capita annual growth in % ratio showed a statistically significant positive correlation hence play a major role in positively influencing the performance of micro-banking industry and are therefore important for DTMB business to operate as a going-concern in the foreseeable future. It is evident from the research findings that the interest rate spread provided sufficient margins for microfinance banks to continue operating in the market. In conclusion, the study found out that interest rates spread negatively affect the financial performance of DTMBs in Kenya. The researcher therefore, recommended to the micro-finance banks’ management to be both proactive and reactive in harmonizing interest rates spread in order to cushion their institutions from any financial shocks that could be experienced in the micro-banking industry in Kenya. Lastly, it is of great importance for the DTMBs to pay great attention to credit risk when evaluating customers’ loan proposals due to the fact that a large chunk of banks’ revenue accrues from loans from which interest income is derived.
CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Interest rate spread is the interest rate charged by banks on loans to private sector customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits. Ideally, it is measured as the difference between the average interest rate earned on loans and the average interest rate paid on deposits for individual banks (Sologoub, 2006).

The terms and conditions attached to these rates differ by country, however, limiting their comparability. The amount by which the interest earned by an investment exceeds or fails to exceed its own interest liability, if a bank pays depositor’s one interest rate, and lends the deposited money out at higher interest rate, the difference between those two interest rates is the interest rate spread. Interest rate spread is similar to net interest margin, but is difference in that net interest rate spread is hypothetical number that a company could earn if all assets were borrowed and invested (Drake, Deborah & Elisabeth, 2002).

Interest rates are charged not only for loans, but also for mortgages, credit cards and unpaid bills. The interest rate is applied to the total unpaid portion of your loan or bill. It's important to know what your interest rate is, and how much it adds to your outstanding debt. If your interest rate adds more to your debt than the amount one is paying, the debt could actually increase even though you are making payments. Although interest rates are very competitive, they aren't the same. A bank will charge higher interest rates if it thinks...
there's a lower chance the debt will get repaid. Some types of loans, like credit cards, are always assigned higher interest rates because they are more expensive to manage (Mohamed, 2006).

The level of interest rates spread (IRS) affects most deposit taking microfinance institution’s investment portfolio thus directly influencing the allocation of money and real capital to specific industries and firms. The level of interest rates in the equilibrium determines the supply and demand for loanable funds in the market, at high interest rates on savings households makes available a large quantity of funds than at low interest rates. The larger the amount of this payments, the larger the deferral of household consumption and thus the greater the amount of funds available to borrowers. This will prompt banks to reduce the interest rates charged on borrowers of funds in order to increase their demand thus leading to reduction in the interest rates spread (Hitt & Douglas, 1996).

1.1.1 Interest Rate Spread

Interest rates spread is defined as the difference between average interest rate earned on interest earning assets (loans) and average interest rate paid on deposits from savers. Interest rates affects the banks capability to transact business; as high interest rate spread means that borrowers of funds are being charged high interest rates on loans thus decreasing their demand for loanable funds. Also, high spread shows that savers are getting low interest rates on their savings and thus can reduce the supply of loanable funds, as they can channel their funds to other activities; all this affects the banks performance in the economy (Kashyap & Jeremy, 2004).
The interest rate is the yearly price charged by a lender to a borrower in order for the borrower to obtain a loan. This is usually expressed as a percentage of the total amount loaned. Banks then use that money to make loans. Banks charge borrowers a little higher interest rate than they pay depositors for that same money so they can profit for providing these services (Canner et al., 1997).

Many financial services companies borrow money at short-term rates for example, paying low savings-account interest rates to their depositors, and lend at long-term rates for example, through mortgages. When the interest rate spread is large, this can be a source of significant profit for banks, since they collect interest at high rates but only pay low short-term rates. As the spread shrinks or even becomes negative, this source of profit disappears (Crane, 2010).

1.1.2 Financial Performance

Performance, in a broad sense, refers to the accomplishment of a given task measured against preset standards of accuracy, completeness, cost, and speed. In other words, it refers to the degree to which an achievement is being or has been accomplished. The recommended measures for financial analysis that determine a firm’s financial performance are grouped into five broad categories: liquidity, solvency, profitability, repayment capacity and financial efficiency (Woller & Gary, 1999).

Carton (2004) also defines financial performance of an organization as the measure of the change of the financial state of an organization or the financial outcomes that results from management decisions and the execution of those decisions by members of the organization. The outcomes are not universal in nature but largely depend on the
organizational context hence selection of the measures that represent performance of a particular organization is done based upon the circumstances of the organization being rated. It is important to remember that interest rates are not the only factors affecting a firm’s financial performance rather measuring a group performance is more important than focusing on only one or two measures at the exclusion of others (Bernanke & Ben, 2008).

The financial indicators of financial performance are: sales growth, return on investment (ROI), return on sales, return on equity (ROE), and earnings per share. The popular ratios that measure organizational performance can be summarized as profitability and growth: return on asset (ROA), return on investment (ROI), return on equity (ROE), return on sale (ROS), revenue growth, market shares, stock price, sales growth, liquidity and operational efficiency

1.1.3 The Effect of Interest Rate Spread on Financial Performance

DTMBs that charge lower interest rates have a bigger consumer base compared to those that charge high interest rates leading to an increased financial performance. Interest represents the average interest rate on all new public and publicly guaranteed loans contracted during the year. Competitive interest rates on deposits encourage customers of DTMBs to deposit more.

The adoption of deposit taking has had a positive impact on the financial performance and profitability of nation-wide microfinance banks because the deposits are a source of loanable funds to the customers. Thus, there is a positive correlation between loan pricing by microfinance banks and the amount of deposit received from the customer’s. If firms
have sufficient amount of deposit, they will be in a position to loan the clients at a lower interest rate, meaning the number of borrowers will increase resulting to growth in profitability (McDonald, 2010).

To obtain the average, the interest rates for all public and publicly guaranteed loans have been weighted by the amounts of the loans. Public debt is an external obligation of a public debtor, including the national government, a political subdivision (or an agency of either), and autonomous public bodies. Publicly guaranteed debt is an external obligation of a private debtor that is guaranteed for repayment by a public entity (McDonald & Robert, 2010).

1.1.4 Deposit Taking Microfinance Banks

The Microfinance Act which became operational on 2nd May 2008 saw most of the then micro-finance institutions apply for licenses to allow them to take deposits from members and the general public. Microfinance Act, 2006 then amended in 2013 substituting the definition of the term “deposit-taking microfinance institution” with a new definition "deposit-taking microfinance bank." The DTMBs are licensed by the Central Bank of Kenya to provide the full range of financial services such as savings accounts and credit. In a report by CBK (2013), there are currently nine DTMBs operating in Kenya

The failure of most MFIs to change into DTMBs has been attributed to tough conditions put in place by the CBK. The strict conditions have seen those that had transformed suffer a huge drop in earnings discouraging other players from converting. The essence of transforming to deposit taking was to allow the institutions access cheaper funds, which they could then lend to the public at a lower rate rather than depending on expensive
credit from financial institutions, which forces them to charge high rates on their borrowers.

The primary goal of micro finance banks is to give low income earners an opportunity to become self-sufficient by providing a means of saving money, borrowing money and insurance. Since the clients of DTMBs have lower incomes and often have limited access to other financial services Micro finance products tend to be for smaller monetary amounts, traditional financial services. These services include loans, savings, insurance and remittances. Micro loans are given for a variety of purposes, frequently for micro enterprise development (GoK, 2006).

Because of these varied needs and the industry’s focus on the poor, deposit taking microfinance banks tend to use nontraditional methodologies such as group lending and liability, pre-loan savings requirements, gradually increasing loan sizes and an implicit guarantee of ready access to future loans if present loans are repaid fully and promptly. Most Deposit Taking Microfinance Banks are in developing countries, the default rates are surprisingly low-over 90% of loans are repaid for survival and sustainability. DTMBs must charge interest rates that cover the cost of administering these loans. The rates on these loans are normally lower than those offered by commercial banks. DTMBs currently operate in over 100 countries, serving 92 million clients (Kashyap & Jeremy, 2004).
1.2 Research Problem

The inability of banks to diversify risks in a competitive market due to market failures or non-existing markets results in increased lending interest rate beyond the level necessary to cover the creditor’s marginal cost of funds plus the intermediation costs. Consistent with this, banks whose loan portfolios are more exposed to risky and volatile sectors such as agriculture have often higher interest rate spreads. The incapability of the lender to perfectly ascertain the creditworthiness of the borrower gives rise to adverse selection and moral hazard effectively adding another risk premium to lending interest rates this might negatively impact on the financial performance of firms (Drake et al., 2002).

Most Deposit Taking Microfinance Banks charge interest rate expressed as a percentage of principal, by a lender to a borrower for the use of assets. Interest rates are typically noted on an annual basis, known as the annual percentage rate (APR). The assets borrowed could include, cash, consumer goods, large assets, such as a vehicle or building. To most deposit taking microfinance institutions interest rate is leasing charge to the borrower, for the asset's use. When the borrower is a low-risk party, they will usually be charged a low interest rate; if the borrower is considered high risk, the interest rate that they are charged will be higher this increases the interest income to financial institutions (Helms, Brigit, & Xavier, 2004).

In a study by Wensheng et al. (2003), it was found that a change in the domestic interest rate along with the US interest rate had little impact on the margin in the period under study. Ashim & Ranjula (2013) found that loan delivery methods have a significant impact on financial performance. Individual-based lenders tend to show a greater
profitability but only up to a certain level. We also find that individual-based lenders are prone to mission drift as compared to village banks. Kar & Swain (2014) revealed that there was a positive relationship between interest rates and financial performance of microcredit firms.

Njoroge (2013) in his study found that linear regression model can selectively be used to forecast financial performance of firms' at given levels of interest rates for firms where statistically significant relationship was found. However, for firms which on further analysis it was found that the effect of interest rates on financial performance was not significant, other factors which influence financial performance need to be considered and enhanced in order to significantly improve the financial performance of those firms.

Mwangi (2012) employed a cross sectional research and descriptive but analytical research design also and established that high interest rates charged on borrowings greatly affected the financial performance as well as investment levels in SMEs forcing investors and potential investors to depend on own savings and funds from friends and relatives. It is well established that long term borrowings was expensive as it was perceived to be riskier than short term borrowings and the issue of held funds.

From the above studies, it is evident that research done focused more on interest rate and financial performance of commercial banks. Therefore, this study seeks to fill this gap by answering the following research question: What is the effect of interest rate spread on financial performance of Deposit Taking Microfinance Banks in Kenya?
1.3 Objective of Study

To determine the effect of interest rate spread on financial performance of Deposit Taking Microfinance Banks in Kenya.

1.4 Value of Study

The results will be useful to the government in setting interest rates through CBK, hence interest rate spread, to appropriately influence the level of borrowing and lending desired for economic development such as establishment of new microfinance firms which assist in reducing unemployment. From the results obtained in the research, most microfinance banks will be able to make informed decision on borrowing and lending to influence the financial performance of their firms positively.

The findings will also be useful to policy makers in the area of regulation and supervision of deposit-taking microfinance banks. The study will provide useful lessons on how various legal, regulatory and procedural requirements could impact on the DTMBs as they endeavor to conform. In this way, the study findings will offer useful inputs to advise the review of the policy and legal framework in the future. Investors can use the results obtained from the research to make decisions on which sectors of the economy to invest in at different levels of interest rates.

Academics and researchers stand to benefit from the findings of this study since it will act as a reference point to those interested in this area or other related topics. It will also form a basis for further research.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter contains the review of various studies that are relevant to interest rate spread and financial performance. It presents a review of the relevant theories that explains the relationship between interest rate spread and financial performance.

2.2 Theoretical Review

This study will be guided by three theories namely: Modigliani-Miller Theorem, trade off Theory and theory of institutionists approach. These theories provide theoretical evidence of various arguments by different scholars and researchers in relation to interest rate spread and financial performance.

2.2.1 Modigliani-Miller Theorem

One suggested answer was provided by Modigliani and Miller (1958), who argued that the presence of a progressive personal income tax with favorable treatment of equity income (because of the partial exclusion and deferral advantage associated with capital gains taxation) would lead to equilibrium with firms facing the same cost of capital for debt and equity. In this equilibrium, the tax advantage to debt would just be offset by a lower before-tax return to equity holders. This model implies that in equilibrium, taxation does not alter the original finding of Modigliani and Miller (1958) that financial policy is irrelevant.
Moreover, it offers no reason why financial policy would relate to real investment decisions or other characteristics of firms. Certain fundamental problems with the Miller result have been pointed out by a number of authors. For example, the implicit tax rate on municipal debt does not appear to be anywhere near the corporate rate suggested by the model. Moreover, the portfolios of individual investors contain both equity and taxable debt rather than exhibiting the segmentation that Miller's hypothesis would predict. Thus, it seems that certain additions must be made to Miller's model to explain observed behavior (Cull et al., 2009).

2.2.2 Trade off Theory

The trade-off theory of capital structure refers to the idea that a company chooses how much debt finance and how much equity finance to use by balancing the costs and benefits. The classical version of the hypothesis goes back to Kraus and Litzenberger who considered a balance between the dead-weight costs of bankruptcy and the tax saving benefits of debt. Often agency costs are also included in the balance. This theory is often set up as a competitor theory to the pecking order theory of capital structure. A review of the literature is provided by Frank and Goyal (Brusov & Filatova, 2013).

An important purpose of the theory is to explain the fact that corporations usually are financed partly with debt and partly with equity. It states that there is an advantage to financing with debt, the tax benefits from debt and there is a cost of financing with debt, the costs of financial distress including bankruptcy cost of debt and non-bankruptcy costs (e.g. staff leaving, suppliers demanding disadvantageous payment terms, bondholder/stockholder infighting, etc.). The marginal benefits of further increases in
debt declines as debt increases, while the marginal cost increases, so that a firm that optimizes its overall value will focus on this trade-off when choosing how much debt and equity to use for financing (Brusov & Filatova, 2013).

2.2.3 Theory of Institutionists Approach

Institutionists focus mainly on financial sustainability of microfinance institutions. According to Woller et al (1999) the institutionists view financial deepening as the main objective of microfinance institutions. Here financial deepening refers to creating sustainable financial intermediation for the poor. Institutionists assert that the financial sustainability as measured by financial self-sufficiency (profitability) should be given higher priority by all MFIs (Brau and Woller, 2004). Their argument comes from the fact that in most cases donor dependence is not certain and thus, unless an MFI is able to sustain itself financially it will not be able to serve the poor in the long run. Contrary to promoting financial sustainability, there is a potential tension that over emphasis on financial self-sustainability may lead an MFI into moving away from its poverty reduction objective (Drake and Rhyne, 2002) A close examination of the arguments put forward by institutionists can reveal that it is a financing issue (Brusov et al., 2013).

On one hand, the institutionists would like to see MFIs meeting all their costs from self-generated funds with a possibility of making profit without using any external funds. This is what they would call a sustainable MFI. Provided the MFIs can continue with operations and thereby meet their social objectives they have attained sustainability. Their focus is on targeted depth of outreach rather than scale (breadth of outreach) or
financial self-sufficiency (Brau and Woller, 2004). Thus, as Woller et al (1999) have argued, what matters is how subsidies are used and not whether they are used or not.

2.3 Determinants of Financial Performance

The determinants of financial performance are as follows:

2.3.1 Size

The size is a determinant of financial performance of the firm. Large firms are more likely to manage their working capitals more efficiently than small firms. Most large firms enjoy economies of scale and thus are able to minimize their costs and improve on their financial performance.

2.3.2 Risk profile

Risk profile of the firm is a significant determinant of financial performance. Proper management of working capital management components helps in reducing the costs of the firm this highly contributes in reducing the liquidity risk of the firm and thus mitigating any financial losses that might be attributed to lack of finances to take advantage of profitable investments (Popkin and Company, 1991).

2.3.3 Leverage

Leverage of the firm is a key determinant of financial performance of the firm. The firms leverage decisions centers on the allocation between debt and equity on financing a firm (Staikouras & Wood, 2004). Leverage affects the level and variability of the firm’s after tax earnings and hence, the firm’s overall risk and return. The study of leverage is significant due to the following reasons. Operating risk refers to the risk of the firm not being able to cover its fixed operating costs. Since operating leverage depends on fixed
operating costs, larger fixed operating costs indicates higher degree of operating leverage and thus, higher operating risk of the firm. High operating leverage is good when sales are rising but risk when the sales are falling (Short, 1979).

2.3.4 Liquidity Management

Liquidity is another factor that determines the level of financial performance. Liquidity refers to the ability of the bank to fulfill its obligations, mainly of depositors. According to Dang (2011) adequate level of liquidity is positively related with bank profitability. The most common financial ratios that reflect the liquidity position of a bank according to the above author are customer deposit to total asset and total loan to customer deposits. However, the study conducted in China and Malaysia found that liquidity level of banks has no relationship with the performances of banks (Said and Tumin, 2011)

2.3.5 Financial Strength

A measure of the financial strength of a bank or securities firm, usually expressed as a ratio of its capital to its assets is also a worth mentioning determinant of financial performance. For banks, there is now a worldwide capital adequacy standard, drawn up by the Basel Committee of the Bank for International Settlements. The Basel Capital Accord, introduced from 1988, requires banks to have capital equal to a minimum of 8 per cent of their assets. In 2004, a revised framework, known as Basel II, was issued. Among its projects are those capitals requirements should be more risk sensitive and that greater use should be made of risk assessments produced by banks' internal systems. The revisions, which have sparked controversy, are being considered by national banking supervisors and implementation is due at the end of 2007 (Woller & Gary, 1999).
2.4 Empirical Review

In a study by Wensheng et al., (2003), 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. Empirical estimates on data from 1992-2002 show the net interest margin declined in response to increases in the risk premium, because deposit interest rates were more sensitive to changes in the risk premium than the lending rate. A change in the domestic interest rate along with the US interest rate had little impact on the margin in the period under study.

Kipng’etich, (2011) set out with an objective of establishing the relationship between interest rates and financial performance of commercial banks in Kenya. To achieve the objective of the study regression models were developed using financial performance as the independent variable and interest rates as dependent variables. In the model, ROE was defined as the profitability indicator. Secondary data was collected from published reports for a period of five years between 2006 and 2010. The study used regression analysis to establish the relationship between interest rates and ROE. The results obtained from the regression model shows that there is a positive relationship between interest rates and financial performance of commercial banks in Kenya. Banks should therefore prudently manage their interest rates and other factors which influence profitability to improve their financial performance.

Fallah (2012) research results show that when the profit margin is threatened, banks sustain a widening spread. The accumulation of non-performing loans results from a
weak legal system and a poor business environment that squeezes the profit margin, and banks respond by increasing the lending rate. Policy actions also affect the spread. An asymmetric response is indicated with the foreign exchange rate where lending rates increase with the foreign exchange rate between the Liberian dollars and United dollars rate, and become sticky downward when the foreign exchange lower between the two currencies.

The Central Bank of Liberia responded to the widening gap in interest rate by publishing the interest rates on both deposits and lending that must be maintained by Commercial banks but in the absence of ensuring that factors that lead to the widening gap are addressed, some commercial banks could not adhere to the published interest rates by the Central Bank. It also indicated that it is contemplating on adjusting the gap between lending and deposit interest rates, thereby reducing general and substandard provisions by one (1%) percent and five (5%) percent respectively. The Central Bank of Liberia further indicated that it intends to introduce a stimulus loan package of Five Million United States Dollars (US$5,000,000) to commercial banks at the rate of three (3%) percent for lending to Liberian business at the rate of not more than eight (8%) percent per annual.

Mwangi (2012) not only employed a cross sectional and descriptive research but analytical research design also. Data was collected based on the objectives and questionnaires were distributed to 50 respondents. We established that high interest rates charged on borrowings has greatly affected the financial performance as well as investment levels in DTMBs forcing investors and potential investors to depend on own savings and funds from friends and relatives. It is well established that long term
borrowings was expensive as it was perceived to be riskier than short term borrowings and the issue of ‘held funds’.

Ngumo (2012) adopted a survey research design on a target population of all organizations registered for mortgage lending as of 31st December 2011 which were 33. The study used secondary data sources to collect data from CMA library and Central Bank of Kenya. The study established positive relationships in the five regression analysis between financial performance and the amount of mortgage loans advanced. The study concludes that the amount of mortgage advanced by mortgage firms would lead to a high financial performance (EBIT) as it raises the revenue thereof. On the other hand, interest rate would positively relate with financial performance till it starts discouraging borrowings owing to increase in the cost of mortgage. The study recommends that mortgage firms in Kenya charge interest rates on the mortgage appropriately as ineffective interest rate policy raises the cost of mortgage borrowing, negate its demand thus lowers financial performance.

In their study, Garman & Grable (2012) investigated on the effect of interest rates on financial performance of agricultural firms in Amsterdam, Holland. Secondary data was used and using a five year trend between 2008-2013. Data was analyzed using a regression model and the results if the analysis shows that there is an inverse correlation between interest rates and financial performance of the firm. When the interest rates were low borrowers borrowed more money to make investments since the cost of borrowing was low.
Dominic (2010) sought to establish the relationship between borrowing interest rates and nonperforming loans in deposit taking micro finance institutions in Kenya. The researcher used regression analysis and adopted a cross sectional and descriptive survey research design to investigate the relationship between average non performing loans. (Dependent variable) and average borrowing interest rate (Independent variable). The results obtained from the model shows that there is a positive relationship between borrowing interest rate and non performing loans of DTMBs in Kenya which is insignificant. However, since the relationship is insignificant we conclude that borrowing interest rates by DTMBs does not necessarily improve the financial performance.

Njoroge (2013) assessed the nature of the relationship between interest rates and financial performance of firms listed at the Nairobi Securities Exchange. The study is significant to the government in setting interest rates appropriate to influence the level of borrowing and lending to encourage economic development. The study covered five years from 2008 to 2012 inclusive and the research was based on secondary data obtained from published financial statements of the firms and publications by the Central Bank of Kenya. The causal research design was employed to assess the nature of the relationship between interest rates and financial performance of firms listed at the Nairobi Securities Exchange. Regression analysis was used to assess the nature of the relationship. Results obtained from the study indicated a not significant positive relationship between interest rates and financial performance. On disaggregation and grouping of the firms to their respective industries, it was found that linear regression model can selectively be used to forecast financial performance of firms’ at given levels of interest rates for firms where statistically significant relationship was found. However, for firms which on further
analysis it was found that the effect of interest rates on financial performance was not significant, other factors which influence financial performance need to be considered and enhanced in order to significantly improve the financial performance of those firms.

Ashim & Ranjula, (2013) investigates whether MFIs’ high interest rates improve profitability, reduce repayment rates and lead to mission drift. Within an agency theoretic framework, instrumental variables (IV) estimations have been employed to account for the endogeneity issues using a comprehensive global panel database consisting of 379 MFIs in 71 countries for 6 years: from 2003 to 2008. Results show that real yield on loan portfolio a frequently used proxy for interest rates has a positive and highly significant impact on MFIs’ financial performance and loan repayment rates. We further find that loan delivery methods have a significant impact on financial performance. Individual-based lenders tend to show a greater profitability but only up to a certain level. We also find that individual-based lenders are prone to mission drift as compared to village banks.

Kar & Swain (2014) investigates whether MFIs’ high interest rates lead to financial performance of microfinance institutions. A sample of 50 microcredit firms was used and data was analyzed using regression analysis. A regression model was used and the results of the analysis showed that there was a positive relationship between interest rates and financial performance of microcredit firms. The study will guide microfinance firms in making informed decision on interest rates to improve on financial performance while investors can use the results obtained from the research to make decisions on which sectors of the economy to invest in at different levels of interest rates.
2.5 Summary of Literature Review

From the literature review most microfinance banks are faced with increasing credit risk as the proportion of non-performing loans increase by charging a high risk premium on the lending rate hence increasing the spread. Industry specific as well as Macro-economic variables have an effect on interest rates spread and possibly microfinance banks performance. The findings were supported by Wensheng et al., (2003) who concluded that a change in the domestic interest rate along with the US interest rate had little impact on the margin in the period under study. Ashim & Ranjula, (2013) also pointed out that high interest rates improve profitability, reduce repayment rates and lead to mission drift. This study will therefore find out the effect of interest rates on Financial Performance of Deposit Taking Microfinance Banks in Kenya.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter described the procedures that were used by the researcher to collect and analyze data collected from the field in the study. It covered the following areas: Research design, target population, data collection procedure, data analysis, analytical model and tests of significance.

3.2 Research Design

Research design refers to how data collection and analysis are structured in order to meet the research objectives through empirical evidence (Cooper & Schindler, 2006). The study used a descriptive design described the characteristics in a given population or a phenomenon.

This advantage of this design is that the researcher is able to use various forms of data as well as incorporating human experience. It gives researchers the ability to look at what they are studying in various aspects and provides a bigger picture as opposed to other types of research design (Kothari, 2004).

3.3 Population

According to Cooper and Schindler (2006), a population is the total collection of elements which the researcher wishes to make inferences. The target population of this study was DTMBs in Kenya licensed under the Central Bank of Kenya. There are nine (9) Deposits taking Microfinance Banks in Kenya (CBK, 2013) provided in Appendix I.
However since the Microfinance act was established in May, 2008 and that only Faulu DTMB was receiving deposits by the end of 2009, the rest started on or after 2010. This limits data due to incomplete information from all the eight deposit taking microfinance banks. Therefore four DTMBs namely Faulu, KWFT, SMEP, SUMAC were analyzed for a period of four years from 2010 to 2013 and therefore no sampling was used.

3.4 Data Collection

According to Mugenda & Mugenda (2003) Secondary data is information that has previously been collected that is utilized by a person other than the one who collected the data; this can be obtained from books, journals and electronic materials. The secondary data was obtained from Central Bank of Kenya and AMFI on the financial statements of each DTMB’s to help evaluate their financial performance. Also, data was collected from electronic journals and websites belonging to the target DTMBs.

The study used secondary data sources of a four year period from 2010-2013 based on the availability and accessibility of data. This enabled the researcher to get quantified data that was helpful in drawing conclusions and giving recommendations on the effect of interest rates on financial performance of DTMBs in Kenya.

3.5 Data Analysis

Data Analysis is the process of systematically applying statistical and logical techniques to describe and illustrate, condense and recap, and evaluate data. According to Shamoo and Resnik (2003) various analytic procedures provide a way of drawing inductive inferences from data and distinguishing the signal the phenomenon of interest and statistical fluctuations present in the data.
Based on the availability of data, the study focused only on market (industry-specific) and macroeconomic determinants of financial performance. A regression model was used for data analysis and the study used six variables to establish the relationship between interest rate spread and financial performance of DTMBs.

Financial performance was measured using return on assets (ROA) which is net income divided by total Assets. Interest rate spread was calculated as the difference between interest rate on gross Outstanding Loan Portfolio and interest rate paid on gross outstanding funding liabilities. Leverage was measured using debt divided by equity. The nonperforming Loans were measured using the ratio nonperforming loans divided by total loans. Liquidity risk was measured as current assets/current liabilities. GDP per capita annual growth in % ratio was also used as a general index of economic development

3.5.1 Analytical Model

The regression model that was used in analyzing the effect of interest rate spread on financial performance of DTMBs in Kenya. The model of this study was as follows:

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon \]

Where:

\( Y \) = Financial performance was measured using return on assets (ROA) which is net income divided by total Assets
The independent variables which were used in the model included both market (industry specific) and macroeconomic determinants to show their impact on DTMBs financial performance.

\( X_1 = \text{IRS was calculated as (interest rate on gross Outstanding Loan Portfolio)-(interest rate paid on gross outstanding funding liabilities)} \)

\( X_2 = \text{Leverage was calculated as Debt/Equity.} \)

\( X_3 = \text{NPLs which was the ratio of Nonperforming loans to Gross Loans} \)

\( X_4 = \text{Liquidity risk which was calculated as current assets/current liabilities.} \)

\( X_5 = \text{GDP per capita annual growth in } \% \text{ ratio, as a general index of economic development was sourced from the World Bank website} \)

\( \alpha = \text{Regression constant} \)

\( \beta_1\beta_3..B_n = \text{coefficients of variables in the regression model} \)

\( \varepsilon = \text{Error term normally distributed about the mean of zero} \)

### 3.5.2 Test of Significance

Y was the dependant variable financial performance, \( \beta_0 \) was the regression constant or Y intercepts \( \beta_1\beta_3..B_n \) were the coefficients of the variables in regression model. The basis of the model was to help in determining the extent to which interest rate contribute to financial performance of DTMBs. Correlation was used to establish the relationship between the variables of interest rate and financial performance of DTMBs in Kenya
CHAPTER FOUR
DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The main objective of the study was to determine the effect of interest rate spread on financial performance of Deposit Taking microfinance Banks in Kenya. The data was obtained from four DTMBs. The study used descriptive and inferential analytical techniques to analyze the data obtained.

4.2 Response Rate

The study targeted nine DTMBs in Kenya and data was obtained from four of these micro finance banks. The four DTMBs formed our sample size and the data was obtained from all the four DTMBs. This therefore created a response rate of 100% . According to Mugenda and Mugenda (2003) a 50% response rate is adequate, 60% good and above 70% rated very good. This also collaborates Bailey (2000) assertion that a response rate of 50% is adequate, while a response rate greater than 70% is very good. This implies that based on this assertion; the response rate which in this case was 100% is excellent.

Table 4.1: Response Rate

<table>
<thead>
<tr>
<th>Response Rate</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>4</td>
<td>100.00%</td>
</tr>
<tr>
<td>Unresponse</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Source: Research Findings
4.3 Data Analysis and Findings

The study used descriptive and inferential analytical techniques to analyze the data obtained. The study used Ordinary Least Squares (OLS) regression models. However, before running the regressions, descriptive statistics and correlation analysis were calculated. Correlation analysis shows the relationships between the different variables considered in the study. The correlation matrix presented simple bivariate correlations not taking into account other variables that may influence the results.

4.4 Descriptive Statistics

Descriptive statistics are used to describe the basic features of the data in study, giving simple summaries about the sample and the measures.

Table 4.2 presents the descriptive statistics and the distribution of the variables considered in this research: non performing loans ratio, interest rate, interest rate spread, cost income ratio, total assets and capital adequacy. The descriptive statistic considered was minimum, maximum, mean and standard deviation. Mean was used to establish the average value of the data; standard deviation gave the dispersion in the data.

Table 4.2: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std.Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>4</td>
<td>1.54375</td>
<td>0.3743745</td>
<td>1</td>
<td>1.825</td>
</tr>
<tr>
<td>IRS</td>
<td>4</td>
<td>9.535625</td>
<td>0.7256215</td>
<td>8.9225</td>
<td>10.525</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>4</td>
<td>5.85</td>
<td>0.2993047</td>
<td>5.525</td>
<td>6.25</td>
</tr>
<tr>
<td>NPLs</td>
<td>4</td>
<td>0.0825</td>
<td>0.0095743</td>
<td>0.07</td>
<td>0.09</td>
</tr>
<tr>
<td>LIQUIDITY RISK</td>
<td>4</td>
<td>0.1487218</td>
<td>0.0664058</td>
<td>0.0750605</td>
<td>0.218962</td>
</tr>
<tr>
<td>GDP per Capita</td>
<td>4</td>
<td>2.075</td>
<td>0.6291529</td>
<td>1.6</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Research Findings
Table 4.2 shows that return on assets had a mean of 1.54375 and standard deviation of 0.3743. This means that DTMBs on average earned net income of Kshs 1.543 for one shilling invested in total assets thus; more investment in assets would increase the banks’ financial performance. On the other hand, interest rate spread had a mean of 9.5356 and standard deviation of 0.7256 which depicts a wide disparity between lending and deposit interest rate among DTMBs, the wider the spread, the lower the financial performance as clients will borrow fewer loans. Leverage ratio had a mean of 5.85 with standard deviation of 0.29930 implying that the DTMBs on average earn net income Kshs 5.85 for one shilling invested from debt capital. Increase in this debt borrowed would increase the banks’ financial performance.

Non Performing Loans Ratio had a mean of 8.25% and standard deviation of 0.009574. That is, DTMBs, on average, incurred loan default of Kshs 0.0825 on every Ksh1 advanced as loan or credit. Liquidity ratio had a mean of 0.1487 with standard deviation of 0.06640 implying that one shilling of cash flow received will be used to finance Kshs 0.0664 of current expenses. During the study period, Kenya recorded an average of 2.075 GDP per capita with standard deviation of 0.6291. This is an indication that Kenya experienced positive but slow economic growth in terms of GDP per capita.

4.5 Inferential Statistics

The inferential statistics involved the use of correlation and multiple linear regression analysis. The regression analysis was done using Ordinary Least Squares (OLS) method. However, before running the regressions, descriptive statistics and correlation analysis were considered. Correlation analysis shows the relationships between the different
variables considered in the study. The correlation matrix presented simple bivariate correlations not taking into account other variables that may influence the results.

4.5.1 Correlation Analysis

The study sought to establish the relationship between the independent and control variables, and financial performance of deposit taking microfinance banks in Kenya. Pearson Correlation analysis was used to achieve this end at 99% and 95% confidence levels.

Table 4.3: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>IRS</th>
<th>LEVERAGE</th>
<th>NPLs</th>
<th>LIQDTY RISK</th>
<th>GDP per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRS</td>
<td>-0.8812</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>0.29</td>
<td>-0.1890</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPLs</td>
<td>-0.1221</td>
<td>-0.5605</td>
<td>0.1454</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIQUDITY RISK</td>
<td>0.7318</td>
<td>-0.9518</td>
<td>0.3168</td>
<td>0.7650</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>GDP per Capita</td>
<td>0.942</td>
<td>0.8091</td>
<td>0.0354</td>
<td>0.0138</td>
<td>-0.5915</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

Source: Research Findings

Table 4.3 above shows a strong negative (R=-0.8812) linear relationships between interest spread and financial performance (ROA) of DTMBs. This depicts that as DTMBs increases interest charged on loan advanced the level of their profitability decrease. This is because potential borrowers are discouraged from applying for loans with DTMBs thereby potentially eroding the interest earned by the DTMBs from loans. Leverage ratio shows weak but positive correlation with ROA (R= 0.29) implying that DTMBs fully
cover their debts. Non-performing loans has weak but negative relationship with ROA. Increase in NPL result to loan loss provision thereby reducing the profitability of the DTMBs. Liquidity showed strong and positive (R=0.7318) relationship with financial performance of DTMBs. Increase in current cash flow will increase the profitability of the DTMBs. GDP per capita has a strong and positive (R=0.942) correlation with ROA implying that an increase in GDP per capita will result to an increase in financial performance of the DTMBs.

From the correlation analysis the result show a negative strong relationship between the IRS and financial performance ROA of DTMBs in Kenya. A negative correlation means that as IRS increases, financial performance ROA decreases and vice versa. The negative sign indicates that as class size increases, mean reading scores decrease.

This is summarized by the figure below

**Figure 4.1 The relationship between IRS and Financial performance**

![Diagram](image)

<table>
<thead>
<tr>
<th>VARIABLE COUNT</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRS</td>
<td>10.53</td>
<td>9.63</td>
<td>9.07</td>
<td>8.92</td>
</tr>
<tr>
<td>ROA</td>
<td>1.00</td>
<td>1.75</td>
<td>1.60</td>
<td>1.83</td>
</tr>
</tbody>
</table>

**Source:** Research Findings
Figure 4.1 shows that there is a negative relationship between interest spread variables and financial performance of DTMBs in Kenya. A unit increase in interest rate spread will lead to decrease in the profitability of the DTMBs.

4.5.2 Regression Analysis

Regression analysis was used to measure the relationship between individual independent (interest rate spread, leverage, non performing loans, liquidity, GDP per capita ratio) and dependent variable (financial performance). The regression analysis was of the form:

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon \]

4.5.2.1 Model summary

The model summary table shows the ability of the regression line to account for the total variation in the dependent variable. Table 4.4 below illustrates the strength of the relationship between ROA and independent variables.

<table>
<thead>
<tr>
<th>R</th>
<th>R Square</th>
<th>Adjusted Square</th>
<th>R</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.9998</td>
<td>0.9999</td>
<td>0.9878</td>
<td>0.0004</td>
<td>1.8971</td>
<td>Source: Research Findings</td>
</tr>
</tbody>
</table>

From the determination coefficients, it can be noted that there is strong relationship between dependent and independent variables given an R values of 0.9998 and R-square values of 0.9999. This shows that 99.99% of the total variation in financial performance of the DTMB is attributed to the changes in the explanatory variables (interest rate spread, leverage, non performing loans, liquidity, GDP per capita).
The study also used Durbin Watson (DW) test to check that the residuals of the models were not auto correlated since independence of the residuals is one of the basic hypotheses of regression analysis. Being that the DW statistic were close to the prescribed value of 2.0 (1.8971) for residual independence, it can be concluded that there was no autocorrelation.

4.5.2.2 Analysis of Variance

Analysis of Variance (ANOVA) was used to make simultaneous comparisons between two or more means; thus, testing whether a significant relation exists between variables (dependent and independent variables). This helps in bringing out the significance of the regression model.

The ANOVA results are presented in table 4.5 below

Table 4.5: Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>0.42046875</td>
<td>5</td>
<td>0.14015625</td>
<td>0.0001</td>
<td>.0000</td>
</tr>
<tr>
<td>Residual</td>
<td>0</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0.42046875</td>
<td>9</td>
<td>0.14015625</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Research Findings

Table 4.5 shows that the regression model has a p value of 0.000 which is less than 0.05. This indicates that the model is fit for estimation.
4.5.2.3 Model Coefficients

Table 4.6 above shows the regression coefficients of the independent variables.

Table 4.6 : Regression coefficient

|        | Unstandardized Coefficients | Std. Error | t     | P>|t| |
|--------|----------------------------|------------|-------|-----|
| IRS    | -0.08422                   | 0.13857    | 4.074 | 0   |
| LEVERAGE | 0.360521                  | 0.27671    | 3.701 | 0.0021 |
| NPLs   | 0.00012                    | 0.02633    | 1.02  | 0.083 |
| LIQUIDITY RISK | 0.0487            | 0.11487    | 1.67  | 0.183 |
| GDP per Capita | -0.48801          | 0.53611    | 2.5101| 0.038 |
| _CONSTANT | 1.250455                   | 0.03151    | 1.7155| 0.049 |

Source: Research Findings

The following regression model was established:

\[
\text{ROA} = 1.2504 - 0.08422 \text{IRS} + 0.360521 \text{LV} + 0.00012 \text{NPL} + 0.047 \text{LQD} + 0.48801 \text{GDP}
\]

Table 4.6 depicts that holding all the explanatory variables constant, DTMBs will realize an average of 1.2504 units in profitability. Interest rate spread has a negative coefficient of -0.08422 implying that interest rate spread negatively affects financial performance of DTMBs.

4.6 Interpretation of the Findings

From the research findings, the study observed that interests spread are statistically significant at 5% level of significance in causing variation in the profitability of DTMBs. Interest rate spread has a negative coefficient implying that interest rate spread negatively affect financial performance of DTMBs. A unit increase in interest spread will lead to 0.08422 unit decrease in the profitability of the DTMBs.
From the determination coefficients, the study concluded that there is strong relationship between dependent and independent variables given an R values of 0.9998 and R-square values of 0.9999. This shows that 99.99% of the total discrepancy in financial performance of the DTMBs is attributed to the changes in the explanatory variables.

The study further established that Leverage ratio is statistically significant in influencing the profitability of the DTMBs in Kenya. A unit increase in leverage ratio will lead to 0.36052 unit increase in the financial performance of the DTMBs. Non-performing loans also show positive effect on the profitability of the banks. A unit increase in NPLs will lead to 0.00012 unit increase in the financial performance of the DTMBs.

Liquidity risk is also significant at 5% significant level showing positive effect on the profitability of the DTMBs but is not a significant factor in determining the financial performance of the DTMBs. GDP per capita is statistically significant at 5% level of significance in explaining financial performance of DTMBs. A unit increase in GDP per capita will lead to 0.48801 unit increase in DTMBs profitability. Holding all the explanatory variables constant DTMBs will realize an average of 1.2504 units in profitability.

These findings are related to those of Wensheng et al., (2003), who instituted 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. The empirical estimates showed the net interest margin declined in response to increases in the risk premium, because deposit interest rates were more sensitive to changes in the risk premium than the lending rate.
Findings by Mwangi (2012) also established that high interest rates charged on borrowings negatively affected the financial performance as well as investment levels in SMEs forcing investors and potential investors to depend on own savings and funds from friends and relatives. It is well established that long term borrowings was expensive as it was perceived to be riskier than short term borrowings and the issue of held funds.

From the findings therefore, there is a statistically significant negative relationship between interest rate spread and financial performance such that the probability of this correlation occurring by chance is less than one time out of 1000. The wider the interest rate spread, the lower the financial performance of DTMBs in Kenya.
CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction
This chapter is a blend of the entire study, and contains summary of research findings, exposition of the findings, conclusions, policy recommendations based thereon, limitations and suggestion for further studies.

5.2 Summary
The objective of the study was to establish the effect of interest rate spread on financial performance of DTMBs in Kenya. In data analysis and presentation of results both descriptive and inferential statistics were employed, specifically using correlation, regression and ANOVA to establish the significance of the model and also to establish the link between financial performances and interest rate spread. The results of tests on the differences in means of all variables of the financial performance model considered ROA had a mean of 1.54375 and standard deviation of 0.3743. This means that DTMBs, on average, earned net income of Kshs 1.543 for one shilling invested in total assets. Further, interest rate spread had a mean of 9.5356 and standard deviation of 0.7256 which depicts a wide disparity between lending and deposit interest rate among DTMBs. Leverage ratio had a mean of 5.85 with standard deviation of 0.29930. Non Performing Loans Ratio had a mean of 8.25% and standard deviation of
0.009574. Meaning that DTMBs, on average, incurred loan default of Kshs 0.0825 on every Ksh1 advanced as loan or credit. Liquidity ratio had a mean of 0.1487 with standard deviation of 0.06640 implying that one shilling of cash flow received will be used to finance Kshs 0.0664 of current expenses. During the study period, Kenya recorded an average of 2.075 GDP per capita with standard deviation of 0.6291, an indication that Kenya experienced positive but slow economic growth in terms of GDP per capita. The positive values imply that the variables under the model are significant in determining the financial performance of DTMBs in Kenya.

The study, using inferential statistics, further determined the correlation between the independent variables used in the study i.e. financial performance and interest rate spread. For this analysis Pearson Correlation analysis was used to achieve this end at 99% and 95% confidence levels to determine the degree of association within the independent variables and also between independent variables and the dependent variable.

The analysis of these correlations seems to support the hypothesis that each independent variable in interest rate spread has its own particular informative value in the ability to explain the financial performance of DTMBs in Kenya. Correlation shows strong negative (R= -0.8812) linear relationships between interest spread and financial performance (ROA) of DTMBs. This portrays that as DTMBs increases interest charged on loan advanced the level of their profitability decrease. Leverage ratio shows weak but positive correlation with ROA (R= 0.29) implying that DTMBs fully cover their debts. Non-performing loans has weak but negative relationship with ROA. Increase in NPL
result to loan loss provision thereby reducing the profitability of the DTMBs. Liquidity showed strong and positive (R=0.7318) relationship with financial performance of DTMBs. Increase in current cash flow will increase the profitability of the DTMBs. GDP per capita has a strong and positive (R=0.942) correlation with ROA implying that an increase in GDP per capita will result to an increase in financial performance of the DTMBs.

Interest rate spread has a negative coefficient implying that interest rate spread negatively affect financial performance of DTMBs. A unit increase in interest spread will lead to 0.08422 unit decrease in the profitability of the DTMBs. According to the regression equation established, taking all factors into account (rate spread, leverage, ratio of NPLs, liquidity risk, and Gross domestic growth rate) financial performance measured by ROA will be 1.2504.

The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in the interest rate spread will lead to a 0.08422 decrease in the return on asset; a unit increase in the leverage will lead to 0.360521 increase in the return on asset in financial performance; a unit increase in the ratio of NPLs will lead to a 0.00012 increase in the return on asset in financial performance; a unit increase in liquidity risk will lead to a 0.047 increase in the return on asset in financial performance and a unit increase GDP per capita will lead to 0.48801 increase in the return on asset in financial performance. This is a clear indication of the negative effects of Interest rate spread on the financial performance of DTMBs in Kenya.
The Standardized Beta Coefficients gave a measure of the contribution of each variable to the model. A small value indicates that a unit change in this predictor variable has a small effect on the criterion variable. Therefore basing on these findings the study rejected the null hypothesis that there is no relationship between interest spread variables and financial performance of DTMBs in Kenya and accepts the alternative hypothesis that there exists a relationship between interest spread variables and financial performance of DTMBs in Kenya.

5.3 Conclusion
The objective of the study was to establish the effect of interest rate spread on financial performance of DTMBs in Kenya. In reference to the findings, the study has established that interests spread are statistically significant at 95% and 99% level of significance in causing deviation in the profitability of DTMBs. The correlation results show a negative relationship between ROA and IRS implying that interest rate spread negatively affect financial performance of DTMBs. Taking all other independent variables at zero, a unit increase in the interest rate spread will lead to a 0.08422 decrease in the return on asset ROA which is the indicator of financial performance. All the other predicting variables that is, leverage, non performing loans, liquidity ratio and GDP per capita annual growth in % ratio show a statistically positive relationship with financial performance of DTMBs. The study therefore concludes that there is a statistically negative effect of IRS on financial performance of DTMBs in Kenya.
5.4 Policy Recommendations

The study recommends that central bank as a regulator should monitor interest rate spread of the DTMBs. According to the study, interest rate spread is a significant factor in influencing the return on assets and therefore it can lead to decreased financial performance in Kenya.

The study also recommends outreach and Savings mobilization as very important for improved financial performance. Outreach especially in the rural areas where access to financial services is challenging. DTMBs need to design a range of savings products that are safe and with better returns.

The study further recommends that the bank supervisory department be stricter to ensure the DTMBs follow the conventions of interest rates set by CBK to ensure the Deposit taking microfinance banks are not charging inflated interest rates to the customers which contribute to high nonperforming loans.

The study additionally recommends that it is important for the Deposit taking microfinance institutions to introduce client training so that the borrowers and depositors can invest in more viable ventures considering that most of them are low income earners so that they can adequately service the loans to increase the financial performance of DTMBs.

The study also recommends that the management of DTMBs should to pay immense consideration to Credit risk since the performance and success of their business depends on accurate measurement and efficient management of this risk. Most of banks’ revenue
accrues from loans from which interest is derived. Noticeably, interest rate risk is directly linked to credit risk implying that increment in interest rate increases the chances of loan default. Additionally,

Lastly the study recommends that 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.

5.5 Limitations of the Study
DTMB sector is still in shaping stages as the Microfinance Act which became operational on 2nd May 2008 saw most of the micro-finance institutions apply for licenses to allow them to take deposit after 2010 except for Faulu DTMB. Four year period of study is not adequate to make conclusions; a longer period with more deposit taking microfinance institutions could have yielded different and more reliable results.

The secondary data used on was from, statements of financial positions of the various DTMBs reports from the association of Micro Finance institutions in Kenya (AMFI) , CBK and World bank websites, This data may to some extent might be maneuvered by management to ensemble their objective

Another challenge the researcher face was the time aspect. Data collection involved visiting the various DTMBs for the information that is not available on the internet which consumed a lot of time. The supervisor of the project was also based in a different
campus in a different town from the researcher. Future researchers will need to allocate more time to the project work and prepare to manage this time effectively.

Another challenge faced by the researcher was the cost of doing the entire research work. This involved printing and binding cost, transport cost to the four DTMBs under study in search of information, internet cost. Researchers will need to prepare financially in order to complete the research studies.

The researcher lacked adequate support and proficient guidance from experts to proof read, give opinion on conclusions and analyzed data. Few from the DTMBs under study were too busy to even respond to the researcher’s questions while others agreed to help on condition that it was for academic purposes so the researcher had to do a lot of convincing.

5.6 Suggestions for Further Research

Further research study can be carried out in future for a longer time period on the relationship between interest rate spread and financial performance of DTMBs in Kenya. This study used four years, a period of study though helpful, may not quite be adequate to make complete unquestionable conclusions. This can reveal more sufficient information on the new and growing venture of deposit taking by microfinance banks in Kenya.

Similar research studies on the relationship between interest rate spread and financial performance of DTMBs in Kenya can incorporate more financial, accounting, market and prevailing macro economic variables in the country as opposed to the current study which took into consideration only five determinants of financial performance as independent
variables. This can reveal more determinants of financial performance that should be of
great concern for improved profits by micro finance banks in Kenya.

Related study can be done on other firms and financial institutions and not just DTMBs,
investigating whether not only interest rate spread but also leverage, nonperforming
loans, liquidity risk or GDP per Capital affect the financial performance of these firms.

This can help improve the financial performance of the firms in Kenya
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Kothari (2004).*Research Methods: Quantitative and Qualitative Approaches*. Cengage Leaning


Mwangi G. (2012). High interest rates and the performance of small & medium size enterprises: A case study of Ntinda. Nakawa Division, Makerere University,


APPENDIX I: LIST OF LICENCED DTMBs IN KENYA AS AT DECEMBER 2013

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

Source: www.centralbank.go.ke
APPENDIX II: ANNUAL AVERAGE INFORMATION ON FAULU

<table>
<thead>
<tr>
<th>FAULU</th>
<th>2010</th>
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<th>2012</th>
<th>2013</th>
</tr>
</thead>
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<td>NPL</td>
<td>214,716,171.80</td>
<td>171,260,000.00</td>
<td>262,208,000.00</td>
<td>354,407,900.00</td>
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<td>Gross loans</td>
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<td>5,708,666,666</td>
<td>6,555,200,000</td>
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<tr>
<td>Liquid assets</td>
<td>988501800</td>
<td>896040000</td>
<td>1540425000</td>
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<tr>
<td>Deposit rate</td>
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<td>12.00</td>
<td>9.50</td>
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<tr>
<td>Borrowing rate</td>
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<td>18.00</td>
<td>18.00</td>
<td>18.00</td>
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<td>3860400000</td>
<td>4584300000</td>
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Source: Research Findings
## APPENDIX III: ANNUAL AVERAGE INFORMATION ON KWFT

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<th>2012</th>
<th>2013</th>
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<td>NPL</td>
<td></td>
<td>1,253,521,723.20</td>
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<td>772,392,960</td>
<td>780,667,899</td>
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<td>Gross loans</td>
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<td>12,277,392,000</td>
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<td>Liquid Assets</td>
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<td>765,908,000</td>
<td>667,506,790</td>
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<td>Deposit rate</td>
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<td>11.60</td>
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<td>12.00</td>
<td>12.00</td>
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<td>20</td>
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<td>18</td>
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**Source:** Research Findings
### APPENDIX IV: ANNUAL AVERAGE INFORMATION ON SMEP

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<tbody>
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<td>NPL</td>
<td>144,508,100.00</td>
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<td>Gross loans</td>
<td>1,181,881,528</td>
<td>1,445,081,000</td>
<td>1,454,139,000</td>
<td>1,696,439,232</td>
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<td>Liquid assets</td>
<td>367000000</td>
<td>454789500</td>
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<td>Borrowing rate</td>
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<td>20</td>
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<tr>
<td>Total assets</td>
<td>813900000</td>
<td>1014000000</td>
<td>1420000000</td>
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<td>Total liabilities</td>
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**Source:** Research Findings
## APPENDIX V: ANNUAL AVERAGE INFORMATION ON SUMAC

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<tbody>
<tr>
<td>NPL</td>
<td>966,718.65</td>
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<td>1,179,000.00</td>
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<td>Gross loans</td>
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<td>18,475,000.00</td>
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<td>Liquid assets</td>
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<td>Deposit rate</td>
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<td>8.60</td>
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<td>Borrowing rate</td>
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<tr>
<td>Total assets</td>
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<td>ROA</td>
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<td>Total liabilities</td>
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<td>24,230,000</td>
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*Source: Research Findings*
### APPENDIX VI: GDP PER CAPITA ANNUAL GROWTH IN % RATIO

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<thead>
<tr>
<th>GDP per Capita</th>
<th>2010</th>
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<tbody>
<tr>
<td>NPL</td>
<td>3.00</td>
<td>1.60</td>
<td>1.80</td>
<td>1.90</td>
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Source: data.worldbank.org