THE EFFECT OF LIQUIDITY ON PROFITABILITY OF MICROFINANCE BANKS IN KENYA

BY

VINCENT AZWERE BUSERETSE

D61/71736/2014

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI.

OCTOBER 2015

DECLARATION

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

Signed ………………………………. Date……………………………….

Vincent Azwere Buseretse

D61/71736/2014

This project has been submitted for examination with my approval as the university supervisor

Signed ………………………………. Date……………………………….

Dr. Kennedy Okiro

Department of Finance and Accounting,

School of Business, University of Nairobi.

DEDICATION

To my Mum and Dad for your selflessness and endless sacrifice.

To my siblings Maureen, Lillian and Linda, thank you so much guys for always being there.

To every teacher who made me the man I am today. Thank you for your guidance, patience and most importantly believing in me.

ACKNOWLEDGEMENTS

ABSTRACT

Many institutions worldwide lack a formal and suitable financial policy on the administration and management of liquidity. For financial institutions experiencing fast-paced growth like microfinance banks, the establishment of norms and policies to administer cash and liquidity is nonetheless crucial for the institutional viability as much in the short term as in the long term. This study sought to establish the effect of liquidity on profitability of microfinance banks in Kenya. The population of the study was comprised of all 9 microfinance banks in Kenya operating in the years 2011 to 2014. For a microfinance bank to qualify it needed to have been in operation during the whole period of the study and therefore institutions that were not in operation in the whole period of study were eliminated Secondary data was used in conducting the study. The study involved secondary data collection of the return on assets, to measure profitability and the ratio of loans to deposits to measure liquidity during a specific year. The study used secondary data obtained from Central Bank of Kenya annual supervision reports and Association of Microfinance institutions annual publications. The study used descriptive statistics and regression analysis to establish the relationship between the study variables. The response rate was 67% that is a total 6 out of 9 licensed microfinance banks in Kenya that satisfied the data collection criteria. The study found out that there is a weak negative relationship between liquidity and profitability of microfinance banks in Kenya. Liquidity was found to be one of the determinants of profitability of Microfinance Banks in Kenya. The study recommends that the finance managers of microfinance banks maintain optimal levels of liquidity in order to remain profitable.

TABLE OF CONTENTS

LIST OF TABLES

ABBREVIATIONS

AMFI   Association of Microfinance Institutions

ALM   Asset Liability Management

CBK   Central Bank of Kenya

CMA   Capital Markets Authority

DTM   Deposit Taking Microfinance Institution

GDP   Gross Domestic Product

MFI   Microfinance Institution

MFB   Microfinance Bank

NSE   Nairobi Securities Exchange

ROA   Return on Assets

ROE   Return on Equity

SBP   State Bank of Pakistan

SPSS   Statistical Package for the Social Sciences

CHAPTER ONE

INTRODUCTION

1.1   Background of the Study

Liquidity is a vital condition for any business. The failure to meet payment obligations on time can trigger bankruptcy and gives creditors the right to take possession of the organization's assets. Liquidity is even more crucial for financial institutions because they are particularly vulnerable to unexpected and immediate payment demands. This is the nature of the loan making and deposit taking business. To stay in business, the institution must be able to pay out legitimate withdrawals and credit requests instantly. Liquidity plays a significant role in the successful functioning of a business firm. A firm should ensure that it does not suffer from lack of or excess liquidity to meet its short-term obligations. Dilemma in liquidity management is to achieve desired trade-off between liquidity and profitability. Liquidity requirement of a firm depends on the peculiar nature of the firm and there is no specific rule on determining the optimal level of liquidity that a firm can maintain in order to ensure positive impact on its profitability (Raheman and Nasr, 2007).

Many microfinance institutions have set out on a development path towards becoming true financial intermediaries; offering not only loans, but a full range of banking services including savings, checking and other non-cash payment services. Dealing not only with the fluctuating demand for loans but also with erratic deposit variations makes the task of

liquidity management quite complex and requires systematic planning. Liquidity therefore a major concern of every microfinance institution. Liquidity is of major importance to both the internal and external analysts' because of its close relationship with day to day operations of a business. A weak liquidity position poses a threat to the solvency as well as profitability of a firm and makes it unsafe and unsound (Niresh 2012).

1.1.1 Liquidity

Liquidity is the ability of an institution to generate sufficient cash or its equivalent in a timely manner at a reasonable price to meet its commitments as they fall due. These commitments can be met either by drawing from a stock of cash holdings, by using current cash inflows, by borrowing cash or by converting liquid assets into cash. Liquidity is the probability that an asset can be converted into an expected amount of value within an expected amount of time. Cash and cash equivalents are the most liquid assets within the asset portion of a firm's balance sheet. The level of liquidity can be an indicator of the success or the failure of the firm (Mainelli, 2007).

Liquid assets are important to have in times of crisis or emergency because they can be readily converted into cash. Without liquidity, money can become tied up in systems that are difficult to cash out of and even more difficult to assess for actual cash value (Chaplin, Emblow and Michael, 2000). During times of emergency, large financial institutions shut down, making it difficult for people to access the cash they need to buy essentials like food, gasoline and other emergency supplies.

Maintaining an adequate degree of liquidity in the whole banking system is extremely important, because the registration of a liquidity crisis at a single bank can have negative repercussions over the whole banking system thanks to the risk of contagion through interbank settlements (Greunin & Bratanovic, 2004).

1.1.2 Profitability

Profit is the ultimate goal of most firms. Profitability is the ability to make profit from all business activities of an organization. It measures management efficiency in the use of organizational resources in adding value to the business. Profitability may be regarded as a relative term measurable in terms of profit and its relation with other elements that can directly influence the profit. Profitability is the relationship of income to some balance sheet measure which indicates the relative ability to earn income on assets. Irrespective of the fact that profitability is an important aspect of business, it may be faced with some weakness such as window dressing of the financial transactions and the use of different accounting principles. The issue of firm's profitability and performance efficiency been considered in a number of theoretical and empirical researches of different kinds. However, return on assets (ROA) and return on equity (ROE) have always been mentioned among the main indicators characterizing firm's profitability.

Return on Assets (ROA) is a common ratio used to measure profitability of a firm. It is a ratio of net income to the total assets (Khrawish, 2011). It measures the ability of the firm's management to generate income by utilizing company assets at their disposal. In other words, it shows how efficiently the resources of the company are used to generate

the income. It further indicates the efficiency of the management of a company in generating net income from all the resources of the institution (Khrawish, 2011). Wen (2010) states that a higher ROA shows that the company efficiently uses its resources.

Return on Equity (ROE) is a financial ratio that refers to how much profit a company earned compared to the total amount of shareholder equity invested or found on the balance sheet. Thus, the higher the ROE the better the company is in terms of profit generation. It is further explained by Khrawish (2011) that ROE is the ratio of net income after taxes to the total equity capital. It represents the rate of return earned on the funds invested in the bank by its stockholders. ROE reflects how effectively a firm's management is using shareholders' funds. Thus, it can be deduced from the above statement that the higher the ROE the more effective the management in utilizing the shareholders capital.

1.1.3 The Effect of Liquidity on Profitability

Eljelly (2004), suggested that practically, profitability and liquidity are effective indicators of the corporate health and performance of not only banks but all profit-oriented ventures. These performance indicators are very important to the shareholders and depositors who are major publics of a bank. As the shareholders are interested in the profitability level, the depositors are concerned with liquidity position which determines a bank's ability to respond to the withdrawal needs which are normally on demand or on a short notice as the case may be. Effective liquidity management helps ensure a bank's ability to meet cash flow obligations which are uncertain as they are affected by external

16

events and other agents' behaviour. According to Crowe (2009), a bank having good asset quality, strong earnings and sufficient capital may still fail if it is not maintaining adequate liquidity.

Said and Tumin (2011) consider liquidity management as an important internal determinant of bank profitability among other firm specific variables such as credit risk, capital adequacy, expenses management, business diversification bank size etc together with industry and macroeconomic variables. This is mainly because it can be a source of bank failure and therefore to avoid insolvency, holding a considerable value of liquid assets with easy transformation into cash becomes very prudent. Nonetheless, normally associated with keeping a higher amount of liquid assets is the lower rate of return as strongly supported by Molyneux & Thornton (1992) who establish a weak relationship between the liquidity level and bank profitability while Bourke (1989) finds a strong and positive relationship between them.

In analysing the behaviour of firms, economists often assume that firms seek to maximize profits (Atkinson and Miller, 1988) making profitability the best measure in the assessment of performance of any profit making oriented organization such as MFBs. In order to understand how well a bank is doing, one needs to start by analysing the bank's income statement, the description of the sources of income and the expenses that affect the bank's profitability (Mishkin and Eakins, 2009).

1.1.4 Microfinance Banks in Kenya

The Kenyan microfinance sector is one of the most vibrant in Sub-Saharan Africa. It includes a diversity of institutional forms and a fairly large branch network to serve the poor. However, microfinance activities have been regulated in Kenya only since 2006. The absence of regulation has allowed innovations to take place: institutions were set up easily without any barriers, such as minimum capital requirements. The microfinance industry has thrived in this environment (Nyaga, 2008).

The Microfinance Act, 2006 and the Microfinance (Deposit Taking Institutions) Regulations 2008 issued there under sets out the legal, regulatory and supervisory framework for the microfinance industry in Kenya. The Microfinance Act became operational with effect from 2nd May 2008. A number of existing micro-finance institutions applied for licenses to allow them to take deposits from members and the general public. The main objective of the Microfinance Act is to regulate the establishment, business and operations of microfinance institutions in Kenya through licensing and supervision. In a report by CBK (2014), there are currently nine MFBs operating in Kenya. Microfinance Banks offer credit services to customers to develop and grow their businesses with the objective of making profits.

The scope of adjustments required of former credit-only MFIs is wide: institutions have to move from a completely unregulated position to full prudential regulation. The DTM regulations by CBK (2008) have defined the following prudential ratios: (1) capital adequacy ratios including a core capital of 10% of total risk adjusted assets plus risk

adjusted off balance sheet items, core capital of 8% of total deposit liabilities, total capital of 12% of total risk adjusted assets plus risk adjusted off balance sheet items; (2) a minimum liquidity ratio of 20%; (3) a limit on insider loans which should not exceed 2% of core capital and should be contained on aggregate within a ceiling of 20% of core capital. The management and formulation of policies in liquidity becomes relevant because these firms should ensure that they maintain proper levels of liquidity in order to be able to meet their short term financial obligations that are essential for the normal running of their business to avoid facing tough sanctions by the regulator for non-compliance.

1.2   Research Problem

The banks and regulatory authorities are becoming increasingly vigilant to the liquidity positions held by financial institutions (Muranaga and Ohsawa, 2002). The deposits are the lifeline of the banking business. Most of the banking operations are run through deposits. If the depositors start withdrawing their deposits from the bank, it will create a liquidity trap for the bank forcing the bank to borrow funds from the central bank or the inter-bank market at higher costs (Plochan, 2007).

Most microfinance institutions in Kenya try to keep up sufficient funds to meet the unexpected demands from depositors but maintaining the cash is extremely expensive. This is achieved through maintaining a large cash reserve that may not only lose a number of opportunities in the market but also have to bear the high costs associated with cash. Proper liquidity management will enable a financial institution meet their financial

19

obligations and take advantage of profitable investments that are likely to yield higher returns in future. The optimal amount of liquidity is determined by the credit management practices implemented by a financial institution in order to mitigate exposure to credit risk (Myers and Majluf, 2004).

A number of studies have been done on the liquidity with various aspects of organizations operations. Graham and Bordeleau (2010) suggest that a nonlinear relationship exists, whereby profitability is improved for banks that hold some liquid assets, however, there is a point beyond which holding further liquid assets diminishes a banks' profitability, all else equal. At the same time, estimation results provided some evidence that the relationship between liquid assets and profitability depends on the bank's business model and the risk of funding market difficulties. Adopting a more traditional (i.e., deposit and loan-based) business model allows a bank to optimize profits with a lower level of liquid assets. Likewise, when the likelihood of funding market difficulties is low (proxied by economic growth), banks need to hold less liquid assets to optimize profits.

Olagunju et al., (2011) concluded that for the success of operations and survival, commercial banks should not compromise efficient and effective liquidity management and that both illiquidity and excess liquidity are "financial diseases" that can easily erode the profit base of a bank as they affect bank's attempt to attain high profitability level. Lartey et al (2013) found a weak positive relationship between the liquidity and the profitability of listed banks in Ghana.

Maaka (2013) found that profitability of commercial banks in Kenya is negatively affected due to increase in the liquidity gap and leverage. With a significant liquidity gap, the banks may have to borrow from the repo market even at a higher rate thereby pushing up the cost of banking. The level of customer deposit was also found to positively affect the bank's profitability. In many of the studies conducted, little has been done on the effect of liquidity on profitability of Microfinance Banks in Kenya. Much of the work done in this area of research has concentrated on commercial banks. Motivated by this gap in literature, the study seeks to determine the effect of liquidity on profitability of Microfinance Banks in Kenya.

1.3 Objective of the Study

The objective of the study is to determine the effect of liquidity on the profitability of Microfinance Banks in Kenya.

1.4 Value of the Study

This study would benefit a number of groups among them managers of MFBs who would use the study to gain an insight on the impact of proper liquidity management on the revenue growth of their institutions. Identification of liquidity levels that maximize profits enables managers revise and adopt relevant strategies. Financial consultants especially in the area of Microfinance will also find this report useful in their quest to provide appropriate, feasible and informed advice to both public and private sector organizations and other players.

For policymakers, the results of this study will be highly relevant. As the regulator devise standards establishing appropriate level of liquidity for MFBs, helping to ensure adequate stability for the overall financial system, they should bear in mind the trade-off between resilience to liquidity shocks and the cost of holding lower-yielding liquid assets. While holding liquid assets will make banks more resilient to liquidity shocks, thus reducing the negative externalities they might impose on other economic agents, holding too many may impose a significant cost in terms of reduced profitability.

Academicians will benefit from the information of the study as well as it will contribute to existing body of knowledge. The study will further provide the background information to research organizations and scholars and identify gaps in the current research for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1   Introduction

This chapter reviews existing literature in the area of study. It summarizes the information from other researchers who have carried out their research in the same field of study. It covers the theoretical framework, the empirical studies, determinants of profitability and the summary of the literature review.

2.2   Theoretical Framework

This study focuses on three theories namely Shiftability Theory, Anticipated Income Theory of Liquidity, and Liability Management Theory. These theories provide theoretical evidence on the relationship between liquidity and profitability of firms.

2.2.2   Shiftability Theory

This theory which originated from Moulton (1918) posits that a bank's liquidity is maintained if it holds assets that can be shifted or sold to other lenders or investors for cash without any material loss. This point of view contends that a bank's liquidity could be enhanced if it always has assets to sell and provided the Central Bank and the discount market stands ready to purchase the asset offered for discount. Thus this theory recognizes and contends that shiftability, marketability or transferability of a bank's assets is a basis for ensuring liquidity.

This theory further contends that highly marketable securities held by a bank is an excellent source of liquidity. With the shiftability theory, the important characteristics of a potential bank investment is dependent on the possibility of its being sold at little or no capital loss if the need arises to raise funds. Thus, the test of an acceptable bank asset becomes whether it can be 'shifted' to another owner at no financial loss (Elliot, 1984). In other words, liquidity is tantamount to shiftability (Luckett, 1984). The theory takes a broad view of banking and redirects the attention of bankers and regulators from loans to investments as a source of liquidity. Investments that meet the shiftability theory criterion are generally short-term in nature, for example treasury bills, call loans and government securities.

2.2.1 Anticipated Income Theory

The theory was developed in 1948 by Herbert V.Prochnov. It holds that a bank's liquidity can be managed through the proper phasing and structuring of the loan commitments made by a bank to the customers. Here the liquidity can be planned if the scheduled loan payments by a customer are based on the future of the borrower. Banks must be able to anticipate the income from the avenues where it is going to deploy its funds. They must invest in term-lending, working capital securities, but must also be secure about the deployment and repayment of funds. Bank must assess the potential of that person to repay back loans advanced.

According to Nzotta (1997) the theory emphasizes the earning potential and the credit worthiness of a borrower as the ultimate guarantee for ensuring adequate liquidity.

Nwankwo (1991) posits that the theory points to the movement towards self-liquidating commitments by banks. This theory has encouraged many commercial banks to adopt a ladder effects in investment portfolio.

2.2.3 Liability Management Theory

Initially pioneered by Anglo-Saxon financial institutions during the 1970s as interest rates became increasingly volatile. The liability management theory holds that banks can meet their liquidity requirements by bidding in the market for additional funds to meet loan demand and deposit withdrawal. There is no need to follow old liquidity norms like maintaining liquid assets or liquid investments. Diamond & Rajan (2001) postulated that liability management theory focuses in banks issuing liabilities to meet liquidity needs.

Liquidity and liability management are closely related. It is one of the essential tools for decision making that sets out to maximize stakeholder value. Asset liability management (ALM) is the management of the total balance sheet dynamics and it involves quantification of risks and conscious decision making with regard to asset liability structure in order to maximize the interest earnings within the framework of perceived risks. The primary objective of ALM is not to eliminate risk, but to manage it in such a way that the volatility of net interest income is minimized in the short run and economic value of the organization is protected in the long run.

The proponents of this theory argue that, through proper ALM liquidity, profitability and solvency of banks can ensure that they manage and reduce risks such as credit risk, liquidity risk, interest rate risk and currency risk. The liabilities of a bank have different

categories of varying cost, depending on the tenor and maturity pattern. Similarly, these comprise different categories with varying yields depending on the maturity and risks factors. The main focus of this theory is the matching of liabilities and assets (SBP, 2010).

2.3   Determinants of Profitability

Profitability of financial institutions specifically MFBs are affected by internal and external factors. The internal determinants include MFBs specific variables. Internal factors such as capital adequacy, asset quality, liquidity, operational efficiency are some of the major determinants of MFBs profitability. External factors are the macroeconomic determinants.

2.3.1   Capital Adequacy

The ratio of Equity to Total Assets is employed as a measure for bank's capital adequacy. This measures the percentage of the total assets that is financed with equity capital. Capital adequacy therefore describes the sufficiency of the amount of equity that can absorb shocks that banks may experience. It is expected that the higher the Equity to Asset ratio, the lower the need for external funding and therefore the higher the profitability of the bank. In addition, well-capitalised banks face a lower cost of going bankrupt which reduces their cost of funding (Kosmidou, 2008).

Banks with higher capital to asset ratio are considered relatively safer and tend to have a better margin of cushion, remaining profitable even during difficult economic times.

Conversely, banks with lower capital adequacy are considered riskier relative to highly capitalised banks.

2.3.2   Liquidity

Liquidity held by banks depicts their ability to fund increases in assets and meet obligations as they fall due. Traditionally, banks take deposits from customers and give out loans. For this reason, the ratio of bank's advances to customer deposits is used as proxy for liquidity. Liquidity is a prime concern for banks and the shortage of liquidity can trigger banks' failure. Banking regulators also view liquidity as a major concern. This is because banks without sufficient liquidity to meet demands of their depositors risk experiencing bank runs. Holding assets in a highly liquid form tends to reduce income as liquid assets are associated with lower rates of return. For instance, cash which is the most liquid of all assets is a non-earning asset. Molyneux *et al.,* (1992) and Guru *et al.* (1999) discovered that a negative correlation exists between the level of liquidity and profitability. However, Bourke (1989) found a significant positive relationship between liquidity and banks profitability.

2.3.3   Asset Quality

The ratio of provision for bad debts to advances is adopted as a proxy for asset quality. This measure reflects changes in the health of the bank loan portfolio and credit quality. Thus, it is also an indicator of credit risk in banks. According to Heffernan (1996), credit risk is the risk that an asset or a loan becomes irrecoverable in the case of outright default, or the risk of delay in the servicing of the loan. Credit risk can have rippling

effect thus leading to insolvency (Bessis, 2002). The higher the provision for bad debt to advances ratio, the higher the credit risk and the higher the accumulation of unpaid loan and interest. Additionally, present value of the asset declines, thereby undermining the solvency of a bank. According to Kosmidou (2008), poor asset quality can have adverse impact on bank's profitability by reducing interest income revenue.

2.3.4 Operational Efficiency

Operational efficiency is one of the key internal factors that determine the profitability of a firm. It is represented by different financial ratios like total asset growth, loan growth rate and earnings growth rate. It is one of the complex subject to capture with financial ratios. Moreover, operational efficiency in managing the operating expenses is another dimension for management quality (Halling and Hayden, 2006). The performance of management is often expressed qualitatively through subjective evaluation of management systems, organizational discipline, control systems, quality of staff, and others. Some financial ratios of the financial statements act as a proxy for operational efficiency. The capability of the management to deploy its resources efficiently, income maximization, reducing operating costs can be measured by financial ratios. One of this ratios used to measure management quality is operating profit to income ratio (Halling and Hayden, 2006).

2.3.5 Macroeconomic Variables

Macroeconomic factors are those factors that reflect the economic setting within which a bank operates. These factors are variables that reflect the performance of the economy as

a whole. For instance GDP of which is a measure of total value of economic activity within an economy over a period of time has significant positive effect on the profitability of the financial sector. The link is that, higher economic growth encourages banks to lend more and permits them to charge higher margins, as well as improving the quality of their assets. Neely and Wheelock (1997) use per capita income as measure of total economic performance and suggest that this variable exerts a strong positive effect on bank earnings. Rapid economic growth increases bank profitability in a large number of countries. Monetary policy outcomes have a direct effect on banks through the level of interest rates in the economy (Demirguc-Kunt and Huizinga, 2000).

2.4   Empirical Review

Bourke (1989) carried out a study to establish the relationship between liquid assets and bank profitability for 90 banks in Europe, North America and Australia from 1972 to 1981. The dependent variable, profitability, was regressed against a non-linear expression of relative liquid asset holdings, as well as a set of control variables. Liquid assets were generally included as a control variable in this study with very limited discussion around the estimated parameter. From the study a company with low liquidity and high profitability has to increase its borrowing leading to an increase of the financial costs. This would certainly lead to increasing interest rates, since the cheaper sources are quickly exhausted. Furthermore, having increased its debt, the company raises its credit risk, causing an increase in interest rates charged by their financiers. Under these conditions, the company has to get more time from suppliers, resulting in the acquisition of raw materials at higher prices. Also it will fail to achieve financial discounts offered by

the anticipation of payments and incur interest and penalties for late payments the liquidity problems would become even worse. The study emphasized that profitability and solvency are necessary condition for the healthy existence of the company and both are conditioned by the strategy adopted in the medium and long term.

Njihia (2005), in a study to identify determinants of commercial banks profitability in Kenya identified liquidity as one of the factors affecting profitability. The study involved 35 commercial banks operating in Kenya over a period of 5 years. The study employed descriptive statistics and multiple regression analysis to estimate the determinants of commercial banks profitability. The study concluded that in one of the years under study liquid assets significantly determined the profit of the commercial banks especially in the period after political instability after the elections. The ratio of deposits held, loans and advances held by the commercial banks influenced the profitability.

Kamoyo (2006) carried out an empirical study on the determinants of liquidity of commercial banks in Kenya. The study involved 30 commercial banks operating in Kenya in the period 1995 to 2004. The study applied descriptive statistics, investigative questionnaires and multiple regression analysis to establish the determinants of liquidity in commercial banks. The results of the study indicated an insignificant negative relationship between profitability and liquidity.

Loo (2007) conducted a survey of liquidity management approaches and their effect of profitability of commercial banks in Kenya. The survey was conducted on all commercial banks operating in Kenya between the periods 1997 to 2004 and used questionnaires to

top finance management staff to identify liquidity management approaches. The study found that profitability was one of the factors that affected a firm's liquidity management policy. From the study there was a positive correlation between liquidity and profit levels in the banks.

Bordeleau, Crawford and Graham (2009) reviewed the impact of liquidity on bank profitability for 55 United States banks and 10 Canadian banks between the period of 1997 and 2009. The study employed quantitative measures to assess the impact of liquidity on bank profitability. Results from the study suggested that a nonlinear relationship exists, whereby profitability is improved for banks that hold some liquid assets, however, there is a point beyond which holding further liquid assets diminishes banks' profitability, all else equal. Conceptually, this result is consistent with the idea that funding markets reward a bank, to some extent, for holding liquid assets, thereby reducing its liquidity.

Owolabi, Obiakor and Okwu (2011) conducted a study that investigated the relationship between liquidity and profitability in 15 selected quoted companies in Nigeria. The central objective was to examine the nature and extent of the relationship between liquidity and profitability in profit-driven quoted companies and also to determine whether any cause and effect relationship existed between the two performance measures. Liquidity measure considered was current assets- liabilities ratio while profitability measure was operating profit-turnover ratio. Investigative and quantitative analysis methods were used for the study.

Adebayo et al., (2011) in the study of effective liquidity management impact on profitability of commercial banks and how commercial banks can stimulate their liquidity and profitability situations presented by using quantitative methods of research, the data obtained from primary and secondary sources was statistically tested through Pearson correlation data analysis and the findings indicated that there is significant relationship between liquidity and profitability.

Maina (2011) researched on relationship between the liquidity and profitability of oil companies in Kenya and found that that liquidity management is not a significant contributor alone of the firm's profitability and there exist other variables that will influence ROA.

Neupane and Subedi (2013) did a study on the determinants of banks liquidity and their impact on financial performance of selected commercial banks in Nepal. Multivariate linear regression model was used to determine how each of the dependent variables relate to ROA. Among the statistically significant factors affecting banks liquidity capital adequacy, bank size and growth rate of gross domestic product on the basis price level had negative impact on financial performance whereas, liquidity premium paid by borrowers had positive impact on financial performance. Therefore, the impact of bank liquidity on financial performance was non-linear.

Maaka (2013) studied the relationship between liquidity risk and performance of commercial banks in Kenya. The study adopted correlation research design where data was retrieved from the balance sheets, income statements and notes of 33 Kenyan banks

during 2008-2012. Multiple regressions were applied to assess the impact of liquidity risk on banks' profitability. Data was collected from annual reports submitted to the NSE and CMA. The F- test was used to determine the significance of the regression while the coefficient of determination, R^2, was used to determine how much variation in Y is explained by X .The findings of the study were that profitability of the commercial bank in Kenya is negatively affected due to increase in the liquidity gap and leverage.

2.5   Summary of Literature Review

From the above literature it is evident that liquidity has a significant relationship with profitability. Review indicated that there was a trade-off between profitability and liquidity in the financial sector but the two variables are positively correlated and also reinforced each other. There was also observed varying results depending on the industry in which the research was conducted.

Holding of liquid assets in the financial sector was beneficial up to a certain extent beyond which an increase in holding liquid assets can eventually be outweighed by the opportunity cost of holding such comparatively low-yielding liquid assets on the balance sheet. Little focus has been laid on the effect of liquidity on profitability of microfinance banks in Kenya. This study therefore seeks to establish the effect of liquidity on the profitability of microfinance banks in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1   Introduction

This chapter outlines the methodology that was used in carrying out the study. Aspects covered include research design, population & sampling design, data collection methods, data analysis methods and testing of data validity & reliability.

3.2   Research Design

A descriptive research design was adopted in the study to explain the relationship between liquidity and profitability of Microfinance Banks in Kenya. Cooper and Schindler (2011) defines descriptive studies as those studies whose objective is to explain a phenomenon, to estimate a proportion of a population with similar characteristics and to discover associations among different variables.

3.3   Population and Sampling

Populations involve all elements, individuals, or units that meet the selection criteria for a group to be studied, and from which a representative sample is taken for detailed examination (Mugenda and Mugenda, 2003). The target population for this study comprised all Microfinance Banks in Kenya. As at 31st December 2014 there were a total of nine (9) MFBs in Kenya. (Appendix I). The intention was to include all the 9 microfinance banks in the study due to the manageable numbers but only 6 microfinance

banks were finally included in the analysis. The study only considered microfinance banks which had full financial statements from 2011 to 2014. The list of microfinance banks was obtained from the CBK website.

3.4 Data Collection

The study will involve secondary data collection. The study variables will be deduced from the audited financial statements of the Microfinance Banks under consideration. This will be obtained from the Central Bank of Kenya Website and CBK's Annual Supervision reports. The study will also use secondary data from the Association of Microfinance Institutions in Kenya (AMFIs) annual reports. In order to determine the relationship that exists between liquidity and profitability of Microfinance Banks in Kenya, a period of four years (2011-2014) was considered.

3.5 Data Analysis

Quantitative data collected was analysed by the use of descriptive statistics using SPSS.

3.5.1 Analytical Model

The study adopted a multiple regression model to analyze the results of this study by determining the effect of liquidity on profitability of Microfinance Banks in Kenya. The study used the model below to achieve the objective of this study.

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

Where:

Y   = Profitability which is the dependent variable will be measured by the Return on

Assets. ROA is the ratio of Net income after taxes to the Total assets

X₁   = Liquidity will be measured using the ratio of Gross loans and advances to

Customers' deposits

X₂   = Asset Quality will be measured by the ratio of Provision for bad debts to Gross

loans and advances

X₃   = Operational Efficiency will be measured by the ratio of Operating profit to Total

income.

X₄   = Capital Adequacy will measured by the ratio of Total shareholders' equity to

Total assets.

ε   = Error term within a confidence interval of 5% will be used.

βi   = Coefficient of the independent variable i which measures the responsiveness of **Y**

to changes in i.

X₂, X₃, X₄ are the control variables

3.5.2   Test of Significance

The F- test was used to determine the significance of the regression. The coefficient of

determination (R^2) is defined as the sum of squares due to the regression divided by the

sum of total squares. Usually, R^2 is interpreted as representing the percentage of variation in the dependent variable explained by variation in the independent variables. This is defined in terms of variation about the mean of Y (Profitability) so that if a model is rearranged and the dependent variable changes, R^2 changes. It is thus a goodness of fit statistic given by ratio of the explained sum of squares. Correlation analysis was carried out to find the direction of the relationship between ROA and the independent variables.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1   Introduction

This chapter presents the results and findings of the study based on the research objectives. The results are presented in the form of summary tables. Regression and Correlation analysis are used to analyze the data to answer the research objective.

4.2   Descriptive Statistics

Table 4.1 below summarizes the descriptive statistics of the variables included in the regression models as presented. It represents the variables of six (6) MFBs operating in the Kenya whose financial results were available for the years 2011-2014.

Table 4.1: Descriptive Statistics

	N	Mean	Minimum	Maximum	Std. Deviation
ROA	24	-1.07	-13.56	2.36	3.87811
Capital adequacy	24	31.1175	6.42	80.65	24.20228
Operational efficiency	24	-6.2345	-111.11	28.43	41.71266
Liquidity	24	184.4461	92.53	516.37	103.78288
Asset quality	24	2.2839	0	13.16	2.92252
Valid N (listwise)	24				

ROA had a mean value of -1.07 and a standard deviation of 3.87811. The highest performance was 2.36 while the least performance was -13.56 for the four year period. Capital Adequacy had a mean of 31.1175 and a standard deviation of 24.20228;

Operational efficiency had a mean of -6.2345 and a standard deviation of 41.71266; Liquidity had a mean of 184.4461 and a standard deviation of 103.78288 while Asset Quality had a mean of 2.2839 and a standard deviation of 2.92252.

4.3 Correlation Analysis

To evaluate the association between the variables, the data collected was analyzed to generate the Pearson correlation coefficient which gives tests the presence of association between the variables. The significance level was set at 5% with a 2-tailed test. The results are therefore as presented in table 4.2 below.

Table 4.2: Correlation Table

	ROA	Capital adequacy	Operational efficiency	Liquidity	Asset quality
ROA	1				
Capital adequacy	-0.748*	1			
Operational efficiency	0.884*	-0.468	1		
Liquidity	-0.456*	0.263	-0.215	1	
Asset quality	-0.512*	0.389	-0.269	0.141	1

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

From Table 4.2, all the factors except operational efficiency have a negative correlation with the dependent variable. This indicates that, the liquidity of the MFBs has a negative association with their profitability.

The strength of the association is measured based on the Pearson's correlation scale where a value in the interval 0.0-0.3 is an indication of no correlation, 0.3-0.5 is a weak correlation, 0.5-0.7 is a fair correlation and a correlation value in the interval 0.7 and 1 is

an indication of a strong correlation. A correlation value of 1 indicates a presence of a perfect association between the variables. The magnitude of the association (+ or -) indicates the nature of association (positive or negative association)

Based on these intervals, the table illustrates that, liquidity of the MFBs and their profitability has a correlation coefficient of -0.456. This is an indication of a weak and negative association between liquidity and profitability. Also asset quality and profitability of MFBs has a weak and negative correlation. This is according to the obtained coefficient of -0.512 indicating that the association between the two variables is weak. Capital adequacy is negatively correlated with profitability. The correlation is strong. This is with regard to the correlation coefficient obtained from the analysis i.e. -0.748. Operational efficiency has a strong positive relationship according to the correlation table. The correlation coefficient of 0.884 obtained represents a strong positive correlation.

Testing the significance of the association at 5% level with a 2-tailed test, the results show that all the independent variables were found to have a statistically significant association with the dependent variable and statistically non-significant association with each other as shown in Table 4.2.

4.4   Regression Analysis

The relationship between liquidity and the profitability of MFBs was evaluated through a regression analysis. The results presents the regression model summary in table 4.3 which gives the coefficient of determination showing the extent to which the predictor variables

influences the dependent variable, the analysis of variance in table 4.4 which determines the reliability of the model developed in explaining the relationship and the regression coefficients in table 4.5 which gives the coefficient explaining the extent at which the independent variables influence the dependent variable.

Table 4.3: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.940[a]	.884	.859	1.45569

a. Predictors: (Constant), Asset quality, Liquidity, Operational efficiency, Capital adequacy

The coefficient of determination (R square value) from Table 4.4 is 0.884. This indicates that, the variability in the profitability of MFBs is 88.4% explained by the liquidity, asset quality, operational efficiency and capital adequacy. This being the case therefore, the variability due to other factors which were not studied in the current research is 11.6%. From the table also, the adjusted R square is 0.859 which measures the reliability of the results. Thus, the study results are 85.9 % reliable and therefore the model results are significant and reliable in explaining the influence of the predictor variables to the dependent variable.

Table 4.4: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	305.653	4	76.413	36.060	.000[b]
	Residual	40.262	19	2.119		
	Total	345.914	23			

a. Dependent Variable: ROA

b. Predictors: (Constant), Asset quality, Liquidity, Operational efficiency, Capital adequacy

The F-ratio in Table 4.4 tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically significantly predict the dependent variable, $F(4, 19) = 36.060$, $p < 0.05$ (i.e., the regression model is a good fit of the data).

Table 4.5: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.717	0.721		2.382	0.028
Capital adequacy	-0.034	0.019	-0.102	-1.791	0.011
Operational efficiency	0.067	0.01	0.721	6.748	0.000
Liquidity	-0.007	0.003	-0.179	-2.16	0.044
Asset quality	-0.274	0.119	-0.206	-2.308	0.032

The table gives the regression coefficients which are used to answer the regression model proposed

$$\mathbf{Y} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 X_1} + \boldsymbol{\beta_2 X_2} + \boldsymbol{\beta_3 X_3} + \boldsymbol{\beta_4 X_4} + \boldsymbol{\varepsilon}$$

Where:

Y = Profitability

X₁   = Liquidity

X₂   = Asset Quality

X₃   = Operational Efficiency

X₄   = Capital Adequacy

ε   = Error term within a confidence interval of 5% will be used.

βi   = Coefficient of the independent variable i which measures the responsiveness of **Y**

       to changes in i.

From the data in Table 4.5, the model therefore becomes:

$$1.717 - 0.007\ X_1 - 0.274\ X_2 + 0.067\ X_3 - 0.034\ X_4$$

From the model, it is clear that, all variables except for operational efficiency are negatively related to the dependent variable as their coefficients are negative. Operational efficiency has a positive coefficient which indicate a positive relationship with profitability. The model also shows that holding the predictor variables constant at zero (0), the profitability (ROA) would be 1.717. Further, the results show that, liquidity has a negative relationship with profitability of MFBs where a unit increase in liquidity would result to 0.007 times decrease in profitability of the MFBs.

From the model, it is also clear that, a unit increase in the asset quality would result to 0.274 times decrease in the profitability, a unit increase in the operational efficiency would lead to 0.067 times increase in profitability and a unit change in capital adequacy would result to 0.034 times decrease in profitability of MFBs. The significance of the

coefficients at 5% level with a 2-tailed test was found to be significant as indicated by their p-values which are all less than 0.05.

4.5   Discussion of Research Findings

The study findings illustrated that there is a weak negative association between liquidity of MFBs and their profitability. This was indicated by the correlation coefficient of – 0.456 which shows a weak negative correlation between the variables. This indicates that, there is an inverse relationship between liquidity and profitability of MFBs. The regression test results indicated that the liquidity of MFBs and their profitability have a negative relationship where an increase in liquidity would result to 0.007 times decrease in profitability of MFBs. This illustrates that; efforts of creating a unit change in liquidity would see the MFBs experience reduced profitability.

The findings as well indicated that asset quality and profitability of MFBs are negatively correlated. This had a correlation coefficient of 0.512 indicating the association between the two variables is weak. The regression coefficient indicated that, a unit increase in the asset quality parameter would lead to reduced profitability of MFBs by 0.274 times.

The study results revealed that, operational efficiency and profitability of MFBs are positively and strongly correlated. This indicates that, increasing efficiency in MFBs operations would result to increased profitability of MFBs. The regression results support this as the findings shows that a unit change in efficiency generates 0.067 times increase in profitability of MFBs.

The study further revealed that there is a strong and negative association between capital adequacy and profitability of MFBs. This indicates that, increasing capital adequacy in MFBs would result to reduced profitability of MFBs. As per the regression coefficient obtained from the analysis, a unit change in capital adequacy is expected to reduce profitability of MFBs by 0.034 times.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1   Introduction

This chapter presents a summary of the key findings of the study as well as the conclusions and recommendations made based on the findings. The chapter also presents the areas that were pointed out during study for further research.

5.2   Summary

The study was undertaken with the aim of evaluating the effect of liquidity on the profitability of Microfinance Banks in Kenya. Secondary data was used in the analysis to study the variables. 4 year data was collected from the publications of the Association of Microfinance Institutions in Kenya and Central Bank of Kenya Annual Supervision Reports. To address the aim of the study, inferential statistics were conducted where correlation analysis was used to study the association between the variables and regression analysis undertaken to study the relationship between the independent variables and the dependent variable. A multiple regression analysis was conducted to develop the regression model relating the study variables. The significance of the results was tested at 5% significance level in a 2-tailed test.

From the analysis, the study found out that all the studied factors except for operational efficiency which has a positive correlation have a negative correlation with profitability

of MFBs. Therefore liquidity has a positive association with the profitability of MFBs. Liquidity of MFBs and their profitability has a correlation coefficient of -0.456 which is a weak negative relationship.

The research findings show that, asset quality and profitability of MFBs has a weak negative correlation of coefficient of -0.512. Capital adequacy with a correlation coefficient of -0.748 has a strong negative correlation. Operational efficiency of MFBs was the only factor which had a positive correlation with their profitability. It has a correlation coefficient of 0.884 indicating a strong relationship.

The regression analysis results indicated that the variability in the profitability of MFBs is 88.4% explained by the liquidity, asset quality, operational efficiency and capital adequacy. The study results were found to be 85.9% reliable and therefore the model was a good fit in explaining the effect of the liquidity on profitability of MFBs. The model developed indicated that, there is weak negative relationship between liquidity and profitability of MFBs The study findings also illustrated that holding the predictor variables constant at zero, the profitability of the MFBs would be 1.717. Liquidity has a negative relationship with profitability of the MFBs which the results revealed that, increasing the liquidity by a unit would result to 0.007 times decrease in profitability of the MFBs.

Further, findings revealed that, a unit increase in the asset quality would result to 0.274 times reduction in the profitability. Also, a unit increase in the operational efficiency

would lead to 0.067 times increase in the profitability. Research findings also show that a unit change in capital adequacy of MFBs would reduce profitability by 0.034 times.

All these relationships were found to be statistically significant hence fit for answering the regression model in explaining the relationship between liquidity of MFBs and their profitability.

5.3   Conclusion

The data analysis results in chapter four indicate that liquidity is one of the determinants of profitability of microfinance banks. The relationship between ROA and liquidity is negative implying that an increase in liquidity will lead to a decrease in profitability of the microfinance bank. The proportion of profitability that is determined by the liquidity of the microfinance bank is low as established from the results of the study.

The results of this study conclude that profitability and liquidity have a negative relationship and that liquidity is one of the determinants of profitability of microfinance banks. However from the results of the study liquidity is not a substantial determinant of microfinance banks' profitability but one of the determinants of it. Capital adequacy, operational efficiency and asset quality were also found to affect profitability of microfinance banks.

5.4   Recommendations

The study results conclude that there is a negative relationship between liquidity of microfinance banks in Kenya and their profitability. As a result the study recommends

that microfinance banks should put strategies in place for monitoring, reporting and reviewing liquidity levels to ensure the long and short term stability of the entire systems.

Since the survival of microfinance banks depend on liquidity management and profitability, they should not solely concentrate on the profit maximization goal but should also adopt measures that will ensure proper liquidity management. The measures will help to minimize or avoid cases of excessive and deficient liquidity.

Instead of keeping excessive liquidity as a provision for unexpected withdrawal demands of the customers, the microfinance banks should find it reasonable to adopt other measures of meeting such requirements, which can include maintaining a stock of liquid assets that is appropriate to the institution's cash flow profile and that can be readily converted into cash without incurring undue capital losses. In addition, the surplus funds of the microfinance banks should be seasonally invested in short-term instruments of the money market.

Microfinance banks should schedule the maturity periods of their secondary reserve assets to correspond to the period in which the funds will be needed. The microfinance banks should create a customer forum where their customers will be educated on varieties of deposits and the operational requirements of each of them. A situation where the customers operate any of the deposits as required, the microfinance banks will be able to estimate the liquidity level to be maintained.

5.5 Limitations of the Study

The study focused on microfinance banks that operate in Kenya. The study may therefore be limited by the population of the study that focused on Kenya only. The interpretations should therefore be limited to microfinance banks in Kenya and should not be generalized to other countries as they have different operating environment from that of Kenya. Conditions prevailing in different countries e.g. recession may require different decisions on liquidity.

The information provided in the financial statements of microfinance banks was not in a standard format and additional time was required to put the information in a standardized presentable format for consistency of the information and data analysis.

The study focused on a specific period of four years. The operating environment during this period may differ from other periods such us during periods of war, economic boom and other shocks to the economy. The results may therefore be different should there be such shocks to the economy and in this case the decisions taken with regard to liquidity management for microfinance banks may be different.

5.6 Suggestions for Further Research

Further studies in future can be done with emphasis on periods of economic shocks. The focus in this case should be how liquidity impacts financial performance of microfinance banks when it is not business as usual. For example when the exchange rate depreciates

rapidly, when interest rates increases or decreases at a steep rate or when there is economic recession or boom.

Further studies can also be done on the impact of liquidity risk management practices adopted by microfinance institutions to improve their profitability. It will be interesting to compare the various liquidity risk management models used in the microfinance sector in order to maintain optimal liquidity levels for the institution. These studies should also consider employing primary sources of data to collect data for their studies. This would be time saving and would also facilitate detailed information collected from original sources which would as well give reliable and accurate results that explain the details of the subject.

Further research should also be undertaken which would include firms in various sectors of the economy and compare the different experiences created to these institutions due to the influence of the studied factors. This would aid in making general recommendations that would be employed by relevant authorities to ensure efficiency in financial performance of firms.

REFERENCES

Adebayo, M., Adeyanju, D., & Olabode, S. (2011). Liquidity Management and Commercial Banks' Profitability in Nigeria. *Research Journal of Finance and Accounting,* 2, 7-8.

Atkinson, B. & Miller, R. (1998). *Business Economics:* Pearson Education Ltd, Edinburg.

Bessis, J. (2003) Risk Management in Banking, *John Wiley & Sons, Chichester, New York* 2nd edition, 272-278.

Bordeleau, E., Crawford, A. & Graham, C. (2009). Regulatory Constraints on Bank Leverage: Issues and Lessons from the Canadian Experience, *Bank of Canada Discussion Paper* 2009-15.

Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America and Australia. *Journal of Banking and Finance,* 13, 65-79.

Central Bank of Kenya (2008). *Microfinance (Deposit Taking Institutions) Regulations* www.centralbank.go.ke.

Central Bank of Kenya (2014). *Banking Sector Annual Supervision Report* www.centralbank.go.ke.

Chaplin, G., Emblow, A. & Michael, I. (2000). *Banking system liquidity: developments and issues*, *Financial Stability Review*, 6, 93-112.

Cooper, C. R., & Schindler, P. S. (2008). *Business research methods* (10th ed.). Boston McGraw-Hill.

Crowe, K. (2009). Liquidity risk management more important than ever, *Harland Financial Solutions*, 3(1), 1-5.

Demirguc-Kunt, Asli, & Harry Huizinga, (2000). Determinants of Commercial Bank Interest Margins and Profitability: Some international evidence, *The World Bank Economic Review*, Washington DC. 13(2), 379 - 408.

Diamond, W. & Rajan, G. (2001). Liquidity risk, liquidity creation, and financial fragility: a theory of banking, *The Journal of Political Economy*, 109(2), 287-327.

Eljelly, A. (2004). Liquidity-Profitability Tradeoff: An Empirical Investigation in an Emerging Market. *International Journal of Commerce and Management,* 14 (2), 48-61.

Elliot, J.W., 1984, *Money, Banking and Financial Markets,* West Publishing Company, New York.

Graham, C. & Bordeleau, E. (2010). The impact of liquidity on bank profitability. *Bank of Canada Working Paper, (38),* 6-22.

Greuning, H. & Bratanovic. S, (2004). *Analysis and risk management banking*, Bucharest, Irecson Publishing House.

Guru, B.K., Staunton, J., & Balashanmugam, B. (1999). Determinants of commercial bank profitability in Malaysia. *Paper presented at the Proceedings of the 12th Annual Australian Finance and Banking Conference*, Sydney, Australia. December 16–17.

Halling, M. & Hayden, E. (2006). Bank failure prediction: a two-step survival time approach, C.R.E.D.I.T. *Conference, Austrian National Bank, Vienna*, 31, 101-109.

Heffernan, S. (1996). *Modern Banking in Theory and Practice*, John Wiley and Sons, New York.

Kamoyo, E. M. (2006). *Determinants of Liquidity of Commercial Banks in Kenya.* Unpublished MBA research project, University of Nairobi.

Khrawish, H.A. (2011). Determinants of Commercial Banks Performance: Evidence from Jordan. *International Research Journal of Finance and Economics*, 5(5), 19-45.

Kosmidou, K. (2008). "The determinants of banks' profits in Greece during the period of EU financial integration", *Managerial Finance,* 34(3), 146-159.

Lartey, V.C., Antwi, S. & Boadi, E.K. (2013). The Relationship between Liquidity and Profitability of Listed Banks in Ghana. *International Journal of Business and Social Science,* 4(3), 48-56.

Loo, M. (2007). Survey of liquidity management approaches and their effect of profitability of Commercial Banks in Kenya, *Unpublished MBA Project*, University of Nairobi.

Luckett, D.G., 1984, *Money and Banking,* McGraw Hill, New York.

Maaka, A. (2013). The relationship between liquidity risk and financial Performance of commercial banks in Kenya, *Unpublished MBA Project*, University of Nairobi.

Maina, H. (2011). Relationship between the liquidity and profitability of oil companies in Kenya, *Unpublished MBA Project,* University of Nairobi.

Mishkin, F.S., & Eakins, S.G. (2009). *Financial Markets and Institutions*, Pearson Education, Boston.

Molyneux, P. & Thorton.J. (1992). The determinants of European bank profitability. *Journal of Banking and Finance,* 16 (6), 1173-1178.

Moulton, H.G. (1918). Commercial Banking and Capital Formation: I. *Journal of Political Economy*, 26 (5), 484-508.

Mugenda, O. & Mugenda, A. G. (2003). *Research methods: qualitative and quantitative approaches*. Acts Press, Nairobi, Kenya.

Muranaga, J. & Ohsawa, M. (2002). "Measurement of liquidity risk in the context of market risk calculation", *Working paper, Institute for Monetary and Economic Studies, Bank of Japan, Tokyo.*

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(1), 187- 221.

Neely, M.C., & Wheelock, D.C. (1997). Why does bank performance vary across states? Review, Federal Reserve Bank of St. Louis 2, 27-38.

Neupane, B. & Subedi, S. (2013). Determinants of Banks Liquidity and their Impact on Financial performance in Nepalese Commercial Banks. *Master Thesis*, Pokhara University.

Niresh, J. A. (2012). Trade-off between liquidity and profitability: A Study of selected Manufacturing Firms in Sri Lanka. University of Jaffna

Njihia, J. K. (2005). Determinants of Banks profitability: the case of Commercial Banks in Kenya. *Unpublished MBA research project*, University of Nairobi

Nwankwo, G. O. (1991). *Bank management principles and practices.* Lagos: Malthouse press ltd.

Nyaga, T. (2008). The nature of competition within micro finance industry in Kenya. *Unpublished MBA research project*, University of Nairobi

Nzotta, S. M. (1997). *Money, Bankung and Finance: Theory and Practice*.

Olagunju, A., Adeyanju, O.D. & Olabode, O.S. (2011). Liquidity Management and Commercial Banks" Profitability in Nigeria. *Research Journal of Finance and Accounting*, 2(7), 2222-2847.

Owolabi, S. A., Obiakor, R. T. & Okwu, A. T. (2011). Investigating Liquidity-Profitability Relationship in Business Organizations: A Study of Selected Quoted Companies in Nigeria, *British Journal of Economics, Finance and Management Sciences*,1, 12-22.

Plochan, P. (2007). Risk management in banking, *Master thesis*, University of Economics, Bratislava.

Raheman, A. & Nasr, M. (2007).Working Capital Management and Profitability: Case of Pakistani Firms, *International Review of Business Research Papers*, 3(1), 279-300.

Said, R.S. & Tumin, M.A. (2011). Performance of financial ratios of commercial banks in Malysia and China *International Review of Business Research Papers*, 7(2), 157-169.

SBP (2010). *The State of Pakistan's Economy*, Central Board of State Bank of Pakistan. State Bank of Pakistan, Islamabad.

Wen, Y.(2010). Liquidity demand and welfare in a heterogeneous-agent economy. *Federal Reserve Bank of St. Louis Working Paper 2010-009A*

APPENDICES

APPENDIX I: LIST OF MICROFINANCE BANKS IN KENYA

1. Century Microfinance Bank Limited

2. Faulu Microfinance Bank Limited

3. Kenya Women Microfinance Bank Limited

4. Rafiki Microfinance Bank Limited

5. Remu Microfinance Bank Limited

6. SMEP Microfinance Bank Limited

7. Sumac Microfinance Bank Limited

8. U & I Microfinance Bank Limited

9. UWEZO Microfinance Bank Limited

Source: (CBK, 2014)

APPENDIX II: MICROFINANCE BANKS' DATA SUMMARY FROM 2011 - 2014

									Amounts in Kshs (Millions)
MFB	Year	Net Profit after Taxes -a	Total Assets -b	Total Shareholders' Equity -c	Operating Profit -d	Total Operating Income -e	Advances to Customers-f	Customer Deposits -g	Provision for Bad Debts - h
FAULU	2011	2	5141	556	215	1257	3238	1955	29
KWFT	2011	302	17036	1925	356	4082	11200	7077	224
SMEP	2011	26	1998	252	112	493	1445	792	53
REMU	2011	(13)	124	100	(13)	14	41	14	2
RAFIKI	2011	(15)	441	135	(22)	20	104	98	0
UWEZO	2011	(8)	59	47	(10)	9	32	8	2
FAULU	2012	58	7638	614	362	1679	4949	2949	38
KWFT	2012	173	20384	2303	1263	4993	12873	2493	38
SMEP	2012	54	2290	620	170	598	1454	1014	32
REMU	2012	(7)	181	102	(12)	26	86	61	2
RAFIKI	2012	5	1838	140	8	202	508	468	12
UWEZO	2012	(2)	78	55	(2)	24	38	18	5
FAULU	2013	165	12434	798	455	2354	8725	7198	70
KWFT	2013	391	21752	2897	1312	5813	14530	5456	106
SMEP	2013	6	2490	652	92	618	1799	1253	36
REMU	2013	(6)	337	132	(8)	46	161	174	1
RAFIKI	2013	9	3679	466	97	555	1866	1412	24
UWEZO	2013	(2)	107	67	(3)	24	73	24	0
KWFT	2014	474	26985	4606	1140	6433	18854	17119	231
FAULU	2014	299	20320	3787	748	3882	14488	12646	132
RAFIKI	2014	21	5975	1013	112	970	3418	2873	38
SMEP	2014	(97)	2378	555	(76)	654	1635	1325	102
REMU	2014	3	395	208	3	69	184	166	2
UWEZO	2014	1	160	82	2	37	125	64	0
Source: CBK Annual supervision reports									

APPENDIX III: MICROFINANCE BANKS' RATIOS

MFB	Year	Return on Assets =a/b	Capital Adequacy=c/b	Operating Efficiency =d/e	Liquidity=f/g	Asset Quality =h/f
FAULU	2011	0.04%	10.82%	17.10%	165.63%	0.90%
KWFT	2011	1.77%	11.30%	8.72%	158.26%	2.00%
SMEP	2011	1.30%	12.61%	22.72%	182.45%	3.67%
REMU	2011	-10.48%	80.65%	-92.86%	292.86%	4.88%
RAFIKI	2011	-3.40%	30.61%	-110.00%	106.12%	0.00%
UWEZO	2011	-13.56%	79.66%	-111.11%	400.00%	6.25%
FAULU	2012	0.76%	8.04%	21.56%	167.82%	0.77%
KWFT	2012	0.85%	11.30%	25.30%	516.37%	0.30%
SMEP	2012	2.36%	27.07%	28.43%	143.39%	2.20%
REMU	2012	-3.87%	56.35%	-46.15%	140.98%	2.33%
RAFIKI	2012	0.27%	7.62%	3.96%	108.55%	2.36%
UWEZO	2012	-2.56%	70.51%	-8.33%	211.11%	13.16%
FAULU	2013	1.33%	6.42%	19.33%	121.21%	0.80%
KWFT	2013	1.80%	13.32%	22.57%	266.31%	0.73%
SMEP	2013	0.24%	26.18%	14.89%	143.58%	2.00%
REMU	2013	-1.78%	39.17%	-17.39%	92.53%	0.62%
RAFIKI	2013	0.24%	12.67%	17.48%	132.15%	1.29%
UWEZO	2013	-1.87%	62.62%	-12.50%	304.17%	0.00%
KWFT	2014	1.76%	17.07%	17.72%	110.13%	1.23%
FAULU	2014	1.47%	18.64%	19.27%	114.57%	0.91%
RAFIKI	2014	0.35%	16.95%	11.55%	118.97%	1.11%
SMEP	2014	-4.08%	23.34%	-11.62%	123.40%	6.24%
REMU	2014	0.76%	52.66%	4.35%	110.84%	1.09%
UWEZO	2014	0.63%	51.25%	5.41%	195.31%	0.00%
Source: CBK Annual supervision reports						