THE EFFECT OF CREDIT RISK ON CORPORATE LIQUIDITY OF DEPOSIT TAKING MICROFINANCE INSTITUTIONS IN KENYA

BY

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DECLARATION

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

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

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DEDICATION

This project has been dedicated to my Dad, Johnson, Mum, Teresa and Sister, Monica for their continued support and encouragement.

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ABBREVIATIONS

CBK	-	Central Bank of Kenya
DTM	-	Deposit Taking Microfinance
KWFT	-	Kenya Women Finance Trust
ROA	-	Return on Assets
ROE	-	Return on Equity
ROI	-	Return on Investment
SACCOS	-	Savings and Credit Cooperative Societies
SMEP	-	Small and Micro Enterprise Programme
VaR	-	Value at Risk

ABSTRACT

Liquidity risk is mostly triggered by consequences of other financial risks such as credit risk, interest rate risk and foreign exchange risk. It should therefore not be considered in isolation because financial risks are not mutually exclusive. For instance, a bad loan portfolio or a change in interest rates may affect an institution's liquidity position. The objective of this study was therefore to find out the effect of credit risk on corporate liquidity of Deposit Taking Microfinance Institutions in Kenya. The study involved the collection of secondary data from Central Bank of Kenya and The Association of Microfinance Institutions in Kenya of 5 DTMs that were chosen to represent the 9 DTMs in Kenya. Data was analyzed for the period between 2011 and 2013 using SPSS through correlation analysis, regression analysis, descriptive analysis and variance analysis. Findings were represented in tables. The findings indicated that credit risk and debt to equity ratio had a positive correlation with corporate liquidity for DTMs. On the other hand, portfolio to asset ratio, operating expense ratio and PaR had a negative correlation with corporate liquidity. The researcher concluded that deterioration in the quality of the credit portfolio, very high operational expenses and PaR may have a long term effect on the earnings or capital of a firm and thus adversely affecting the liquidity position. These factors should be consistently monitored and managed to ensure adequate liquidity levels that signify the viability and continuity of a financial institution. The risk mitigating processes put in place should reflect the nature, size and complexity of a firm's operations. Similar studies can be carried out targeting commercial banks in Kenya to get their perspective on the same.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Financial institutions in developing countries are developing and enhancing methods to measure and manage the main risk inherent in their business operations: the credit risk of their lending portfolios. The specific direction that these efforts have taken is to draw on advances in finance, engineering and statistics to create computer simulations and analytical methods. These techniques provide a more accurate measurement of risk, which can then be used in bank management, for example, to determine more accurately the pricing of financial instruments and effective credit limits, or even appropriate allocations of capital (Harrison, 1996).

Credit risk assessment models often consider the impact of changes to borrower and loan-related variables such as the probability of default, loss given default, exposure amounts, collateral values, rating migration probabilities and internal borrower ratings. As credit risk assessment models involve extensive judgment, effective model validation procedures are crucial (Hunt, 2005).Financial institutions should periodically employ stress testing and back testing in evaluating the quality of their credit risk assessment models and establish internal tolerance limits for differences between expected and actual outcomes and processes for updating limits as conditions warrant (Djankov, McLiesh and Shleifer, 2007).

Credit control is described to maximize the value of the firm by achieving a trade off. The purpose of credit control is to maximize sales while minimizing the risk of bad debt

as far as possible. In fact the firm should manage its credit in such a way that sales are expanded to an extent to which risk remain within an acceptable limit. These costs include the credit administration expenses, bad debt losses and opportunity cost of the fund tied up in receivables. The aim of liquidity management should be to regulate and control these costs that cannot be eliminated together (Cantor and Frank, 1996).

1.1.1 Credit Risk

Credit risk is the risk of loss due to non-payment of debts owed by an entity. Credit risk may be compounded by liquidity risk. Credit risk refers to the risk that a borrower will default on any type of debt by failing to make required payments. The risk is primarily that of the lender and includes lost principal and interest, disruption to cash flows, and increased collection costs. The loss may be complete or partial and can arise in a number of circumstances (Rajan, 1995). The risk of loss of principal or loss of a financial reward stemming from a borrower's failure to repay a loan or otherwise meet a contractual obligation. Credit risk arises whenever a borrower is expecting to use future cash flows to pay a current debt. Investors are compensated for assuming credit risk by way of interest payments from the borrower or issuer of a debt obligation. Credit risk is closely tied to the potential return of an investment, the most notable being that the yields on bonds correlate strongly to their perceived credit risk (Jappelli and Pagano, 2002).

The measurement of the credit risk of lending portfolios usually entails the same basic procedure as the measurement of market risk for example the Value at Risk (VaR) framework is used in a model that calculates the maximum potential loss or expected loss of the portfolio (Rajedom, 2010).Credit risk models deal with a default event for which

one cannot assume simple normality, and particular attention must be paid to data constraints that will impinge on many aspects of parameter estimation and setting, including default rate and recovery rate parameters and (simulations are time-consuming. When a financial institution has credit exposures, simulations for credit risk management require enormous calculation loads (Agenor et al., 2004).

1.1.2 Corporate Liquidity

Corporate liquidity refers to the degree to which a corporation's assets or security that can be sold or bought in the market without affecting the asset's price. Liquidity is characterized by a high level of trading activity. It measures how much cash a company has and how easily it is able to pay its debt. Assets in any firm are categorized into various classes. Liquid assets such as cash, cash equivalents and marketable securities constitute liquid assets (Eljelly, 2004).

Liquid assets constitute a significant portion of a firm's total asset. Financial managers pay due attention to the measurement and management of corporate liquidity failure to which may lead to severe shortage of liquidity leading to inability to meet its short and medium term obligations as and when they become due hence financial distress (Investment Technology Group, 2010).

The optimal amount of liquidity is determined by a tradeoff between the low return earned on liquid assets and the benefit of minimizing the need for costly external financing (Bhunia, 2010). The optimal investment in liquidity increases in the cost of external financing, the variance of the future cash flows, and the return on future

investment opportunities, while it is decreasing in the return differentiate between the firms' physical assets and the liquid assets (Hutchison, Farris and Anders, 2007).

1.1.3 Credit Risk and Corporate Liquidity

Liquidity and credit risk are closely linked, the industrial organization models of banking such as the Monti-Klein framework and the financial intermediation perspective in Harford and Maxwell (2005), Diamond and Dybig (1983), suggest that a financial institution's credit risk and liquidity structure are closely connected, especially with regards to borrowers default and fund withdrawals. The industrial organization model indicates there is a relationship between liquidity and credit risk. A liquidity risk is seen as a profit lowering cost, a loan default increases this liquidity risk because of the lowered cash inflow (Hooks and Linda, 2003).

This model is based on the premise that banks obtain money from unskilled depositors which is used for lending. Problems arise if too many economic projects funded with loans yield insufficient funds or even defaults and the bank cannot meet depositors' demands. Due to this asset deterioration, more and more depositors will claim back their money. The bank will call in all loans and thereby reduce aggregate liquidity. The result is therefore that higher credit risk accompanies higher liquidity risk through depositors demand (Harvey and Roper, 2004).

Financial institutions raise debts which have to be rolled over constantly and which is used to finance assets and as such more debt in the banking system yields a higher "bank-run" risk. In times of crisis when assets prices deteriorate, financial institutions find it

more difficult to roll over debt, this becomes a liquidity problem. Gatev and Strahan (2009), explains that default risks is mainly driven by low capitalization, low earnings, over exposure to certain categories of loans and excessive loan default. Excessive investment banking activities, bad macroeconomic conditions in the financial institutions immediate vicinity, low equity and heavy concentrations in real estate loans substantially increase the firms' probability of default (Almeida et al., 2004).

1.1.4 Deposit Taking Microfinance Institutions in Kenya

Following the establishment of the microfinance Act on 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 (2013), there are currently nine Deposit-taking MFIs operating in Kenya. In Kenya, there has been a tremendous increase in nonperforming loans in deposit taking microfinance institutions over the last few years; this has led to an increase in credit risk which has a negative effect on the level of corporate liquidity of the firm.

Deposit Taking Microfinance institutions offer credit services to customers to develop and grow their businesses with the objective of making profits. However, 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. In Kenya, DTMs face an apparent tension between achieving financial growth and

contribution to poverty reduction this might expose these firms to credit risk (CBK, 2013).

Implementation of credit management practices plays a pivotal role in mitigating credit risk in microfinance institutions. Most DTM's in Kenya have a risk management department that controls and monitors the level of credit risk to ensure that the firm does not suffer from liquidity problems. This is significant in enabling the firm to take advantage of profitable investments. Credit officers in DTM's institutions are charged with the responsibility of lending finances to customers and groups within a specified time frame. The credit officers are required to evaluate credit worthiness of their customers before giving out credit to mitigate credit risks which may lead to non performing loans. This may affect corporate liquidity of the firm making it difficult for the firm to meet its short term and long term financial obligations (Ngugi, 2003).

1.2 Research Problem

Corporate liquidity of firms enables the firm to meet its short term and long-term obligation as they fall due. Proper management of credit risk will enable a financial institution meet their financial obligations and take advantage of profitable investment that are likely to yield higher returns in future. Firms that exhibit a proper balance of their corporate liquidity and credit risk are able to channel their finances into profitable investments. 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).

Most Deposit Taking microfinance institutions are increasingly measuring and managing the risk from credit exposures at the portfolio level. Credit officers in DTM's institutions have a responsibility of lending finances to their customers and groups in line with the policies of the firm. In reference to AMFI (2012), the current level of non-performing loans among deposit taking microfinance institutions increased in year 2013. Current level of liquidity stands at 7 per cent for cash and bank balances, 22 per cent of cash, bank balances and investments. The statutory required level of liquidity for DTMs is 20 per cent. The credit officers are required to evaluate credit worthiness of their customers before giving out credit to mitigate credit risks which may lead to non-performing loans.

When measuring and managing credit risk, it is important for Deposit Taking microfinance institutions to have a clear understanding of common terms such as expected loss and unexpected loss. Credit risk is the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms (Ngugi, 2012).

Studies have been done in relation to credit risk and corporate liquidity internationally and locally: Structural credit risk models following Xiong (2012) argue that market liquidity affects credit risk via the rollover channel. The results of this study reveals that, market liquidity indeed affects credit risk via rollover with a transaction cost shock a la Lehman of 100bp being associated with an overall average treatment effect of 185bp. A study was conducted by Ericsson and Renault (2006) found that there was an inverse relationship between credit risk and liquidity risk. Other researchers: Imbierowicz and

Rauch (2014) concluded that there was an inverse relationship between Credit risk and corporate liquidity of banks.

Gaitho (2010) revealed that credit risk management practices have impacted positively to their organizations by ensuring efficiency in carrying out its obligations and in meeting its objectives. The findings also show that the most popular methods of promoting credit risk awareness amongst staff in SACCOs are through regular meetings and supervisions on one on one basis. Muasya (2013) concluded that was a significant negative relationship between credit risk management practices and loans losses in commercial banks in Kenya. Ngugi (2012) found that credit information sharing has a positive impact on credit risk although is not statistically significant. The weakness of the above studies is that none has investigated on the link between credit risk and corporate liquidity.

Maintaining high levels of liquidity enables the firm to meet it short term financial obligations. High liquidity makes it easy for the firm to easily invest in profitable investments and diversify its portfolios to mitigate risks of financial losses. Therefore, there is a need to investigate on the effects of credit risk on corporate liquidity of deposit taking microfinance institutions in Kenya through answering the following research question: What is the effect of credit risk on the level of liquidity in deposit taking microfinance institutions in Kenya?

1.3 Objective of the Study

To determine the effect of credit risk on the level of corporate liquidity in deposit taking microfinance institutions in Kenya.

1.4 Value of the Study

The findings of this study hopes to provide more insights to the policy makers in setting policies that encourage deposit taking microfinance institutions to maintain proper levels of credit risk in order to balance their levels of liquidity which is important in making sure that microfinance institutions are able to take advantage of profitable investments.

The findings of the study might also be useful to other financial institutions on the significance of maintaining the level of credit risk and its effect on corporate liquidity of the firm especially in meeting short term financial obligations that are key for the normal running of the business.

This study will also be beneficial to finance practitioners since the findings of the study will shed more light on the implications of credit risk on corporate liquidity of the firm. The study will serve as a point of reference to future researchers and academicians interested in this area or other related topics. This study will also form the basis for further research.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section covers the theoretical framework of the study, the determinants of liquidity, empirical studies and the summary of the literature review.

2.2. Theoretical Framework

This provides the three theories that support credit risk and liquidity of firms. These theories are namely; credit risk theory, liquidity preference theory and Credit risk model.

2.2.1 Credit Risk Theory

Cantor and Frank (1996) posit that credit risk theory is the first readily available portfolio model for evaluating credit risk. The credit risk approach enables a company to consolidate credit risk across its entire organization, and provides a statement of value-at-risk (VaR) due to credit caused by upgrades, downgrades, and defaults. Credit risk model is useful to all firms that are exposed to credit risk in the course of their business. According to this theory, a firm should develop a methodology to quantify credit risk across a broad range of instruments, including traditional loans, commitments and letters of credit; fixed income instruments; commercial contracts such as trade credits and receivables; and market-driven instruments such as swaps, forwards and other derivatives (Padilla and Pagano 2000).

Powell et al., (2004) explains that credit risk statistical concepts like probability, means, and standard deviation, correlation, and concentrations were developed with three

objectives which include to develop a Value at Risk (VAR) framework applicable to all the institutions worldwide that carry the credit risks in the course of their businesses, develop a portfolio view showing the credit event correlation which can identify the costs of concentrations and the benefits of diversification in a mark to market framework and to apply it in making investment decisions and risk mitigating actions that is determining the risk based credit limits across the portfolio, and rational risk based capital allocations.

The firm should have an integrated credit risk management system for assessing portfolio risk due to changes in debt value caused by changes in obligor credit quality (Rajan, 1995). This model includes the changes in value caused not only by possible default events, but also by upgrades and downgrades in credit quality, because the value of a particular credit varies with the corresponding credit quality. In the case of default a recovery rate is taken as the portfolio value (Pagano and Jappelli, 1993).

This distribution gives us two measures of credit risk which are standard deviation and percentile level (Rajedom, 2010).There are various applications which are to reduce the portfolio risk by reevaluating obligors having the largest absolute size arguing that a single default among these would have the greatest impact, reevaluate obligors having the highest percentage level of risk arguing that these are the most likely to contribute to portfolio losses, reevaluate obligors contributing the largest absolute amount of risk arguing that these are the single largest contributors to portfolio risk (Prakash and Poudel, 2012).

2.2.2 Liquidity Preference Theory

This theory suggests that the premium demanded for parting with cash raises as the term for getting the cash decreases. The rate in the increase of this premium amount slows down with the increase term. In financial trading, this theory is expressed as forward rates should exceed the future spot rates. This concept was first expressed by John Maynard Keynes (1989), this theory is also known as liquidity preference hypothesis. Liquidity preference theory intimates the idea that investors demand a premium for securities with longer maturities, which entail greater risk, because they would prefer to hold cash, which entails less risk. The more liquid an investment, the easier it is to sell quickly for its full value (Shanken, 1995).

According to Keynes, the demand for liquidity is determined by three motives the transactions motive: people prefer to have liquidity to assure basic transactions, for their income is not constantly available (Moore, 1991).The amount of liquidity demanded is determined by the level of income: the higher the income, the more money demanded for carrying out increased spending. The precautionary motive, people prefer to have liquidity in the case of social unexpected problems that need unusual costs (Kregel, 1986).

The amount of money demanded for this purpose increases as income increases. Speculative motive: people retain liquidity to speculate that bond prices will fall (Pasinetti, 1997). When the interest rate decreases people demand more money to hold until the interest rate increases, which would drive down the price of an existing bond to keep its yield in line with the interest rate (Kregel, 1988).Thus, the lower the interest rate,

the more money demanded and vice versa. A financial institution that lends out credit to borrowers may face liquidity problem especially if the borrowers are not able to pay the loans on time. This may prevent the firms from investing in profitable projects that promises higher returns in future. According to this theory, a firm needs to hold more cash for investment, it is therefore important for the firm to mitigate the level of credit risk by ensuring that borrowers are credit worthy before giving out credit (Rogers, 1997).

2.2.3 Credit Risk Modeling

Stiglitz and Weiss (1981) posit that credit risk management can be a very analytical and statistical process. Theoretical models used to measure and manage credit risk are often complex and highly quantitative. Well before credit risk can be managed, it first must be measured. David Lando considers the two broad approaches to credit risk analysis: that based on classical option pricing models on the one hand and on a direct modeling of the default probability of issuers on the other. He offers insights that can be drawn from each approach and demonstrates that the distinction between the two approaches is not at all clear-cut. In his approach, this model strikes a fruitful balance between quickly presenting the basic ideas of the models and offering enough details so that firms wishing to implement this model can derive and implement the models themselves (Walsh, 2010).

Credit risk model is used by firms to measure and manage credit risk, this model serve three main functions, these models are used to estimate the likelihood that counterparty will default, or fail to pay what it owes. Second, the model needs to be able to measure the dollar amount that might be lost if a counterparty defaults. Thirdly, the model should have the capability to measure the correlation of default risk across the entire credit

exposure portfolio. Such models are intended to aid microfinance institutions in quantifying, aggregating and managing risk across geographical and product lines (Jose and Riestra, 2002).

The outputs of these models also play increasingly important roles in risk management and performance measurement processes of microfinance institutions including performance-based compensation, customer profitability analysis, risk-based pricing and, to a lesser (but growing) degree, active portfolio management and capital structure decisions. Credit risk modeling may indeed prove to result in better internal risk management, and may have the potential to be used in the supervisory oversight of microfinance institutions. However, before a portfolio modeling approach could be implemented in the formal process of setting regulatory capital requirements for credit risk, regulators would have to be confident not only that models are being used to actively manage risk, but also to ensure that they are conceptually sound, empirically validated to produce capital requirements that are comparable across institutions (Robinson, 2001).

Some firms run a credit risk department whose job is to assess the financial health of their customers, and extend credit. They may use in house programs to advice on avoiding, reducing and transferring risk. They also use third party provided intelligence. Most lenders employ their own models (credit scorecards) to rank potential and existing customers according to risk, and then apply appropriate strategies. With products such as unsecured personal loans or mortgages, lenders charge a higher price for higher risk customers and vice versa. With revolving products such as credit cards and overdrafts,

risk is controlled through the setting of credit limits. Some products also require collateral for borrowers to access credit facilities from a financial institution in order to minimize credit risk (Rogers, 1997).

2.3 Determinants of Corporate Liquidity

The determinants of corporate liquidity that affects the firm are: line of credit, liquidity index, the level of inflation, interest rates and government deficit

2.3.1 Line of Credit

Line of credit is a key determinant of corporate liquidity; line of credit may be either secured or unsecured, it is an extended source of credit from a financial institution. It may take different forms for instance overdraft protection, demand loan, special purpose term loans, discounting, purchase of commercial bills. Firms should manage their credit limits through ensuring that the exhibit a proper balances between debt and equity in order to mitigate risks of financial losses.

Line of credit is a source of funds that can be accessed from borrowers and interest earned is got when the money is withdrawn In this case, the borrower is required to pay an unused line fee which is mostly annualized percentage on the amount of money retained. Microfinance institutions are mostly exposed to credit risk since (Owolabi et al., 2011).

2.3.2 Liquidity

Liquidity is characterized by a high level of trading activity. It measures how much cash a company has and how easily it is able to pay its debt. Assets in any firm are categorized into various classes. A firm that holds high amount of cash is likely to take advantage of profitable investments unlike a firm that is illiquid. Credit risk may expose a firm to low liquidity.

Liquid assets constitute a significant portion of a firm's total asset. Financial managers pay due attention to the measurement and management of corporate liquidity failure to which may lead to severe shortage of liquidity leading to inability to meet its short and medium term obligations as and when they become due hence financial distress (Harvey and Roper, 2004).

2.3.3 Level of Inflation

Inflation is another determinant of corporate liquidity, an increase in the level of inflation negatively impacts on corporate liquidity of a firm. If the management of the firm is expecting high inflation in the near future, holding cash is costly and management will reduce corporate liquidity. When there is high inflation the level of credit risk increase as a result of an increase in default rate.

During inflation, the firm is likely to hold more cash in order to minimize the amount of cash in circulation. On the other hand, the cash held by the firm should increase if the management anticipates the economy will perform better in order to finance profitable projects in future (Hooks and Linda, 2003).

2.3.4 Interest Rates

Interest rates affects corporate liquidity, when the management of the firms expects the interest rates to increase then it might decide to hold less cash and opt invest more in order take advantage of the expected higher returns. If the government incurs a deficit, this may signal a change in interest rates in the future.

When the interest rates are very high the borrowers are likely to default as a result of an increase in the cost of borrowing. However, if the government deficit is higher then the interest rates will increase and thus most firms will opt not to hold cash but invest in profitable investments hence affecting the firm's corporate liquidity (Harvey, Lins and Roper, 2004).

2.3.5 Government Deficit

Government deficit affects corporate liquidity of the firm, an expected increase in government deficit signals a decline in gross domestic product which leads to decrease in corporate liquidity due to the income effect. When the government borrows domestic credit, this increases the cost of borrowing and thus firms are likely to hold less cash since they are discouraged from borrowing.

The firm may hold less cash due to rising government deficit. Thus, the management will hold less cash as a result of government deficit this negatively affects the corporate liquidity of the firm since most firms are not able to take advantage of profitable investments (Ngugi, 2003).

2.4 Empirical Studies

Mbole (2004) conducted a study to evaluate credit risk analysis by Kenyan commercial banks and to establish the relationship, if any, between credit risk analysis and the level of non-performing loans. Using a census of the 43 commercial banks in Kenya as at December 31st 2001, the researcher personally administered a questionnaire to the person in charge of credit risk management in each of the commercial banks. The level of nonperforming loans (NPL) was determined using secondary data. From the analysis of the responses received, it was evident that all the commercial banks have in place measures for mitigating against risk arising from poor credit analysis. The majority of the commercial banks that took part in this study indicated that they do not have credit limits as a measure of mitigating against credit risk.

A study was conducted by Ericsson and Renault (2006) using three measures of liquidity, including the bid-ask spread and liquidity based estimates from a model extension of the limited dependent variable model and a unique data set of emerging market bonds spanning 16 countries and eight years, we demonstrate the importance of modeling liquidity as a component of yield spreads. Liquidity is highly significant in explaining cross-sectional variation in yield levels and changes across rated and unrated categories, for both corporate and sovereign issuers. Liquidity risk appears to dominate credit risk in explaining cross-sectional variations in yield spreads for both corporate and sovereign debt instruments across all of the emerging markets examined.

Gaitho (2010) in his study revealed that majority of the SACCOs use credit risk management practices to mitigate risks as a basis for objective credit risk appraisal.

Majority (28) out of the (31) respondents agreed that credit risk management practices have impacted positively to their organizations by ensuring efficiency in carrying out its obligations and in meeting its objectives. The findings also show that the most popular methods of promoting credit risk awareness amongst staff in SACCOs are through regular meetings and supervisions on one on one basis. Majority of the SACCOs relied heavily on the discretion and ability of portfolio managers for effective credit risk management practices as opposed to a system that standardizes credit and credit risk decisions.

Mokaya (2011) did a study on the Relationship between Credit Card Default Risk and Cardholders Characteristics, Credit Card Characteristics, Behavioral Scoring Process among Commercial Banks in Kenya and how they mitigate against credit card Default Risk. A descriptive survey of sampled commercial banks was conducted, data was analyzed using descriptive statistics and the results of the analysis showed that commercial banks that implemented credit risk assessment had lesser loan defaults. Commercial Banks issuing credit cards and any entering the credit card business should develop proper and accredited credit risk management methods which will assist in coming up with sound credit policies which to a large extent will reduce the high levels of bad loans as a result of credit card default.

Structural credit risk models following Xiong (2012) argue that market liquidity affects credit risk via the rollover channel. This paper explores this relation in the US corporate bond market based on a complete set of transactions data over the period from 2005 to 2011, for a representative sample of firms with large exposures to corporate bond

financing. A detailed and unique analysis of bond rollover policies and the underlying market liquidity conditions is provided. In order to test to what extent market liquidity affects credit risk via the corporate bond rollover channel, a quasi natural experiment by exploiting the exogenous variation in liquidity arising from the Lehman bankruptcy is employed. The results reveal that, (i) market liquidity indeed affects credit risk via rollover with a transaction cost shock a la Lehman of 100bp being associated with an overall average treatment effect of 185bp.

A study by Philip (2012) investigated on the effect of Liquidity Risk and Credit in the Financial Crisis in San Francisco, the study was conducted in a sample of 55 banks between 2007-2008, a descriptive survey was used and data was analyzed using panel analysis and the results of the analysis revealed that credit fell, with banks hit hardest by liquidity pressures cutting back most sharply. Central bank emergency lending programs probably mitigated the decline. Ongoing efforts to regulate bank liquidity may strengthen the financial system and make credit less vulnerable to liquidity shocks.

Ngugi (2012) conducted a study on the impact of credit information sharing on credit risk for commercial banks of Kenya. The information shared by banks in Kenya is both positive and negative. Non-performing loan is used as a proxy to credit risk. The population of this study consisted of all 44 banking institutions registered and operational in Kenya under the banking Act. The study utilized both secondary and primary data. Quantitative data on credit risk for commercial banks was extracted from annual reports, profit and loss accounts, balance sheets and cash flow statements. Data on credit information sharing was obtained through the use of questionnaires that were directed to

commercial banks in Kenya. Chi-Square test was used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories. The study concludes that credit information sharing has a positive impact on credit risk although is not statistically significant.

Acharya and Nada (2013) investigate the relationship between the two major sources of bank default risk: liquidity risk and credit risk. A sample of virtually all U.S. commercial banks was conducted during the period 1998 to 2010 to analyze the relationship between these two risk sources on the bank institutional-level and how this relationship influences banks' probabilities of default (PD). The results showed that both risks separately increase the personal default, the influence of their interaction depends on the overall level of bank risk and can either aggravate or mitigate default risk. These results provide new insights into the understanding of bank risk, as developed by the body of literature on bank stability risk in general and credit and liquidity risk in particular.

Muasya (2013) investigated the relationship between credit risk management practices and loans losses a study on commercial banks in Kenya. Descriptive research design was utilized in this study as it aimed to see if there is a relationship between credit risk management practices and loan portfolio losses in commercial banks in Kenya. However, only thirty six (36) of the respondent commercial banks completed the questionnaire. The data was then analyzed and the findings presented using tables giving descriptive statistics including frequencies, mean and percentages. It was concluded that credit risk management practices are common among most of the commercial banks in Kenya and that management of these commercial banks appreciated government legislation relating

to credit risk management through the introduction of the credit sharing information Act, and that there is a significant negative relationship between credit risk management practices and loans losses in commercial banks in Kenya.

Harvey et al., (2014) conducted a study on the effect of credit risk on corporate liquidity among commercial banks in Netherlands, a sample of 65 banks was done using a descriptive survey, secondary data was used between 2008-2012 and data was analyzed using a regression model and the results of the analysis showed that there was an inverse relationship between the credit risk and corporate liquidity among commercial banks.

2.5 Summary of Literature Review

Credit risk management plays a fundamental role in minimizing the rate of default in microfinance institutions in Kenya. Microfinance institutions should practice credit assessment before giving out credit to minimize the level of credit risk through ensuring that only credit worthy customers qualify for credit. This is essential in ensuring that the firms maintain corporate liquidity in order to take advantage of profitable investments that promise higher returns in future.

The empirical evidence shows that an inverse relationship exists between credit risk and corporate liquidity of firms; this is supported by Xiong (2012) who argues that market liquidity affects credit risk via the rollover channel. In another study by Muasya (2013) the findings of the study shows that there is a significant negative relationship between credit risk management practices and loans losses in commercial banks in Kenya. The context of these studies was mostly limited to commercial banks and listed firms.

However, this study does not address issues of credit risk and how it affects corporate liquidity in deposit taking microfinance institutions. It is therefore imperative to answer the question: what is the effect of credit risk on the level of liquidity in deposit taking microfinance institutions in Kenya?

CHAPTER THREE: RESEARCH METHODOLOGY

3.1Intoduction

This chapter presents an outline of the research methodology in this study. It provides the research design, the population of the study, data collection, data analysis, the analytical model and the tests of significance.

3.2 Research Design

The study used a descriptive research design. A descriptive survey is usually concerned with describing a population with respect to important variables with major emphasis being on establishing the relationship between the variables (Morgan, 2007). The advantage of descriptive research design is that it is suitable when the population is large.

3.3 Target Population

According to Mugenda and Mugenda (2003) a population refers to an entire group of individuals, events or objects having a common observable characteristic. To achieve the objective of this study, the study focused on nine (9) DTMs licensed under the central bank of Kenya (CBK, 2013). However, due to incomplete information from the nine DTMs, five DTMs were analyzed for the period 2011-2013 and therefore no sampling was used.

3.4 Data Collection

The study used secondary data. The data was collected from secondary sources since the nature of the data was quantitative. The secondary data was obtained from the

Association of Microfinance Institutions in Kenya and Central Bank of Kenya; financial reports were used for this purpose. This enabled the researcher to get quantified data that was helpful in drawing conclusions and giving policy recommendations on the effect of credit risk on corporate liquidity of deposit taking micro finance institutions in Kenya. The study used secondary data sources for a period of 3 years from (2010-2013) based on the availability and accessibility of data.

3.5 Data Analysis

Secondary data from the Central Bank of Kenya (CBK) reports and library was reviewed for completeness and consistency in order to carry out statistical analysis. According to Mugenda (2003), data must be cleaned, coded and properly analyzed in order to obtain a meaningful report. The data collected was sorted and organized before capturing the same in Statistical Packages for Social Sciences (SPSS) for analysis.

3.5.1 Analytical Model

Below is the regression model that was used in analyzing the effects of credit risk on corporate liquidity of DTM's institutions in Kenya. The model of this study is as follows:

$$Y=\alpha+\beta_1X_1+\beta_2X_2+\beta_3X_3 + \beta_4X_4 + \beta_5X_5 +\varepsilon$$

The model used has been based on the models used in previous similar studies. Dee Graeve et al., (2008) argued that while a bank's probability of distress may be dependent to some extent on macro-economic conditions, most of the historical incidences of bank runs were better explained by bank-specific factors such as capitalization, profitability and asset quality. Swamy, (2014) in her study of banking stability for financial stability, measured liquidity as a function of asset quality, profitability and capital adequacy. The

researcher therefore sought to establish the effect of credit risk on corporate liquidity and the measurements of the variables were as follows:

α= Constant Term

Y= Corporate liquidity is the dependent variable which was measured using cash and cash equivalents divided by the total assets held by the DTMs

X_1= Credit Risk was measured using risk coverage ratio measured as loan loss reserve divided by portfolio at risk

X_2= portfolio to assets ratio, was measured using gross loan portfolio/total assets

X_3= Operating expense ratio, was measured using operating expense/Revenue

X_4= Debt to equity ratio, was measured using total liabilities/Total assets

X_5= Portfolio at risk was measured using outstanding loans (loans in arrears over a period of 30 days) divided by gross loans.

β= is a regression constant

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

3.5.2 Tests of Significance

Whereby Y is the dependent variable, $\beta 0$ is the regression constant or Y intercept, $\beta 1 \ldots \beta 5$ are the coefficients of the regression model. The expected outcome is that an increase in credit risk, operating expense ratio, portfolio to assets ratio and debt to equity

ratio will result to an increase in the corporate liquidity. An increase in PaR on the other hand is expected to result to a decrease in corporate liquidity. The basis of the model was to help in determining the effect of credit risk on corporate liquidity of Deposit Taking Microfinance institutions in Kenya. Credit risk was measured using credit risk coverage ratio. The test of significance was the ANOVA test and coefficient of determination was used to determine whether the model was a good predictor. The tests were performed at 95% level of confidence.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter is a presentation of results and findings obtained from field data, both descriptive and inferential statistics have been employed specifically using regression and ANOVA to establish the significance of the model and also to establish the link between credit risk and corporate liquidity of DTMs.

4.2 Response Rate

The targeted population size was nine (9) DTMs licensed under the Central Bank of Kenya. The response rate with respect to this study was 55 per cent. Data from five DTMs was analyzed due to some incomplete information provided by the other DTMs and for purposes of consistency in the data because two of the DTMs have only been in operation for the last one year. According to Mugenda and Mugenda (1999), a response rate of 50per cent is adequate for analysis and reporting; a rate of 60 per cent is good and a response rate of 70per cent and over is excellent. This means that the response rate for this study was adequate and therefore enough for data analysis and interpretation.

4.3 Descriptive Statistics

Table 4.1 presents the descriptive statistics for the data set. Five variables namely corporate liquidity, debt to equity ratio, portfolio to assets ratio, operating expense ratio, risk coverage ratio and portfolio at risk of the 5 DTMs.

Table 4.1: Descriptive Statistics Table

Variable	Mean	Median	Std.Dev.	Min	Max
Liquidity	0.2683333	0.35845	0.063078	0.21	0.4
Debt to Equity ratio	5.783333	7.2	4.647352	0.1	14.6
Portfolio to Asset ratio	2.059167	1.6995	2.938081	0.09	11.08
Operating Expense ratio	31.99167	13	9.279543	24.1	48.1
Credit Risk	0.4825	0.50	0.084005	0.35	0.6
PaR(30 days)	8.258333	7.52	4.365663	5.2	17.4

Corporate liquidity had a mean of 0.2683 with standard deviation of 0.063078. This illustrates that for one shilling of total asset invested by the five DTMs generates a cash flow of Ksh 0.26833. Debt to equity ratio reported a mean of 5.7833 with standard deviation of 4.6473.This depicts that the ratio of debt to equity was five to one implying that DTMs total debt was less than their equity. On average, DTMs operating expenses recorded a mean of 2.0591 with standard deviation of 2.9380 which indicates that DTMs operating expenses was higher than the revenue collected during the study period. Risk coverage ratio for the 9 DTMs had a mean of 0.4825 with standard deviation of 0.08400. The high risk coverage implies that DTMs were able to meet their financial obligations. The higher the coverage ratio the more DTMs are able fulfills their obligations to its lenders.

4.4 Correlation Analysis

The study sought to determine effect of credit risk on the level of corporate liquidity in Deposit Taking Microfinance institutions in Kenya. Pearson Correlation analysis was used to achieve this end at 99%, 95% and 90% confidence levels. The correlation analysis enabled the testing of study's hypothesis that credit risk has a significant effect on corporate liquidity. Table 4.2 shows the correlation matrix between the dependent and independent variables.

Table 4.2:Correlation coefficients of credit risk and corporate liquidity variables

	Liquidity	Debt to Equity	Portfolio to Assets	Operating Expense	Credit Risk	PaR
Liquidity	1.0000					
Debt to Equity	0.1373	1.0000				
Portfolio to Assets	-0.0926	0.5810	1.0000			
Operating Expense	-0.3877	-0.6791	-0.3696	1.0000		
Credit Risk	0.7352	-0.2134	-0.4605	-0.3113	1.0000	
PaR	-0.0356	-0.4501	-0.2148	-0.2157	0.2137	1.0000

Table 4.2 shows that debt to equity ratio and credit risk has a positive relationship with corporate liquidity while portfolio at risk ratio, operating expense ratio and portfolio to asset ratio are negatively associated with the corporate liquidity. Debt to equity ratio showed positive but weak relationship with corporate liquidity (R= 0.1373). Portfolio to asset ratio reported weak and negative correlation with corporate liquidity (R= -0.0926). Operating expenses ratio is negatively associated with corporate liquidity (R = -0.3877). Risk coverage ratio has positive and strong relationship with corporate liquidity (R = 0.7352).

4.5 Regression Analysis

4.5.1 Model Summary

Determination coefficients (R^2) were also carried out to determine the strength of the relationship between independent and dependent variables as shown in table 4.3 below.

Table 3.3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
					Sig. F Change
1	0.9012	0.9034	0.8738	1.27800	1.9354

The study established R of 0.9012 and R^2 of 0.9034 indicating a strong relationship between corporate liquidity and the explanatory variables. This indicates that credit risks have strong effect on the corporate liquidity of DTMs. R square of 0.9034 showed that 90.34% of the total variation in corporate liquidity is attributed to the changes in

explanatory variables. The Durbin-Watson test statistic tests that the residuals from an ordinary least-squares regression are not auto correlated. The Durbin-Watson statistic ranges in value from 0 to 4. A value near 2 indicates non-autocorrelation; a value toward 0 indicates positive autocorrelation; a value toward 4 indicates negative autocorrelation. Since the DW value of 1.9354 was close to 2, then it can be concluded that there was no autocorrelation among the model residual.

4.5.2 Analysis of Variance

Table 4.4 gives an analysis of variance. This is established if there is significant difference between the means of the variable under study and also to examine the overall significance of the model. Overall significance of the model is important in establishing whether the model is fit to giving true estimate of the variables. Since the F value of (0.002) is below 0.05, it can be concluded that the regression model was significant in giving a true estimate of the variables. It also implies that the means of the variable are not significantly related.

Table 4.4:ANOVA

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	.250	5	.036	6.92307	.002
	Residual	.0871	9	.0052		
	Total	.3371	14			

4.5.3: Regression Coefficients

Multiple linear regression analysis was used to determine the significance of the relationship between the dependent variable and all the independent variables pooled together. The results are given in the model summary in Table 4.5 below.

Table 4.4: Regression Coefficients

Liquidity	Coef.	Std.Err.	t	P>|t|
Debt to Equity ratio	0.0214679	0.015948	4.241	0.007
Portfolio to Assets ratio	0.0092458	0.007446	3.24	0.041
Operating Expense ratio	0.0101919	0.008179	1.75	0.029
Credit Risk	1.183708	0.456088	2.6	0.041
PaR	-0.0109118	0.010618	2.03	0.044
Cons	-0.8621699	0.650651	-2.33	0.013

The model of this study was:

$$Y=\alpha+\beta_1X_1+\beta_2X_2+\beta_3X_3 + \beta_4X_4 + \beta_5X_5\varepsilon$$

Therefore from the regression result, the estimated model is given below

$$Y = -0.8621+ 1.1837CR + 0.010911PAR + 0.01019OPEX + 0.0214DER - 0.00924PR$$

4.6 Discussion of Findings

From the regression result above, all the explanatory variables are statistically significant ($P < 0.05$) at 5% in causing the variation in corporate liquidity. On average DTMs will register corporate liquidity of negative 0.8621 units if the explanatory variables were excluded in the estimation model. This implies there are other control variables that affect corporate liquidity which were never considered in the study.

Credit risk was found to be statistically significant in explaining the variation in corporate liquidity other factors held constant, a unit increase in credit risk will lead 1.1837 units increase in corporate liquidity. The study established a significant relationship between portfolio asset ratios with corporate liquidity. A unit increase in portfolio asset ratio will lead to 0.010911 units increase in corporate liquidity. Operating expenses showed significant impact on corporate liquidity with a unit increase in operating expenses leading to 0.0108 units increase in corporate liquidity. The study findings also revealed that debt to equity ratio, at 5% level of significance is statistically significant in causing a change in corporate liquidity. A unit increase in debt to equity ratio will result to 0.021 units increase in corporate liquidity. Finally, portfolio at risk is significant but negatively causes changes in corporate liquidity. A unit increase in portfolio at risk will lead to 0.00924 units decrease in corporate liquidity.

The findings also showed that that debt to equity ratio and credit risk had a positive correlation with corporate liquidity while portfolio at risk ratio, operating expense ratio and portfolio to asset ratio had a negative correlation with the corporate liquidity. In Table 4.2, Debt to equity ratio showed positive but weak correlation with corporate

liquidity (R= 0.1373). Portfolio to asset ratio reported weak and negative correlation with corporate liquidity (R= -0.0926). Operating expenses ratio is negatively associated with corporate liquidity (R = -0.3877). Risk coverage ratio has positive and strong correlation with corporate liquidity (R = 0.7352).

Corporate liquidity had a mean of 0.2683 with standard deviation of 0.063078. This illustrates that for one shilling of total asset invested by the five DTMs generates a cash flow of Ksh 0.26833. Debt to equity ratio reported a mean of 5.7833 with standard deviation of 4.6473.This depicts that the ratio of debt to equity was five to one implying that DTMs total debt was less than their equity. On average, DTMs operating expenses recorded a mean of 2.0591 with standard deviation of 2.9380 which indicates that DTMs operating expenses was higher than the revenue collected during the study period. Risk coverage ratio for the five DTMs had a mean of 0.4825 with standard deviation of 0.08400. The high risk coverage implies that DTMs were able to meet their financial obligations. The higher the coverage ratio the more DTMs are able fulfills their obligations to its lenders and depositors.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary and description of findings derived from the study. The chapter also provides findings, conclusions and recommendations for policy as well as recommendations for further research.

5.2 Summary of Findings

The main objective of the study was to establish the effect of credit risk on corporate liquidity. The study established that corporate liquidity had a mean of 0.2683 with standard deviation of 0.063078. The required statutory liquidity for the DTMs as per the Microfinance Act (2008) is 0.2. The DTMs are therefore meeting their expected liquidity levels. Debt to equity ratio reported a mean of 5.7833 with standard deviation of 4.6473. On average, DTMs operating expenses recorded a mean of 2.0591 with standard deviation of 2.9380. Credit risk for the 5 DTMs had a mean of 0.4825 with standard deviation of 0.08400.

Correlation relationship indicated that debt to equity ratio had positive but weak relationship with corporate liquidity (R= 0.1373). Portfolio to asset ratio also reported weak and negative correlation with corporate liquidity (R= -0.0926). Operating expenses ratio is negatively associated with corporate liquidity (R = -0.3877). Credit risk has a positive and strong relationship with corporate liquidity (R = 0.7352).

All the explanatory variables were statistically significant in explaining the variation in corporate liquidity. Credit risk was significant in explaining the variation in corporate liquidity. The study established a significant relationship between portfolio asset ratios with corporate liquidity. Operating expenses showed significant impact on corporate liquidity while portfolio at risk was significant but negatively causes changes in corporate liquidity.

With a mean of 0.2683 and standard deviation of 0.063078, the DTMs generate a cash flow of Ksh. 0.26833 for every shilling of total assets invested. From the average debt to equity ratio of 5.7833, it shows that the DTMs rely more on equity than in debt. It is also clear that the operating expenses of the DTMs are high and therefore the level of their liquidity is affected. They should thus ensure that the operating expenses are controlled and regulated to ensure that their operating liquidity is adequate.

5.3 Conclusion

Credit risk in the DTMs is evolving, and much still needs to be done to manage this exposure. This study sought to analyze the effect credit risk has on the corporate liquidity of DTMs in Kenya. The DTMs surveyed showed that there exists a strong positive relationship between corporate liquidity (in terms of cash flow) and credit risk in terms of risk coverage ratio. The result is in line with credit risk theory by Cantor and Frank (1996) which postulates that credit risk approach enables a company to consolidate credit risk across its entire organization, and provides a statement of value-at-risk due to credit caused by upgrades, downgrades, and defaults. Credit risk model is useful to all firms that are exposed to credit risk in the course of their business.

An average of 0.26 in corporate liquidity is a good indicator of the DTMs liquidity since the statutory required liquidity level is 0.2 as per CBK. DTMs are encouraged to maintain adequate levels of liquidity so as to be able to meet their obligations s they fall due and be able to take advantage of profitable investments. The DTMs also need to check on their operating expenses as they take up to 31 per cent of their revenue. A decrease in these operating expenses will lead to higher levels of liquidity.

An adequate level of liquidity for any financial institution is required so that they are able to cover withdrawal of funds by customers, meet inter-bank indebtedness that may arise on a day-to-day basis following the payment clearing process. The institutions also need to be able to meet unforeseen borrowing requests from customers and be able to cope with interruptions to their normal cash flows. In addition to these operational factors, DTMs are required by law (Microfinance Act, 2008) to maintain a liquidity level of 20 percent. The adequacy of liquidity for any institution depends not only on the volume of liabilities to be covered but is also affected by the quality of its assets. The more risky the assets, the greater must be the cushion provided by the institution in its loan loss reserves.

5.4. Recommendations

DTMs should adopt a credit risk grading system. The system should define the risk profile of borrower's to ensure that account management, structure and pricing are commensurate with the risk involved. Risk grading is a key measurement of a DTMs asset quality, and as such, it is essential that grading is a robust process. All facilities should be assigned a risk grade. Where deterioration in risk is noted, the Risk Grade

assigned to a borrower and its facilities should be immediately changed. Borrower Risk Grades should be clearly stated on Credit Applications. This should be done as an effort to maintain a sensible corporate liquidity even as the DTMs try to satisfy all their customer needs.

DTMs should have established Credit Policies that clearly outline the management's view of business development priorities and the terms and conditions that should be adhered to in order for loans to be approved. This Credit should be updated at least annually to reflect changes in the economic outlook and the existing loan portfolio, and be distributed to all lending/marketing officers. The credit policies should be implemented so as to maintain a viable corporate liquidity in DTMs.To ensure that credit risk does not affect the DTMs operations, more care should be taken and fewer loans granted to individuals without the capabilities of quick loan repayment plans.

5.5 Limitations of the study

Secondary data used was from Central Bank of Kenya and Association of Micro Finance Institutions. Financial institutions have the tendency of providing incomplete financial position of the companies. Therefore the data used in the study might not have been accurate for estimation due to the possibility of manipulation by the management to meet their own objectives that are not for the public interest.

The duration of the study was not long enough to provide true and significant estimation. This is because the DTM industry became operational in 2008 when the Microfinance Act was enacted. This sector is therefore relatively new and still in its formative stages.

The three years used for the analysis is not adequate, a longer period with more institutions included in the analysis could have yielded different results.

Most of the DTMs financial statements are not readily available and the research relied on what the DTMs had submitted to Central Bank of Kenya and Association of Microfinance Institutions. The DTMs should be encouraged to provide copies of their financial statements in their respective websites or have the Association of Micro Finance Institutions maintain a database of the same. This will improve on the level of transparency by the institutions.

5.6 Recommendations for Further Research

This study should further be developed to include more variable s than the few that are covered in this study. Also, more detailed studies should be done to determine what other major variables affect corporate liquidity of DTMs and are connected to credit risk. Further study on the topic should be done to establish what needs to be done to ensure customer satisfaction on loans and still keep the DTMs afloat for profitability and improved operations.

DTMs should adopt segmentation of clients in assessing their credit worthiness because the market is heterogeneous in terms of customers' needs. The establishment of a credit bureau will go a great way in ensuring that DTMs do not go bankrupt as a result of credit risk. Therefore, more studies should be carried out on what such institutions as bureaus should or should not do so that DTMs are not caught unawares when credit risk come crushing the corporate liquidity.

Since there are few previous studied done on the effect of credit risk on corporate liquidity, further studies should be carried out on the same for various institutions like commercial banks, manufacturing firms and any other that is faced with credit risk.

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APPENDIX I: LIST OF DTMs

	LIST OF DEPOSIT TAKING MICROFINANCE IN KENYA AS AT 31st DEC 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 :(CBK, 2013)

APPENDIX 2: DATA ON DTMS

SOURCE: 2013 REPORT ON THE KENYA MICROFINANCE SECTOR – BY AMFI

	faulu					
	2008	**2009**	**2010**	**2011**	**2012**	**2013**
NPL	100,804,544.40	153,354,909.00	214,716,171.80	171,260,000.00	262,208,000.00	354,407,900.00
gross loans	2,938,908,000.00	3,006,959,000.00	2,677,259,000.00	3,237,624,000.00	4,949,198,000.00	6,823,200,320.00
rate of npl	3.43	5.10	8.02	5.29	5.30	5.27
deposit rate	12.00	12.00	10.00	8.00	12.00	9.50
borrowing rate	16.00	17.50	17.50	18.00	18.00	18.00
total assets		1,853,000,000.00	1854600000	1965000000	446500000	2,675,536,000.00
equity		517,400,000.00	529700000	556300000	614600000	813,725,000.00
ROA			-3	0.2	0.7	0.80
D/E		7.2	7.3	8.2	11.4	11.80
PaR			10.8	5.2	5.2	5.20
Operating expense ratio			38.4	32.9	27.6	26.20
liquid assets		596666000	988501800	896040000	1540425000	1604320000
total liabilities		21200000000	3860400000	4584300000	7023100000	7992120000
loan loss reserve						
portfolio yield		30.3	37.2	39	36.4	36.6
funding expense ratio		5.4	5.7	7.9	9.1	9.4
risk coverage ratio	na	na	0.35	0.41	0.35	0.37
	kwft					
NPL	124,522,145.40	116,076,475.80	1,253,521,723.20	783,978,160.00	772,392,960.00	780,667,899.00
gross loans	6,694,739,000.00	10,182,147,000.00	12,277,392,000.00	11,199,688,000.00	12,873,216,000.00	14,930,112,000.00
rate of npl	1.86	1.14	10.21	7.00	6.00	6

deposit rate	4.60	5.60	11.60	12.00	12.00	
borrowing rate	18	20	20	20	20	18
total assets			6162800000	7076900000	9354000000	9870000000
ROA			1.40	1.30	0.90	0.80
D/E			10.70	7.90	7.90	8.10
PaR			15.50	6.10	5.70	6.40
Equity		1433010000	1622300000	1924800000	2303100000	3,498,700,000.00
Operating expenxe ratio		na	20.20	24.50	27.90	28.10
total liabilities		na	17336100000	15111000000	18081400000	19,450,000,000.00
liquid assets		445576000	765,908,000.00	667,506,790.00	880,776,989.00	998,786,990.00
portfolio yield		30.6	30.9	30.9	37.5	36.90
funding expense ratio		6.8	7.5	9.6	10.3	8.55
loan loss reserve						
risk coverage ratio	na	0.7	0.7	0.58	0.6	0.56
	smep					
NPL	92,264,285.25	98,355,966.51	na	144,508,100.00	276,286,410.00	301,178,310.00
gross loans	881,225,265.00	939,407,512.00	1,181,881,528.00	1,445,081,000.00	1,454,139,000.00	1,956,784,000.00
rate of npl	10.47	10.47	10.32	10.00	19.00	15
deposit rate	na	na	6.00	6.00	8.12	6.91
borrowing rate	17	17	17	18	20	20
total assets				813900000	1014000000	1420000000
equity		239,650,000.00	243900000	256700000	619800000	702345000
total liabilities			na	1741500000	1669700000	1886734000
ROA		0.3	0.3	0.9	2.1	2.4
D/E			5.3	6.8	2.7	4.9
par			8.7	8.9	17.2	17.4
Operating expenxe ratio			22.9	24.1	25.8	26.1

liquid assets	na	na		367000000	454789500	560780700
loan loss reserve						
portfolio yield			28.2	30.3	33.9	32.5
funding expense ratio			4.8	5.7	5.8	5.8
risk coverage ratio	na	na	0.54	0.56	0.51	0.5
	sumac					
NPL	2,078,400.00	912,000.00	966,718.65	1,293,250.00	1,179,000.00	1,567,450.00
gross loans	17,320,000.00	11,400,000.00	6,444,791.00	18,475,000.00	23,580,000.00	26,765,890.00
rate of npl	12.00	8.00	15.00	7.00	5.00	12
Deposit rate	na	na	4.50	8.60	8.60	9.50
borrowing rate	14.40	15.00	19.70	17.10	19.00	17.60
total assets					600,000.00	702,000.00
ROA			5.30	4.60	2.70	5.30
D/E			0.00	0.30	0.10	0.20
par			5.00	7.10	7.30	7.40
equity					159,600,000.00	167,567,990
total liabilities				na	22,000,000.00	24,230,000
Operating expenxe ratio			29.40	45.50	48.10	47.10
liquid assets				6,045,600.00	4,678,600.00	7,890,774.00
loan loss reserve						
portfolio yield			41.30	52.00	51.10	53.00
funding expense ratio			4.40	4.50	3.90	4.20
risk coverage ratio	na	na	0.58	0.46	0.48	0.41