THE RELATIONSHIP BETWEEN THE USE OF THE C's OF CREDIT AND THE NON PERFORMING LOANS OF MICROFINANCE INSTITUTIONS IN KENYA.

BY:

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DECLARATION

This research project is my original work and has not been presented for a degree at any other University.

Signed: ....   Date: 20-11-2008 ....
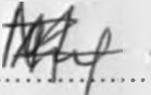
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This research project has been submitted for examination with my approval as University Supervisor.

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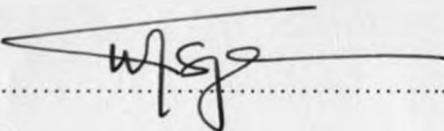
N.T.T. Simiyu

DEDICATION

This project is dedicated to my beloved wife Rose, Sydney and Chelsea, our children.

ACKNOWLEDGEMENT

First and certainly most important, I am most grateful to God Almighty for making it possible for me to undertake this study successfully.

I also wish to sincerely thank my Supervisor, N.T.T. Simiyu for his guidance, commitment and invaluable support throughout the study.

Finally, I thank my wife Rose, for being helpful through encouragement and support.

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LIST OF ABBREVIATIONS

AMFI – Association of Microfinance Institutions

CBK – Central Bank of Kenya

CBS – Central Bureau of Statistics

KCB – Kenya Commercial Bank

MFIs – Microfinance Institutions

MSEs – Micro and Small Enterprises

NGO – Non Governmental Organization

NPLs – Non performing loans

6 C's – Character, Capacity, Condition, Collateral, Commonsense and Contribution

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ABSTRACT

The Microfinance sector has in the recent past become a major player in the Kenyan economy. As such, for Microfinance institutions to sustain viable credit programmes, the criteria for assessing credit risk are essential so as minimize the loan default rates. One of the criteria for establishing the creditworthiness of a borrower is the C's of credit model.

The two objectives of this study were:-

• To establish the extent of use of the C's of credit risk appraisal model by MFIs in Kenya

• To establish the relationship between the use of the C's of credit risk appraisal model and the level of non performing loans of MFIs in Kenya.

To satisfy the objectives of the study, the data was collected from 15 Microfinance institutions using questionnaires. The data was analyzed by use of statistical package for social sciences (SPSS). The results have been presented in form of frequency tables, mean, standard deviation and percentages. The study also made use of regression analysis to establish the relationship between the use of the C's of credit risk appraisal model and the level of non performing loans. A t-test was carried out to measure the significance of the sensitivity of non-performing loans to the respective 6 C's. On assessing the significance of the respective coefficients, the study was able to deduce which of the 6 C's have a greater impact in determining the level of non-performing loans in Microfinance institutions.

The findings of this study are that the C's of credit are essential in credit risk appraisal, and that the most critical factors of the C's are Capacity followed by Contribution and Character in that order. These findings are consistent with the assertions by Mwirigi (2006) who found that Capacity was the most considered factor followed by Contribution, then Character and Commonsense in credit risk appraisal by Microfinance institutions. This study further established that although Collateral is the most talked about among the C's of credit, it is the least important especially in lending to micro and small enterprises.

CHAPTER ONE: INTRODUCTION

1.1 Background

In recent years, a growing number of developing countries including Kenya have embarked on reforming and deregulating their financial systems, transforming their institutions into effective intermediaries and extending viable financial services on a sustainable basis to all segments of the population (Seibel, 1996). By gradually increasing the outreach of their financial institutions, some developing countries have substantially alleviated poverty through lending, institutional strategies and financial systems approaches. In the process, a new world of microfinance has emerged.

Microfinance, the provision of financial services to the low-income households as well as micro and small enterprises (MSEs), provide an enormous potential to support the economic activities of the poor and thus contribute to poverty alleviation. Widespread experiences and research have shown the importance of savings and credit facilities for the poor. This puts emphasis on the sound development of microfinance institutions as vital ingredients for investment, employment and economic growth (Omino, 2005).

At inception, microfinance was restricted to the provision of loan or credit to the poor members of society to help them engage in productive activities or grow their micro and small enterprises. However, the concept of microfinance has broadened over time to include not only the provision of credit, but also savings taking, provision of insurance services as well as financial advice. This development came as a result of the realization that the poor who lack access to the formal financial institutions also require a variety of financial products.

The Grameen Bank of Bangladesh pioneered micro credit in 1976, through lending to members of groups. To ensure prompt payment of loans, group members provided security and peer pressure to the loanees. Many other microfinance institutions throughout the world have replicated the Grameen Bank model.

In Kenya, microfinance institutions (MFIs) have produced the largest volume of credit to the micro and small enterprises. Access to formal credit by MSEs has been quite poor, particularly among the low income category largely as a result of the credit policies associated with loans provided by the formal sector. The market for small loans in Kenya has remained underserved for a longtime and therefore filled by the Microfinance institutions (Coetzee et al, 2003). The formal sector has been unwilling to provide credit to MSEs because the clients from this sector are largely poor, lacking in normal securities that can be used as collateral in conventional lending. Commercial banks have therefore for a long time perceived such businesses as highly risky and undeserving of any credit, even though the business persons save with the commercial banks. Moreover, the costs associated with administering and monitoring credit services are quite high. The loan value required by clients in this sector is low hence proportionately low revenues generated from the loans.

Micro credit arose in the 1980s as a result of research recommendations about government delivery of subsidized credit to the poor people. Microfinance bodies were set up by international aid organizations and local institutions using either an NGO or a savings and credit co-operative societies' framework. They have become important sources of credit for a large number of low income households as well as micro and small enterprises in the rural and urban areas of Kenya.

Growth of the micro credit sector has mainly been driven by ways that are donor supported. A large number of these NGOs have collapsed or are unable to operate in a sustainable manner due to heavy reliance on donors (Baydas et al, 1997). Donors often provide facilities and create a cost base which the NGOs cannot sustain on their own. The schemes therefore last as long as the donor is willing and able to support them (Dondo, 1999).

Prior to the enactment of the Microfinance bill in 2006, MFIs operating in Kenya were unregulated unless they optionally entered the Association for Microfinance Institutions (AMFI), based in Nairobi and funded by a USAID grant. Under the new Act, the MFIs

operating in Kenya will be open to mandatory audits from the Central Bank of Kenya (CBK) and they will also be vulnerable to the fines imposed by the CBK that can reach one million Kenya Shillings for every guideline to which they do not comply. The Microfinance Act will facilitate the establishment of a vibrant, all inclusive, coordinated, focused and long-term sustainable Microfinance sector in Kenya, through CBK regulated Microfinance Banks (MF Banks), which are professionally managed and with accountable boards.

It is worth to note that even though MFIs programmes target the poor, for MFIs to be able to sustain viable credit programmes, borrowers should be able to make sustained and regular repayments as agreed and on time. As such, the criteria for assessing credit risk are essential. Successful and effective credit risk appraisal determines the success of the credit journey.

Numerous approaches have been developed for incorporating risk into the decision making process by lending organizations. They range from relatively simple methods, such as the use of subjective or informal approaches to the use of fairly complex methods like computer simulation models (Luce and Raiffa, 1957). Many lending decisions by the financial institutions are based on the decision maker's subjective feelings about the risk in relation to the expected repayment of the borrower. Lending institutions commonly use this approach in decision making because it is both simple and inexpensive (McGrugan et al, 1993).

While each institution would have its own method of determining risk and quality of clients, depending on the target group, the following risk evaluation concepts are useful for most occasions. The concepts the researcher will study in this survey are referred to as the C's of credit. Many financial institutions use the C's of credit to evaluate credit applications from their customers. The traditional 5 C's of credit are Character (the willingness to repay debt), Capacity (the financial ability to repay debt), Capital, Collateral (possessions or equities from which payment might be made), and Conditions

(reflecting the general economic environment, or special conditions applying to the borrower or the type of credit) (Savery 1977, Sparks 1979, Galitz 1983).

A more recent addition to the traditional 5 C's of credit is Commonsense (Abedi, 2000). Abedi (2000) identify the following 6 C's as important in appraising the creditworthiness of prospective customers, namely; Character, Capacity/Completion, Condition, Collateral, Contribution and Commonsense.

1.2 Statement of the Problem

Granting credit to customers is an important activity for any lending institution, thus the importance of credit risk management in these institutions. Lenders must therefore ensure a thorough credit risk assessment to forestall default.

The goal of credit risk management is to maximize risk adjusted rate of return by maintaining credit risk exposures within acceptable parameters. MFIs need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credit or transactions. The effective management of credit risk is a critical component of a comprehensive approach to risk management and essential to the long-term success of any lending institution
(Sinkey, 1992).

Despite the target of MFIs being the poor, MFIs in Kenya and other parts of the world such as Bangladesh, Bolivia and Indonesia report loan repayment rates that are in almost all cases above 90 percent (Morduch, 1999). The level of non-performing loans of MFIs is therefore low as compared to the level of non-performing loans of commercial banks (Annual reports K-Rep Bank, 2001, Annual reports KCB, 2001). Therefore, MFIs have a big challenge of maintaining the low level of non-performing loans in their loan portfolio by detecting and battling credit risk even before it affects their returns. As such, applying appropriate credit risk assessing and evaluation techniques should proactively manage credit risk. Weak credit risk management is a primary cause of many business failures,

particularly in the case of small businesses (Mc Menamin. 1999). One of the models used to assess credit risk and creditworthiness of customers is the C's of credit model. This model is important because its elements cover all areas that affect credit risk assessment and evaluation of a customer and the customer's characterization. This study therefore aims at determining the extent of use of the C's of credit model and establish its relationship with the non performing loans of MFIs.

1.3 Objectives of the Study

- To establish the extent of use of the C's of credit risk appraisal model by MFIs in Kenya

- To establish the relationship between the use of the C's of credit risk appraisal model and the level of non performing loans of MFIs in Kenya.

1.4 Hypotheses

Ho: There is no relationship between the use of the C's of credit and the level of non-performing loans of MFIs

Ha: There is a relationship between the use of the C's of credit and the level of non-performing loans of MFIs

1.5 Importance of the Study

Microfinance Institutions

They will learn the most used elements of the C's credit model and how it is applied in assessing and evaluating credit risk to minimize non performing loans. They will also obtain information on problems of credit management in Kenya and the strategies that need to be put in place to solve these problems and the experience of similar organizations in the other parts of the world in solving theses problems.

The Government and Central Bank

The government is formulating policies that relate to the regulatory environment of the country as far as micro credit activities are concerned. As the sector grows, the

government has to come up with policies that address the various challenges within the sector, so as to reduce any resultant chaos and to facilitate faster growth with minimum drawbacks.

Donors to microfinance institutions

Donors and strategic investors who provide funding for credit need better understanding of the best opportunity to invest their money. Donors should understand if their funds are reaching the desired objectives and whether Microfinance institutions (MFIS) are putting in place safeguards to reduce default.

Scholars

The area of microfinance is still suffering from a dearth of information. Research in the various component of the sector will help to unearth hitherto unknown information that will go along way in facilitating further understanding of microfinance.

1.6 Definition of Terms

Loan product

Types of loans with particular sets of terms and conditions, and often for a particular use.

Micro credit

Micro credit refers to the credit given mainly to low-income entrepreneurs or the informal sector to finance them in business. The loans may be provided by both the informal and the formal sector.

Micro and Small Enterprises (MSEs)

As per the UNDP criteria of classifying institutions over the world. "Micro enterprises" are those with 10 or fewer workers, "small enterprises" have from 11 to 50 workers, and "medium enterprises" have from 51 to 100 workers (CBS 1999).

Microfinance

The Association of microfinance institutions (AMFI) defines microfinance as the provision of micro credit as well as other services such as savings, deposits, insurance services and other financial instruments or products aimed at the poor or low-income people. This study focuses on the micro credit aspect.

Microfinance Institutions (MFIs)

This is an institution set up and primarily dealing in the provision of micro finance services.

Default Risk

The likelihood that a customer will fail to repay the credit obligation.

Default Rate

The rate at which loans become bad and cannot be collected unless legal process commences.

Creditworthiness

Ability to repay the loan under the terms by which it is provided.

CHAPTER TWO: LITERARURE REVIEW

2.1 Credit risk

This is the risk that the promised cash flows from loans held by financial institutions may not be paid in full. Virtually, all financial institutions face this risk. Financial institutions that make loans with long maturities are more exposed than financial institutions that might make loans with short term maturities. This means that banks, thrift and life insurance companies are more exposed to credit risk than Microfinance institutions or money market mutual funds that make loans with short term maturities (Hempel, Simonson, and Coleman, 1994).

It is therefore incumbent on financial institutions to estimate the expected default risk on loans held as assets and to demand risk premiums on those loans commensurate with that risk exposure. The return distribution for credit risk suggests that financial institutions need to both monitor and collect information about firms whose assets are in their portfolios. Thus, managerial efficiency and credit risk management strategy affect the shape of the loan return distribution (Saunders, 2002)

According to Saunders (2002), credit risk may be classified as firm specific credit risk, which is the risk of default by the borrowing firm associated with the specific types of project risk taken by the firm, and systematic credit risk which is the risk of default associated with the general economy wide or macro conditions affecting all borrowers.

2.2 Credit Control Policy and Risk management in MFIs

Awarding credit is a journey, the success of which depends on the methodology applied to evaluate and award the credit. This journey starts from the application for credit and ends at the time the loan from the credit process is fully paid. Like any human journey, the credit management process has got smooth paths, impediments and detours before the destination is reached. Therefore, credit needs to be effectively controlled for it to succeed eventually. Credit control can rightly be said to start when the client walks into the office. If during the discussion with the client, the credit manager agrees to grant

credit. the lender has embarked on a journey called credit control and the nature of the journey will be influenced by the quality of the decision (Clarke et al. 1999).

Credit control policy is therefore the general guideline governing the process of giving credit to the firm's customers. The policy sets rules on who should get what credit and when and why. In addition the policy defines the repayment arrangements, necessary collaterals and chattels as an obligation by the borrower. The method of assessment and evaluation of risk for each prospective applicant are part of a credit control policy (Thygerson, 1995). There is need for an effective credit control policy at all times to manage credit risk in order to ensure a fairly healthy credit management program, with minimal expensive bad debts and minimized credit risk.

Bulterworths (1990) asserts that effective risk management. from the viewpoint of financial institutions, is the key to the future success in lending institutions and therefore, these institutions should focus on professional management of risk. The successful financial institutions are. and will increasingly be those that develop focused strategies, lower their overhead ratio, ingeniously exploit their advantages and know how to calculate their risks.

Therefore, there is need for an effective credit control policy to manage credit risk. Hence, in order to ensure a fairly healthy credit management program, with minimal expensive bad debts. and minimized credit risk, a company strives to establish an effective credit control and lending policy.

2.3 Credit appraisal models

Lending institutions need to measure the probability of default of borrowers. The ability to do this largely depends on the amount of information the financial institution has about the borrower. At the retail level, much information needs to be collected internally or purchased from external credit agencies. At the wholesale level, the information sources include publicly available information such as certified accounting statements, stock and bond prices and analysis reports. The availability of more information along with lower

average cost of collecting such information allows financial institutions to use more sophisticated and usually more quantitative methods in assessing default probabilities for large borrowers compared to small borrowers (Saunders, 2002).

Advances in technology and information collection are making quantitative assessments of even smaller borrowers increasingly feasible and less costly. Financial institutions have therefore employed many different models to assess the default risk on loans. These vary from the relatively qualitative to the highly quantitative models. These models are not mutually exclusive, in that, more than one model may be used to reach a credit pricing or loan quantity rationing decision (Gardener, Mills and Cooperman, 2000).

2.3.1 Qualitative Models

In the absence of publicly available information on the quality of borrowers, the financial institution manager has to assemble information from private sources such as credit and deposit files and or purchase such information from external sources such as credit rating agencies. The amount of information assembled varies with the size of potential debt exposure and the cost of collection. A number of key factors enter into the credit decision. These include borrowers' specific factors which are idiosyncratic to the individual borrower, as well as market specific factors that have an impact on all borrowers at the time of the credit decision (Thygerson, 1995).

2.3.1.1 Borrowers' specific factors

Reputation

It involves the borrowing and lending history between applicants and the financial institution. If, over time, the borrower has established a reputation for prompt and timely repayment, this enhances the applicant's attractiveness to the financial institution. A long-term customer relationship between a borrower and a lender forms an implicit contract regarding borrowing and repayment that extends beyond the formal explicit legal contract on which borrower lender relationships are based. The importance of reputation, which can be established only over time through repayment and observed behavior works to the disadvantage of small and newer borrowers.

Leverage

A borrower's leverage or capital structure affects the probability of default. The loans increase the borrower's interest charges and pose a significant claim on its cash flow. The higher the leverage, the higher the probability of default.

Volatility of earnings

A highly volatile earnings stream increases the probability that the borrower cannot meet fixed interest and principal charge for a given capital structure. Consequently, new firms or firms in high-tech industries with high earnings variance over time are less attractive due to credit risks than are those with long and more stable earnings histories.

Collateral

A key feature in any lending and loan pricing decision is the degree of collateral or assets forming the security of the loan. Subordinated debentures are riskier because their claims to the assets of a defaulting borrower are junior to those of both mortgage bondholders and debenture bondholders.

2.3.1.2 Market specific factors

The business Cycle

The position of the economy in the business cycle phase is enormously important to a financial institution in assessing the probability of borrowers default. During recessions, firms in the consumer durable goods sector that produce luxurious goods do relatively badly compared to those in the non durable goods sector producing non luxurious goods. People cut back on luxuries during recession but are less likely to cut back on the necessities such as food. These corporate borrowers in the consumer durable goods sector of the economy are especially prone to default risk. Because of cyclical concerns, financial institutions are more likely to increase the relative degree of credit rationing in recessionary phases. This has especially adverse consequences for smaller borrowers with limited or no access to alternative credit markets.

The level of interest rates

High interest rates are an indication of restrictive monetary policy actions by the CBK. Financial institutions not only find funds to finance their lending decisions scarcer and more expensive, but also must recognize that high interest rates are correlated with higher credit risk in general.

2.3.1.3 The C's of credit

The C's of credit are a common reference to the major elements of a financial institution's analysis when considering a request for a loan. The traditional 5 C's of credit are Character (the willingness to repay debt), Capacity (the financial ability to repay debt), Capital, Collateral (possessions or equities from which payment might be made), and Conditions (reflecting the general economic environment, or special conditions applying to the borrower or the type of credit) (Savery 1977, Sparks 1979, Galitz 1983).

A more recent addition to the traditional 5 C's of credit is Commonsense (Abedi, 2000). Lending institutions use the C's of credit appraisal technique to evaluate a customer as a potential borrower. The C's of credit model helps the lending institutions to decrease the risk of default, as they get to know their customer. According to Abedi (2000), the 6 C's are Character, Capacity, Condition, Collateral, Contribution and Commonsense.

Character

This is the maturity, honesty, trustworthiness, integrity, discipline, reliability and dependability of a customer. Good character is no doubt the most important quality of a client. A person of good character will pay his or her debt whether it is secured or not. Such a person will disclose all the facts of his deal because his intentions are to seek guidance and help from the organization. When in problems, such borrowers will adhere to the credit administrator's request for alternatives arrangements to pay his debt instead of hiding from his lenders. A person's character can be determined through personal interviews, reference from other institutions, using contacts of references who are acquainted with the client or personal knowledge of the client.

Capacity

This refers to the client's ability to service his or her debt fully. Even if one has good intentions but has no funds, he or she will not be able to repay all the loan installments plus interest on time. This capacity can only be well measured through enquiring on the source of client's income and subtracting all the commitments. The credit officer may observe and analyze various ratios and trends in the audited financial statements. For venture capital, a common feature for micro and small enterprises, capacity is based on projections and hence the integrity and proper modeling of such financial projections is quite crucial.

Capacity also refers to the client's record of performance. A client who has borrowed loans from various institutions and paid regularly over a long period of time can be classified as experienced in the art of borrowing and repayment. The client is disciplined and is likely to keep a good record.

Condition

The decision to grant credit to a customer could be influenced by current economic and business conditions generally or by specific business conditions relating to the applicant or the lending firm itself. For instance, if the credit applicant is a small business and there is an economic recession in the country, the risk of small business failure in such circumstances is considerably increased. Alternatively, if the lending firm itself is finding sales for some of its products slow, it may take a more relaxed view to granting credit to a potential customer.

Condition refers to the overall environment. Is the commercial, social-economic, technological and political environment conducive to a successful implementation of the project? Are there any impediments and detours to the successful implementation of the project?

Collateral

This is a security given to secure the loan, in terms of non-encumbered assets. A lender considers the ratio of the value of the collateral, against the amount of the loan. This is the most talked about but it is the least important especially in lending to micro and small enterprises. In addition some collateral are difficult to dispose off to recover the loan and in some industries, there are lots of differences that make it hard to dispose off collateral.

Contribution/Capital

This is the client's commitment to the project at hand. Is he willing and able to make a contribution? If a client is having difficulty raising the deposit, he is likely to be unable to repay his installments regularly. Is the client willing to contribute his time to the management of the projects or assets? Absentee management has been the main cause of failure of many projects in micro and small enterprises sector.

Commonsense

This is the natural ability to make good judgment and behave in a practical and sensible way. It refers to being prudent and reasonable in analyzing, presenting, using and interpreting financial data and other related business information. In addition, commonsense is the reasonableness of the financial information provided to support the case for financing a project as an indication of the ability of the project to pay itself.

While each of the above factors is important, they should not be considered in isolation. While adverse record on each one is enough to reject an application, good reports on all the aspects improve the probabilities of success. Therefore, these elements can be used individually or in combination, depending on the level of quality of credit appraisal required and the amount of credit involved.

The C's of credit model is meant to help financial institutions in Kenya to thoroughly evaluate and assess the creditworthiness of existing and potential customers before awarding new or further credit, hence enabling them to avoid non-performing loans. The C's of credit model covers the entire area of credit risk and hence its application in credit

risk appraisal will ensure that lending institutions protect their assets against loss (Abedi, 2000).

2.3.2 Quantitative Models

Quantitative models involve the use of sophisticated computer simulation as well as other statistical techniques to assess the creditworthiness of a customer. Many advantages accrue through the use of quantitative methods for credit management. First, there are obvious benefits from optimally making credit decisions. More creditworthy applicants are granted credit (or additional credit), thus increasing profits; more non-creditworthy applicants are denied credit (or given reduced credit), thus decreasing losses; and optimal collections policies minimize the cost of administering collections or maximizing the amount recovered from the delinquent account. In addition, there are indirect advantages, including: applications can be processed quickly; the decisions are objective and not based upon human biases or prejudices (this fairness is crucial in view of antidiscrimination laws in credit granting); the profitability of the lending institution can be tied explicitly to the credit decisions; management has easy control over the system, so that changes in policy can easily be incorporated into the software rather than disseminated through meetings and paper; and fewer people are needed to administer credit granting, and the more experienced people can concentrate on difficult cases (Galitz, 1983).

2.3.2.1 A functional expression of credit risk

Credit risk is the uncertainty associated with a borrower's loan repayment. If the expected probability of default is d, then the expected probability of receiving payment is (1-d). A profitable loan contract rate r*, must compensate the lender for the time value of money as reflected by the risk free rate of interest r, and the risk of default, expressed by the following equation.

$$r^* = \frac{1 + r}{1 - d} - 1$$

The above equation captures the fundamental notion of a risk-return trade off. Specifically, the financial institution's profitable loan contract rate increases with its perception of the borrower's probability of default (d=0), then r* = r.

In contrast, when a borrower is certain to default (d=1), then the loan contract rate is undefined (i.e. lender cannot be compensated for the risk).

For a particular borrower, the difference between the profitable loan contract rate r* and the risk free rate r is the default risk premium required by the lender. Rearranging the equation,

Default risk premium = r* - r = (1+r*) d.

In theory, the typical credit analysis performed by a financial institution focuses on determining a borrower's probability of loan repayment (1-d), where d is the probability of default (Sinkey, 1992)

2.3.2.2 Credit Scoring Models

Many lenders, particularly large lenders, use quantitative credit scoring models to integrate information from a variety of sources. Data on an applicant are weighted according to predetermined standards and a score for creditworthiness is calculated. Applicants falling below a predetermined minimum acceptable score are rejected or given more attention in the loan application process before loans can be made. Credit scoring models use data on observed borrower characteristics either to calculate the probability of default or to sort out borrowers into different default risk classes. To employ credit scoring models in this manner, the manager must identify objective economical and financial measures of risk for any particular class of borrowers (Gardener, 2000). After data are identified, a statistical technique quantifies or scores the default risk probability or default risk classification.

According to Saunders (2002), Credit scoring models include the following 3 types.
- Linear probability models

- Logit models
- Linear discriminant models

Linear probability and Logit models

The Linear probability model uses past data such as accounting ratios as inputs into a model to explain repayment experience on old loans. The relative importance of the factors used in   explaining past repayment performance are used to forecast probabilities on new loans. According to this model, old loans are divided into two observational groups; those that defaulted ($Z_i = 1$) and those that did not default ($Z_i = 0$). The observations are then related by linear regression to a set of j casual variables (X_{ij}) that reflect quantitative information about the ith borrower. The model is estimated by linear regression of the form:

$$Z_i = \sum_{j=1}^{n} \beta_i x_{ij} + e_i$$

where, β_i is the estimated importance of the jth variable in explaining past repayment experience. For example, suppose there were two factors influencing the past default behaviour of borrowers; the leverage (D/E) and the sales – asset ratio (S/A). Based on the past default (repayment) experience, the linear probability model is estimated as

$$Z_i = 0.5(D/E_i) + 0.1(S/A_i)$$

This technique is straightforward as long as current information on the X_{ij} is available for the borrower. However, its major weakness is that the estimated probabilities of default can often lie outside the interval 0 to 1. The Logit model overcomes this weakness by restricting the estimated range of default probabilities to lie between 0 and 1.

Linear discriminant models

While Linear probability and logit models project a value for the expected probability of default if a loan is made, discriminant models divide borrowers into low or high default risk classes, contingent on their observed characteristics. An example of such a model is one developed by Edward Atman in 1968, for publicly traded manufacturing firms in the

US. He used discriminant analysis to come up with the following index of creditworthiness.

$$Z = .72X_1 + .85X_2 + 3.1X_3 + .42X_4 + 1.0X_5$$

Where,

X_1 = Net working capital/Total assets

X_2 = Retained earnings/Total assets

X_3 = EBIT/Total assets

X_4 = Shareholders' equity/Total liabilities

X_5 = Sales/Total assets

The higher the value of Z, the lower the default risk classification of the borrower. Thus low or negative values of Z may be evidence of the borrower being a member of a relatively high default risk class. According to Altman's credit scoring model, any firm with a Z score of less than 1.18 should be placed in the high default risk region. Thus, the financial institution should not make a loan to such a borrower until it improves its earnings.

There are however a number of problems using this discriminant analysis model to make credit risk evaluations (Gardner, 2000) as listed below;

- This model usually discriminates only two extreme cases of borrower behaviour, while ignoring the others.
- There is no obvious economic reason to expect the weights in the discriminant function or more generally, the weights in any credit scoring models to be constant over any but very short periods.
- These models ignore qualitative factors that may play a crucial role in the default or no default decision.
- There are no default records kept by financial institutions.

2.3.2.3 Default risk model

This is a typical credit analysis performed by lending institutions which focus on determining the underlying relationship between a borrower's characteristics, both

financial and non-financial and the expected probability of default (D). This relationship is given by the following equation:

D = d {I(c), CF, NW, G}

Where,

I stands for information quality i.e. timelines and accuracy.

C stands for character (you cannot do business with bad people)

CF stands for the level and stability of cash flow

NW stands for real net- worth and

G stands for guarantees

As each of these factors deteriorates, borrower expected probability of default increase and vice versa. It is important to note that customer's risk cannot be considered in isolation, its contribution to portfolio risk is important as well (sinkey, 1999)

2.3.2.4 Newer models of credit risk measuring and pricing

The newer group of credit risk models uses financial theory and more widely available financial market data to make inferences about default problems on debt and loan instruments. Consequently, these models are most relevant in evaluating lending to larger borrowers in the corporate sector. These include among others, the Risk adjusted return on capital (RAROC), the Term structure of credit risk approach and the Mortality rate approach.

Risk adjusted return on capital

A popular model to evaluate credit risk based on market data is the Risk adjusted return on capital (RAROC) model that was pioneered by bankers trust and has now been adopted by virtually all financial institutions in the USA and Europe. This is a new credit risk appraisal model which measures how much risk the lending institution is taking. It helps to determine if returns are providing adequate compensation for risk and assesses if the lending institution is providing shareholders with value added through its

participation in business. The essential idea behind RAROC is that, rather than evaluating the actual or promised annual Return on Assets (ROA) on a loan, that is, net interest and fees divided by the amount lent, the lending officer balances expected interest and fee income against the loan risk. Thus, rather than dividing loan income by assets lent, it is divided by some measure of assets (loan) risk.

$$RAROC = \frac{\text{one year's income on a loan}}{\text{Loan (asset) risk or risk capital}}$$

A loan is approved only if RAROC is sufficiently high relative to a benchmark cost of capital for the financial institution. Alternatively, if RAROC on an existing loan falls below the bench mark cost of capital, the lending officer should seek to adjust the loan terms to make it profitable again.

2.4 Empirical Studies

A lot of research has been done in many countries on credit risk management in commercial banks but very little on MFIs. Wanjiru (2000) undertook a study to determine factors that influence productivity of credit officers in Microfinance institutions. Rukwaro (2000) wrote on credit rationing by Microfinance institutions and its influence on the operations of small and micro enterprises and indeed concluded that rationing impacts negatively on operations of micro and small enterprises. Kitaka Peter (2001) in his study determined the use of financial performance indicators by Microfinance institutions in Kenya and Mokogi (2003) established the economic implications of lending of Microfinance institutions on MSEs.

Mutwiri (2003) found that the 6 C's of credit model is essential in credit risk appraisal of Commercial Banks in Kenya and that the most critical factors of the model are Character, Capacity and Commonsense in that order. These findings are in agreement with assertions of scholars such as Abedi (2000) who found out that Character is the most important criteria in risk assessment by Commercial Banks and other financial

institutions in America followed by Capacity to repay the loan and the reasonableness of the cash flow from the intended investment.

Mwirigi P.K. (2006) in his study examined the credit risk management techniques adopted by Microfinance institutions in Kenya. The study concluded that 92% of the respondents used credit management policies as a basis of objective credit risk appraisal, 67.5% had distinct departments where credit activities are organized, 67.5% involved their institutions in the development of credit risk management policies and 87.5% used preset credit risk levels as a means of managing credit risk. He also identified credit risk as the most important risk with 80% of the respondents ranking it as the most important among other risks faced by their institutions. He also stated in his study that despite the credit risk, management among these institutions was not well developed, with most institutions not adopting quantitative techniques in appraising credit risk. He further concluded that most of the institutions used the 6 C's criteria and that Capacity/Completion was the most important factor followed by Contribution, Character and reasonableness (Commonsense) of cash flows from business.

2.5 Non-performing loans in Microfinance institutions

Customers borrow funds for various reasons e.g. purchase of land, houses, and capital for business. In the relationship between borrower and lender, unexpected misfortunes sometimes occur, leading to default in scheduled repayments. The defaults on a persistent basis become a bad debt to the financial institution. These bad debts are referred to as non performing loans. Therefore, when loans turn out to become bad debts, they reduce the asset base of the lending institution and affect the institution's ability to lend further.

2.5.1 Causes of non-performing loans

Non-performing loans are those loans that are not being serviced as per loan contracts, and expose the financial institution to potential losses (CBK Annual report, 2000). Even the best of lending institutions with good lending policies and procedure do become victims of non-performing loans in one way or another. However, MFIs in Kenya and other parts of the world such as Bangladesh, Bolivia and Indonesia report loan repayment

rates that average above 90 percent (Morduch, 1999). The probable reasons for such impressive loan repayment rates include the following:

First, through group lending, group members provided security and peer pressure to the loanees. According to the rules, if one member ever defaults, all in the group are denied subsequent loans.

The second mechanism for securing high repayment rates with high monitoring costs involves exploiting dynamic incentives (Besley, 1995). Programs typically begin by lending just small amounts and then increasing loan size upon satisfactory repayment. The repeated nature of the interactions and the credible threat to cut off any future lending when loans are not repaid can be exploited to overcome information problems and improve efficiency, whether lending is group based or individual based. Incentives are enhanced further if borrowers can anticipate a stream of increasingly larger loans. (Hulme and Mosley, 1996) term this "progressive lending".

Third, regular repayment schedules screen out undisciplined borrowers. They give early warning to loan officers and peer group members about emerging problems and they allow the lending institution to get hold of cash flows before they are consumed or otherwise diverted (Rutherford,1998).

Fourth, while few programs require collateral, many have substitutes. For example, programs following the Grameen model require that borrowers contribute to an "emergency fund" in the amount of 0.5 percent of every unit borrowed (beyond a given scale). The emergency fund provides insurance in cases of default, death, disability, etc., in amounts proportional to the length of membership. An additional 5 percent of the loan is taken out as a "group tax" that goes into a group fund account. Up to half of the fund can be used by group members (with unanimous consent). Typically, it is disbursed among the group as zero interest loans with fixed terms. These "forced savings" can be withdrawn upon leaving, but only after the lending institutions have taken out what they are owed. Thus, in effect, the funds serve as a form of partial collateral.

Fifth. granting loans with short duration and flexible repayment schedules. For most MFIs. loan durations do not exceed twelve months, with weekly, fortnightly or monthly repayment schedules which ensure that default signs are detected in good time.

The causes of non-performing loans include the following:

Poor and unprofessional credit risk evaluation

Lending decisions made in the past by lending institutions put a lot of emphasis on security than other similar important consideration. There are instances in the past when it was easier to get a loan from a financial institution as long as the borrower had security to be charged than the ability to service the loan. Cash flow projections. viability of the projects. character of the borrowers, previous loans completion and ability to repay were not considered as important. This way, a number of lending institutions ended up with many non performing loans due to incomplete. poor and unprofessional credit risk assessment and evaluation. particularly using all the C's of credit appraisal model.

Moral hazards on the part of senior management, credit officers and borrowers

This will arise when loans are not subjected to normal objective credit assessment before disbursement. This may include extending credit to businesses they own or with which they are affiliated. to personal friends and relatives among others. On the part of borrowers. this will arise when the borrowed funds are not put to the use for which they are borrowed, but rather, the funds are diverted to other personal use such as medication. food. school fees and sometimes leisure.

Lack of supervision of projects

This arises when update of customer information and borrowers circumstances is not done frequently as a result of the lending institutions employees' inability to be close to their customers.

Lengthy litigation process

Lending institutions have in many occasions been frustrated when pursuing loan

defaulters due to the lengthy litigation process. The required statutory notices to defaulters which are usually three in number, take seven months. Although lending institutions give sufficient notices to sell securities, costly and inefficient delays are occasioned by court injunctions given usually on the day of sale, stopping the realization (Hempel, et al.1994)

Intentional default

This arises when a client borrows funds with no intention to repay, possibly because they are well connected politically and may feel protected by the powers that be. Political patronage was a major cause of failures of many financial institutions in Kenya in the 1990's arising from non performing loans (CBK annual supervision report, 2000).

Chronic diseases such Malaria and AIDS

The target of MFIs are the poor people who have no adequate access to good medical facilities, hence the mortality rate among the poor people is quite high. Therefore, when a borrower who is a sole proprietor of a micro and small enterprise passes on, his/her business will cease, hence making it difficult to recover the outstanding loan.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section discusses the methodology that was employed in carrying out the study

3.2 Research design

The study made use of Nairobi city where many Microfinance institutions (MFIs) have their headquarters. Nairobi city is also where many micro and small enterprises are springing up.

The study made use of a cross section survey which determines the events as they are at a particular point in time. Credit risk assessment and evaluation of a particular customer is done at a particular point in time and not over time, when the customer applies for a loan.

3.3 Population

The population of interest were all the Microfinance institutions as per the Central Bank of Kenya 2008 register of Microfinance institutions. The listed Microfinance institutions are 50 in number, with a number of branches in other parts of the country (CBK Report, 2008).

3.4 Sampling

The sample frame consisted of all the Microfinance institutions as per the CBK register. Simple random sampling technique was used to select 15 Microfinance institutions for the study. Sampling was preferred because of limited time and financial resources.

3.5 Data Collection Instruments

Primary data was collected using semi structured questionnaires administered to the credit managers of the various MFIs. The drop and pick back approach was used since it was considered an appropriate method for this study since it gives respondents time to fill the questionnaire and gives the researcher an opportunity to review the questionnaire before picking it to ensure completeness in responses.

3.6 Data Analysis

Data from the completed questionnaires was coded to facilitate statistical analysis. Both descriptive and inferential statistics were used to analyze the data, including means, standard deviation and frequency distribution.

A regression analysis was undertaken to determine the sensitivity of non-performing loans to each of the 6 C's in the credit model i.e. the study assed the degree to which each of the 6 C's impacts on the level of non-performing loans (NPLs), as evidenced by the data collected.

A multiple regression analysis of the following form was used.

$$NPLs = \alpha + \beta_1 r_1 + \beta_2 r_2 + \beta_3 r_3 + \beta_4 r_4 + \beta_5 r_5 + \beta_6 r_6 + ei$$

Where;

α is the regression constant

NPLs is the dependent variable (Non-performing loans)

β_1 through β_6 are coefficients to be estimated from the results of the above regression.

r_1 is Character

r_2 is Capacity

r_3 is Condition

r_4 is Collateral

r_5 is Commonsense

r_6 is Contribution and

e_i is the error term.

Accordingly, a t-test was carried out on the coefficients β_1, β_2, β_3, β_4, β_5 and β_6 to measure the significance of the sensitivity of non-performing loans to the respective 6 C's. On assessing the significance of the respective coefficients, the study was able to deduce which of the 6 C's have a greater impact in determining the level of non-performing loans in Microfinance institutions.

The following table gives a summary of data analysis that was undertaken in this study.

	Objective	Model	Hypothesis	Test Statistic	Significance
1.	Extent of use of the C's of credit.	Descriptive Statistics	-	Mean and Standard deviation	Yes or No
2.	Relate use of the C's of credit to non – Performing loans.	$NPLs = \alpha + \sum_{i=1}^{n} \beta_i r_i + e_i$	$H_0 : \beta_i = 0$ $H_a : \beta_i \neq 0$	t - test	Yes or No

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

4.1 Introduction

This study was a cross section survey that determines the events as they are at a particular point in time. This was considered a suitable method of obtaining answers to the same questions from several firms in the same industry at once. The sample was a total of 15 MFI's as per the CBK's 2008 register of MFI's. 15 questionnaires were sent out and 10 questionnaires were received back, representing 66.6% response rate.

4.2 Background information of the institutions studied

The respondents were asked about ownership of their organization. 60% said their institutions were private, 20% were owned by NGOs, 10% were owned by partnerships and the remaining 10% were owned by churches. This shows that most MFI's are owned and managed by private firms and individuals in Kenya.

Table 4.1 Ownership

Ownership	Frequency	%
NGO	2	20
Partnership	1	10
Private	6	60
Church	1	10
Total	10	100

Source: Research Data

4.2.1 Year of Establishment

The respondents were also asked to state when their institutions were established. The responses show that 90% were established after 1998 and only 10% before 1998. This

shows that most MFI's were established recently. after the liberalization of the financial sector in the 1990's.

Table 4.2 Year of establishment

Year of establishment	Frequency	%
Before 1998	1	10
After 1998	9	90
Total	10	100

Source: Research Data

4.2.2 Source of funds

The respondents were further asked the source of their funds. 40% said that their funds were internally generated. 30% said their funds came from foreign donors, 20% said their funds came from customer savings and 10% from borrowings. This shows that MFI's retain most of their funds for purposes of lending as opposed to paying dividends.

Table 4.3 Source of funds

Source of funds	Frequency	%
Foreign donors	3	30
Internal operations	4	40
Customer savings	2	20
Borrowings	1	10
Total	10	100

Source: Research Data

4.3 Credit Control Policy

The respondents were asked to state the factors they consider in establishing a credit control policy. As indicated in table 4.4 below, the respondents consider overhead costs with the highest mean of 4.6 and a standard deviation of 0.52, state of the economy with a mean of 3.5 and a standard deviation of 0.53, general trend of credit extended with a mean of 3.2 and a standard deviation of 1.14 and the existing credit policy with a mean of 2.5 and a standard deviation of 1.36 in that order in designing a credit policy.

Table 4.4   Factors considered in establishing a credit policy

Factor	Frequency	Mean	Standard Deviation
Overhead costs	46	4.6	0.52
State of the economy	35	3.5	0.53
Existing credit policy	25	2.5	1.36
General trend of credit extended	32	3.2	1.14

Source: Research Data

4.4 Credit Policy manual

The respondents were asked to state whether they have a credit policy manual. The study revealed that 90% have credit policy manuals and only 10% did not have. This shows that there is adequate documentation of the procedures to be followed in credit management. The respondents with no credit policy manuals stated that their institutions had simple lending schemes that did not require documentation. They also stated that credit manuals are expensive to develop.

Table 4.5 Credit policy manual

	Frequency	%
Have manual	9	90
Do not have manual	1	10
Total	10	100

Source: Research Data

4.5 Credit Policy objectives

The respondents were asked to state their credit policy objectives. As indicated in table 4.6 below, the respondents consider training of employees with the highest mean of 4.2 and a standard deviation of 0.92, competitive tool to gain competitive advantage with a mean of 3.7 and a standard deviation of 0.95, minimizing credit costs with a mean of 3.4 and a standard deviation of 1.07 and to encourage movement of surplus money with a mean of 2.8 and a standard deviation of 1.23 in that order as being their credit policy objectives.

Table 4.6 Credit policy objectives

Credit policy objectives	Frequency	Mean	Standard Deviation
A competitive tool to gain competitive advantage	37	3.7	0.95
Train employees	42	4.2	0.92
Minimizing credit costs	34	3.4	1.07
Encourage movement of surplus money	28	2.8	1.23

Source: Research Data

4.6 Factors considered when setting up credit policy

The respondents were asked to state the factors they considered when setting up a credit policy. As indicated in table 4.7 below, the respondents consider Credit terms with the highest mean of 4.4 and a standard deviation of 0.52, products/ services to cover with a mean of 3.9 and a standard deviation of 1.1, cost of debtors with a mean of 3.7 and a standard deviation of 1.16 average turn around period with a mean of 3.2 and a standard deviation of 0.92, and Clients to grant credit with a mean of 2.6 and a standard deviation of 1.35 in that order as being factors considered when setting up a credit policy. These findings indicate that MFI's have clear objectives relating to their credit policies and as such, their credit risk assessment is based on sound foundation of facts.

Table 4.7 Factors considered when setting up credit policy

Factor	Frequency	Mean	Standard Deviation
Products/ services to cover	39	3.9	1.10
Credit terms	44	4.4	0.52
Clients to grant credit	26	2.6	1.35
Average turn around period	32	3.2	0.92
Cost of debtors	37	3.7	1.16

Source: Research Data

4.7 Approval of loans and approval limits.

The respondents were asked to state the officer/committee that approves loans and their approval limits. As indicated in table 4.8 below, the respondents stated that the Managing Director approves credit of more than Kshs 1.5 M, while the credit manager approves credit amounting to less than Kshs 1.5 M. The Branch manager approves credit between Kshs 0.5M to Kshs 1 M.

Table 4.8 Approval of loans and approval limits

Management Level	Upto Kshs 500,000.00	Kshs 0.5M to 1M	Kshs 1M to 1.5M	Kshs 2M and above
Managing Director	10%	10%	10%	60%
Credit Manager	40%	30%	60%	10%
Branch Manager	50%	60%	30%	30%

Source: Research Data

4.8 Categories through which funds are lent to customers

The respondents were asked to state the categories through which funds are lent to customers. As indicated in table 4.9 below, the respondents consider lending to individuals through groups with the highest mean of 4.5 and a standard deviation of 0.52, lending to groups with a mean of 4.0 and a standard deviation of 1.1 and lending directly to individuals with a mean of 3.7 and a standard deviation of 1.2 in that order as being categories through which funds are lent to customers. These findings show that lending through groups is considered as an important approach through which MFI's safeguard their loans through peer pressure and group guarantee.

Table 4.9 Categories through which funds are lent

Category	Frequency	Mean	Standard Deviation
Groups	40	4.0	1.10
Individuals through groups	45	4.5	0.52
Direct to individuals	37	3.7	1.20

Source: Research Data

4.9 Type of MSE's operations financed by MFI's

The respondents were asked to state the type of MSE's operations financed by MFI's. As indicated in table 4.10 below, the respondents consider providing additional capital with the highest mean of 4.6 and a standard deviation of 0.51, providing loans to finance working capital with a mean of 4.1 and a standard deviation of 0.9 and providing loans as initial capital with a mean of 4.1 and a standard deviation of 1.2 in that order as being the type of MSE's operations financed by MFI's. These findings imply that MFI's prefer funding existing businesses for expansion purposes, since their performance is already as opposed to financing new ones whose performance is unknown

Table 4.10 Categories through which funds are lent

Category	Frequency	Mean	Standard Deviation
Additional Capital	46	4.6	0.51
Working Capital	41	4.1	0.90
Initial Capital	41	4.1	1.20

Source: Research Data

4.10 Average lending period for loans

The respondents were asked to state the average lending period for loans. As indicated in table 4.11 below, the respondents consider the average lending period to be for less than one year with the highest mean of 4.2 and a standard deviation of 0.79, between 1-2 years with a mean of 4.0 and a standard deviation of 0.94, between 2-3 years with a mean of 3.2 and a standard deviation of 0.9 and over 4 years with a mean of 2.2 and a standard deviation of 1.03 in that order as being the average lending period for loans. These findings show that MFI's lend to their customers on a short term basis, which explains the high repayment rates in most MFI's, since defaulters can be detected early for necessary remedial measures to be undertaken.

Table 4.11 Average lending period for loans

Years	Frequency	Mean	Standard Deviation
Over 4 years	22	2.2	1.03
2-3 years	32	3.2	0.90
1-2 years	40	4.0	0.94
Less than 1 year	42	4.2	0.79

Source: Research Data

4.11 Credit Appraisal

The respondents were asked to classify the method used in credit appraisal. The study revealed that 90% use mainly qualitative techniques while only 10% use a combination of both qualitative as well as quantitative techniques in credit appraisal. No respondent indicated that they use only quantitative techniques. This shows that Majority of MFI's use qualitative techniques in their credit appraisal and they have not embraced fully the use of quantitative techniques.

Table 4.12 Credit appraisal techniques

Credit appraisal technique	Frequency	%
Qualitative	9	90
Qualitative and Quantitative	1	10
Quantitative	-	-
Total	10	100

Source: Research Data

4.12 Regularity of credit policy review

The respondents were further asked to state how regularly their credit policies were reviewed.

50% stated that they reviewed the policy quarterly, 30% yearly, 10% half yearly and 10% did not indicate as shown by table 4.13 below. These findings show that MFI's usually update their credit policies frequently thus resulting in effective credit policies.

Table 4.13 Regularity of reviewing the credit policy.

Frequency of review	Frequency	%
Quarterly	5	50
Half yearly	1	10
Yearly	3	30
Others (did not indicate)	1	10
Total	10	100

Source: Research Data

4.13 How employees are made aware of credit risk

The respondents were also asked to state how their organization makes employees aware of credit risk. As indicated in table 4.14 below, the respondents consider credit manuals as the most important in making employees aware of the credit risk with the highest mean of 4.5 and a standard deviation of 0.53, through supervision on a one to one basis with a mean of 4.0 and a standard deviation of 0.67, through regular meetings with a mean of 3.9 and a standard deviation of 0.99 and through training with a mean of 3.3 and a standard deviation of 0.82 in that order as being the channel through which employees are made aware of credit risk. This shows the importance of the credit manual as a credit policy tool.

Table 4.14 Channels of creating credit risk awareness

Years	Frequency	Mean	Standard Deviation
Regular meetings	39	3.9	0.99
Regular training	33	3.3	0.82
Supervision on one to one basis	40	4.0	0.67
Credit manual	45	4.5	0.53

Source: Research Data

4.14 Credit Appraisal Using the C's of credit

To establish the criteria used by the institutions in evaluating credit risk, the respondents were asked to specify which factors they considered when appraising credit risk to their customers. As shown in table 4.15 below, the factors most considered were capacity with a mean of 4.5 and a standard deviation of 0.53, contribution with a mean of 4.2 and a standard deviation of 0.63, character with a mean of 4.0 and a standard deviation of 0.94, reasonableness of cash flows from the business (Commonsense) with a mean of 3.6 and a standard deviation of 0.97, condition with a mean of 3.3 and a standard deviation of 0.82 and finally collateral with a mean of 2.2 and a standard deviation of 1.03 in that order. These findings show that the C's of credit model is applied by MFI's in credit appraisal of their customers.

Table 4.15 Factors considered when appraising credit risk

Factor	Frequency	Mean	Standard Deviation
Character	40	4.0	0.94
Capacity	45	4.5	0.53
Condition	33	3.3	0.82
Collateral	22	2.2	1.03
Commonsense	36	3.6	0.97
Contribution	42	4.2	0.63

Source: Research Data

4.15 Loan default rate

The respondents were asked to provide their default rates. The study revealed that the default rates for most MFI's are below 15% of their loan portfolio, whereby 30% of the respondents indicated that their default rate is below 5%, 40% of the respondents said their default rate is between 5% to 10% of their loan portfolio, 20% said their default rate is between 10% to 15% of their loan portfolio. 10% of the respondents did not indicate their default rate. Table 4.16 below shows the findings. These findings are consistent with those of Morduch. (1999) which shows that MFIs in Kenya and other parts of the world such as Bangladesh. Bolivia and Indonesia report loan repayment rates that are in almost all cases above 90 percent.

Table 4.16 Loan default rates

Default rate	Frequency	%
Below 5% of loan portfolio	3	30
5%-10% of loan portfolio	4	40
10%-15% of loan portfolio	2	20
Others (did not indicate)	1	10
Total	10	100

Source: Research Data

4.16 Regression Analysis

The data on the 6 C's was further analyzed by undertaking a regression analysis to determine the sensitivity of non-performing loans to each of the 6 C's. The results of the analysis are as shown in table 4.17 below.

As per the regression analysis, $\beta 1$, $\beta 2$, and $\beta 6$ are negative implying that an increase in the application of Character (r_1), Capacity (r_2) and Contribution (r_6) requirements in the credit appraisal process will lead to a decline in the non-performing loans.

Critical t value at 5% level is 4.303, and since it is a 2 tail test, any of the coefficients can only be of significance if the t-statistic computed is more than +2.15 or less than -2.15.

From the regression results below, only coefficient $\beta 4$ relating to collateral (r_4) has a positive and significant impact on non-performing loans since the t-statistic computed (3.38604) is greater than +2.15. This implies that an increase in the application of collateral requirement leads to a rise in non-performing loans. Collateral is therefore not an important factor in assessing the creditworthiness of a client since some collateral are difficult to dispose off to recover the loan and in some industries, there are lots of differences that make it hard to dispose off collateral. Moreover, the poor people that are

served by MFI's do not usually have collateral. The remaining coefficients ($\beta1$, $\beta2$, $\beta3$, $\beta5$ and $\beta6$) do not register significance at 5% significance level.

Table 4.17 Regression Analysis

	α	β1	β2	β3	β4	β5	β6
Regression Coefficients	-0.05587	-0.3661	-0.1812	0.08756	3.27122	0.06733	-0.2349
t-statistic	-0.53005	-0.3883	-0.1755	0.10635	3.38604	0.12774	-0.3714
Significance		No	No	No	Yes	No	No
Critical t at 5% significance (One-tail)	4.303						
(Two-tail)	2.150						

Source: Research Data

4.17 When the decision is made that the client has defaulted

The respondents were asked to specify when a decision is made that the client has defaulted. As shown in table 4.18 below, the respondents consider a loanee as a defaulter after one late repayment which has the highest mean of 4.3 with a standard deviation of 0.48. As such, with one late repayment, collection efforts would be intensified, thus explaining why MFI's have low default rates.

Table 4.18 Default on loan repayment

Period	Frequency	Mean	Standard Deviation
One late repayment	43	4.3	0.48
Two late repayments	39	3.9	1.00
Three late repayments	32	3.2	0.92
Over four late repayments	20	2.0	1.15

Source: Research Data

4.18 Dealing with defaulters

The respondents were asked to state how their organizations deal with loan defaulters. As indicated in table 4.19 below, the respondents stated that they would deny other group members from getting further loans which had the highest mean of 4.0 and a standard deviation of 0.94, recover the outstanding amounts from guarantors with a mean of 3.5 and a standard deviation of 0.85, sale of property to recover the money with a mean of 3.2 and a standard deviation of 0.92 , write the debts off with a mean of 2.2 and a standard deviation of 1.14 and leave them alone to decide when to pay had mean of 1.9 and a standard deviation of 1.10 in that order as being the way the defaulters will be dealt with. These findings show that group members have a responsibility of ensuring loans to other members of the group are repaid as required. They do these through peer pressure and group guarantee.

Table 4.19 Dealing with defaulters.

Method	Frequency	Mean	Standard Deviation
Deny loans to other group members	40	4.0	0.94
Recover from guarantors	35	3.5	0.85
Sale of their property to recover the money	32	3.2	0.92
Leave them alone to decide when to pay	19	1.9	1.10
Write the debt off and account it as bad debts	22	2.2	1.14

Source: Research Data

CHAPTER FIVE: CONCLUSIONS, RECOMMENDATIONS, LIMITATIONS AND SUGGESTIONS FOR FURTHER STUDY

5.1 Conclusions

The objectives of the study were to establish the extent of use of the C's of credit risk appraisal model by MFIs in Kenya as well as to establish the relationship between the use of the C's of credit risk appraisal model and the level of non performing loans of MFIs in Kenya. To satisfy the objectives of the study, the data was collected from 15 Microfinance institutions using questionnaires. The data was analyzed by use of statistical package for social sciences (SPSS) that is used internationally for statistical analysis. The results have been presented in form of frequency tables, mean, standard deviation and percentages. The study also made use of regression analysis to establish the relationship between the use of the C's of credit risk appraisal model and the level of non performing loans. A t-test was carried out to measure the significance of the sensitivity of non-performing loans to the respective 6 C's.

The research findings reveal that majority of MFI's in Kenya (60%) are privately owned, 20% are owned by NGOs, 10% are owned by partnerships and the remaining 10% are owned by churches. This shows that most MFI's are owned and managed by private firms and individuals in Kenya.

Majority of MFI's in Kenya (90%) were established after 1998 and only 10% before 1998. This shows that most MFI's were established recently, after the liberalization of the financial sector in the 1990's.

MFI's in Kenya mostly utilize internally generated funds for their operations (40%), 30% of funds come from foreign donors, 20% of funds come from customer savings and 10% from borrowings. This shows that MFI's retain most of their funds for purposes of lending as opposed to paying dividends.

Overhead costs with the highest mean of 4.6 and a standard deviation of 0.52 is considered the most important factor by MFI's in establishing a credit policy, followed by the state of the economy with a mean of 3.5 and a standard deviation of 0.53, general trend of credit extended with a mean of 3.2 and a standard deviation of 1.14 and the existing credit policy with a mean of 2.5 and a standard deviation of 1.36 in that order.

Majority of MFI's (90%) have credit policy manuals and only 10% do not have. This shows that there is adequate documentation of the procedures to be followed in credit management. The respondents with no credit policy manuals state that their institutions have simple lending schemes that do not require documentation. They also state that credit manuals are expensive to develop.

Training of employees with the highest mean of 4.2 and a standard deviation of 0.92 is considered by MFI's to be the most important credit policy objective, followed by competitive tool to gain competitive advantage with a mean of 3.7 and a standard deviation of 0.95, minimizing credit costs with a mean of 3.4 and a standard deviation of 1.07 and to encourage movement of surplus money with a mean of 2.8 and a standard deviation of 1.23 in that order.

The most important factor considered by MFI's when setting up a credit policy relates to the credit terms to be applied with the highest mean of 4.4 and a standard deviation of 0.52, followed by products/ services to cover with a mean of 3.9 and a standard deviation of 1.1, cost of debtors with a mean of 3.7 and a standard deviation of 1.16 average turn around period with a mean of 3.2 and a standard deviation of 0.92, and Clients to grant credit with a mean of 2.6 and a standard deviation of 1.35 in that order. These findings indicate that MFI's have clear objectives relating to their credit policies and as such, their credit risk assessment is based on sound foundation of facts.

For most MFI's, Managing Directors approve credit of more than Kshs 1.5 M, while the Credit managers approve credit amounting to less than Kshs 1.5 M. The Branch managers approve credit between Kshs 0.5M to Kshs 1 M.

MFI's mainly provide loans by lending to individuals through groups with the highest mean of 4.5 and a standard deviation of 0.52, followed by lending to groups with a mean of 4.0 and a standard deviation of 1.1 and lending directly to individuals with a mean of 3.7 and a standard deviation of 1.2 in that order. These findings show that lending through groups is considered as an important approach through which MFI's safeguard their loans through peer pressure and group guarantee.

The most important MSE's operations financed by MFI's relate to providing additional capital with the highest mean of 4.6 and a standard deviation of 0.51 followed by providing loans to finance working capital with a mean of 4.1 and a standard deviation of 0.9 and providing loans as initial capital with a mean of 4.1 and a standard deviation of 1.2 in that order. These findings imply that MFI's prefer funding existing businesses for expansion purposes since their performance is already known as opposed to financing new ones whose performance is unknown.

For most MFI's, the average lending period for loans is less than one year as reflected by the highest mean of 4.2 and a standard deviation of 0.79 followed by loans of between

1-2 years with a mean of 4.0 and a standard deviation of 0.94, loans of between 2-3 years with a mean of 3.2 and a standard deviation of 0.9 and loans of over 4 years with a mean of 2.2 and a standard deviation of 1.03 in that order. These findings show that MFI's lend to their customers on a short term basis, which explains the high repayment rates in most MFI's, since defaulters can be detected early for necessary remedial measures.

Majority of MFI's (90%) use mainly qualitative techniques while only 10% use a combination of both qualitative as well as quantitative techniques in credit appraisal. This shows that majority of MFI's have not embraced fully the use of quantitative techniques.

Majority of MFI's review their credit policies quarterly (50%), 30% yearly and 10% half yearly. These findings show that MFI's usually update their credit policies frequently thus resulting in effective credit policies.

MFI's use credit manuals in making employees aware of the credit risk as reflected by the highest mean of 4.5 and a standard deviation of 0.53 followed by supervision on a one to one basis with a mean of 4.0 and a standard deviation of 0.67, through regular meetings with a mean of 3.9 and a standard deviation of 0.99 and through training with a mean of 3.3 and a standard deviation of 0.82 in that order. This shows the importance of the credit manual as a credit policy tool.

With regard to the C's of credit appraisal model, the factors most considered by MFI's in credit risk appraisal are capacity with a mean of 4.5 and a standard deviation of 0.53, contribution with a mean of 4.2 and a standard deviation of 0.63, character with a mean of 4.0 and a standard deviation of 0.94, reasonableness of cash flows from the business (Commonsense) with a mean of 3.6 and a standard deviation of 0.97, condition with a mean of 3.3 and a standard deviation of 0.82 and finally collateral with a mean of 2.2 and a standard deviation of 1.03 in that order. These findings show that the C's of credit model is applied by MFI's in credit appraisal of their customers and that capacity is the most important factor followed by contribution, character, commonsense, condition and collateral in that order. These findings are also supported by the results of the regression analysis undertaken.

The default rates for most MFI's are below 15% of their loan portfolio, whereby 30% of the MFI's have default rate below 5%, 40% of the MFI's have default rates between 5% to 10% of their loan portfolio, 20% of MFI's have default rates between 10% to 15% of their loan portfolio. These findings are consistent with those of Morduch, (1999) which

show that MFIs in Kenya and other parts of the world such as Bangladesh, Bolivia and Indonesia report loan repayment rates that are in almost all cases above 90 percent.

Majority of MFI's consider a loanee as a defaulter after one late repayment as reflected by highest mean of 4.3 with a standard deviation of 0.48. As such, with one late repayment, collection efforts would be intensified, thus explaining why MFI's have low default rates.

When a client defaults in loan repayment, majority of MFI's would first deny other group members from getting further loans as reflected by the highest mean of 4.0 and a standard deviation of 0.94, recover the outstanding amounts from guarantors with a mean of 3.5 and a standard deviation of 0.85, sale of property to recover the money with a mean of 3.2 and a standard deviation of 0.92 , write the debts off with a mean of 2.2 and a standard deviation of 1.14 and leave them alone to decide when to pay had mean of 1.9 and a standard deviation of 1.10 in that order. These findings show that group members have a responsibility of ensuring loans to other members of the group are repaid as required. They do these through peer pressure and group guarantee.

5.2 Recommendations

Microfinance institutions play a very critical role in the economic development of the country. It is therefore imperative that their programmes are sustained for the benefit of majority who are poor. For this to happen, MFI's need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credit or transactions. As such, applying appropriate credit risk assessing and evaluation techniques should proactively manage credit risk. This can be achieved through the use of the C's of credit model.

5.3 Limitations of the study

Time constraint was one of the limitations that affected the extent of the study. As such, some respondents were not able to complete and return the questionnaires within the time

provided. Hence, the possibility of non-response bias remains. If all the respondents had adequate time, all the questionnaires would have been completed appropriately and returned, and this may have led to different and improved conclusions. Moreover, time constraints also hampered the degree of analysis of the data that could have improved the conclusions reached in the study.

The study was also limited in that it only focused on MFI's located in Nairobi, thereby introducing an element of geographic bias. Inclusion of other MFI's located in various parts of the country could have changed the findings revealed by the study.

Limited financial resources was another limiting factor, in that with more resources, a more sophisticated study would have been carried out and this would have improved the findings of the study.

5.4 Suggestions for further research

The regulatory framework of MFI's changed with the passing of the Microfinance Act in 2006. The effect of this change in the regulatory environment of MFI's should be of concern to researchers.

The market for small loans in Kenya has remained underserved for a longtime and only served by Microfinance institutions. The formal sector has been unwilling to provide credit to MSEs because the clients from this sector are largely poor, lacking in normal securities that can be used as collateral in conventional lending. Commercial banks have therefore for a long time perceived such businesses as highly risky and undeserving of any credit, even though the business persons save with the commercial banks. However, in the recent past, this trend has changed whereby, a good number of commercial banks have introduced a micro credit unit in their organizations. The implications of the change

in approach by commercial banks offering services that were previously seen as the preserve of MFI's should also be of concern to researchers.

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APPENDIX 1: QUESTIONNAIRE

INTRODUCTION

INSTRUCTIONS AND CONFIDENTIALITY

i)   Where boxes are provided, please tick the appropriate one(s)

ii)   The title and terms used may not apply uniformly to the whole industry. Equivalent terms can be assumed in completing the questionnaire e.g. loan officer credit analyst.

iii)   All the information we collect will be kept in the strictest confidence, and used for research purposes only. It will not be possible to identify any particular individual or address in the results.

COMPANY BACKGROUND

iv)   Name of your institution..

v)   Physical Address...

vi)   Name and Designation of officer completing questionnaire

        Name..

        Designation...

vii)   Telephone Number...

viii)   E-mail Address..

ix)   Form of MFI

        NGO ( )   Partnership ( )   Private company   ( )   Church ( )

        Others, specify ( )...

x)   Which year was your institution established...

xi)   What proportion of your funds come from the following sources

        Foreign donors. ....%   Internal operations............................. %

        Borrowings...................%   Others, specify.....................................%

CREDIT CONTROL POLICY

1. Which, among the following, factors do you consider in establishing a credit control policy? Please tick appropriately.

Level of importance

	1	2	3	4	5
• Existing credit policy	( )	( )	( )	( )	( )
• Overhead costs	( )	( )	( )	( )	( )
• General trend of credit extended to your organization	( )	( )	( )	( )	( )
• The state of the economy	( )	( )	( )	( )	( )
• Any other, specify............................	( )	( )	( )	( )	( )

2. (a) Do you have a credit policy manual? Yes ( ) No ( ). If yes please list three contents of your credit manual.

     i) ....

     ii) ....

     iii) ....

(b) If not tick appropriately the reason why you do not have the manual.

Level of importance

	1	2	3	4	5
• Too complicated to develop	( )	( )	( )	( )	( )
• Not necessary	( )	( )	( )	( )	( )
• Too costly to make	( )	( )	( )	( )	( )
• Too rigid	( )	( )	( )	( )	( )
• Any other, specify............................	( )	( )	( )	( )	( )

3. Please indicate your credit policy objectives by ticking appropriately

	Level of importance				
	1	2	3	4	5
• A competitive tool to gain competitive advantage	( )	( )	( )	( )	( )
• Minimizing credit costs	( )	( )	( )	( )	( )
• Encourage movement of surplus money	( )	( )	( )	( )	( )
• Earn interest from the surplus money	( )	( )	( )	( )	( )
• Any other, specify………………………………	( )	( )	( )	( )	( )

4. What are the factors you consider when setting up your credit policy?

	Level of importance				
	1	2	3	4	5
• Products/ services to cover	( )	( )	( )	( )	( )
• Credit terms	( )	( )	( )	( )	( )
• Clients to grant credit	( )	( )	( )	( )	( )
• Average turn around period	( )	( )	( )	( )	( )
• Cost of debtors	( )	( )	( )	( )	( )
• Any other, specify………………………………	( )	( )	( )	( )	( )

5. Who approves loans in your organization and what are their approval limits ceilings?

Management Level	Credit Approval Limit (Kshs)
• Credit Analyst/Officer	………………………………………………
• Credit Risk Manager	………………………………………………
• Credit Committee	………………………………………………
• Others (specify)	………………………………………………

6. Tick the categories through which you lend funds to customers

    Groups ( )...............%   Individuals through a group ( )............%

    Direct to individuals ( ). ....%

7. Tick the type(s) of micro and small enterprises operations financed by your organization?

    Initial capital ( )   Working capital ( )

    Additional capital ( )   Others (specify)................................

8. What is the average lending period for your loans?

Level of importance

	1	2	3	4	5
• Over 4 years	( )	( )	( )	( )	( )
• Between 2 and 3 years	( )	( )	( )	( )	( )
• Between 1 and 2 years	( )	( )	( )	( )	( )
• Less than 1year	( )	( )	( )	( )	( )
• Any other, specify..................................	( )	( )	( )	( )	( )

CREDIT APPRAISAL

9. (a) How would you classify the method used by your organization in the process of credit appraisal?

    Qualitative ( )   Quantitative ( )   Any other, specify ( )...........................

(b) How regularly do you review your credit policy?

• Quarterly	( )	Half Yearly	( )
• Yearly	( )	Others, specify	( )

(c) Through what way do you make your employees aware of credit risk?

Level of importance

	1	2	3	4	5
• Regular meetings	( )	( )	( )	( )	( )
• Regular training	( )	( )	( )	( )	( )
• Using supervision on one to one basis	( )	( )	( )	( )	( )
• Credit manual	( )	( )	( )	( )	( )
• Any other, specify……………………..	( )	( )	( )	( )	( )

10. Which aspects, among the following, do you consider before availing credit? Tick appropriately.

Level of importance

	1	2	3	4	5
• Character	( )	( )	( )	( )	( )
• Capacity/Completion	( )	( )	( )	( )	( )
• Condition	( )	( )	( )	( )	( )
• Collateral/security	( )	( )	( )	( )	( )
• Common sense/reasonableness	( )	( )	( )	( )	( )
• Contribution	( )	( )	( )	( )	( )

11. Kindly provide your loan repayment rate at any given time

- More than 95% of your loan portfolio ( )
- 90% of your loan portfolio ( )
- 85% of your loan portfolio ( )
- 80% of your loan portfolio ( )
- 75% of your loan portfolio ( )
- Below 70% of your loan portfolio ( )
- Any other, specify…………………. ( )

12. When does your organization decide that the client has defaulted in loan repayment?

	Level of importance				
	1	2	3	4	5
One late payment	( )	( )	( )	( )	( )
Two late payments	( )	( )	( )	( )	( )
Three late payments	( )	( )	( )	( )	( )
Any other, specify	( )	( )	( )	( )	( )

13. . How does your organization deal with clients who default in repaying their loans?

	Level of importance				
	1	2	3	4	5
Deny loans to other group members	( )	( )	( )	( )	( )
Recover from guarantors	( )	( )	( )	( )	( )
Sale of their property to recover the money	( )	( )	( )	( )	( )
Leave them alone to decide when to pay	( )	( )	( )	( )	( )
Write the debt off and account it as bad debts	( )	( )	( )	( )	( )
Any other, specify	( )	( )	( )	( )	( )

Thank you for your time.

Signature: ....

Date: ....

APPENDIX II: LIST OF MICROFINANCE INSTITUTIONS (CBK 2008)

1. AAR Credit service
2. Action Aid
3. ADRA Kenya
4. Agakhan Foundation Micro Credit Programme
5. Archdioceses of Nairobi
6. AREP
7. BIMAS
8. Care International
9. Christian Health Association of Kenya
10. Co-operative MFIs of Kenya
11. Crossbridge Credit Ltd
12. Daraja Trust
13. Ecumenical Church Loan Fund (ECLOF)
14. Elite Microfinance
15. Equity Building Society
16. Family Finance
17. Faulu Kenya
18. Ghetto Child Programme
19. Hope Africa
20. Jamii Bora
21. Jaru Micro credit Africa Ltd
22. Jitegemee Credit scheme
23. Jitegemee Trust
24. KADET
25. Kenya Commercial Bank-Special Loan Unit
26. Kenya Gatsby Trust
27. Kenya Post Office Savings Bank
28. Kenya Small Traders and Enterprise Society
29. Kenya Women Finance Trust

30. K-Rep Bank Ltd

31. K-Rep Development Agency

32. Micro Kenya ltd

33. Millenia Multipurpose Credit society

34. OIKO credit

35. Pride Africa

36. Private Sector Development Unit

37. Skills Across Kenya

38. Small and Micro-Enterprise Programme (SMEP)

39. Small Enterprise Credit Association

40. Smallholder Irrigation Scheme Development Organisation (SISDO)

41. St. John's Community Centre

42. Sunlink Micro finance Partners

43. Undugu Society of Kenya

44. United Disabled Persons of Kenya (UDPK)

45. Vintage Management Consultants

46. WEDCO

47. Widows and Orphans Welfare

48. Window Development fund

49. World Vision

50. Yehu Enterprise support services