THE RELATIONSHIP BETWEEN CREDIT RISK MANAGEMENT AND NON
PERFORMING LOANS AMONG SAVINGS AND CREDIT CO-OPERATIVE
SOCIETIES IN KENYA

BY

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DECLARATION

I declare that this is my original work and has not been submitted to any other college, institution or university.

Signed: Jimmy Muchira  
Date: 15/11/2010

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

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I also thank my parents and siblings for their moral support

Be blessed!
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DEDICATION

This project is dedicated to my parents, Richard and Roseline Mbogo who form an integral part of my life
ABSTRACT

The objective of the study was to establish the relationship between credit risk management and non-performing loans among SACCO’s in Kenya. To satisfy the research objective, the study used causal design comprising of a sample of 30 SACCO’s. Simple random sampling was used to select two respondents comprising of either Head of department, Credit manager or Credit officers among the candidate SACCO’s. Primary data was collected using semi-structured questionnaires. Some of the questionnaires were dropped and picked up later from the respondents, while others were sent and received via electronic mail. Once the relevant data was obtained, the researcher carried out an analysis of the same using mean scores, percentages and standard deviation. Statistical Package for Social Sciences (SPSS version 17.0) was adopted for the analysis while relational analysis was used to analyse the relationship among the variables.

The study established that there is a relationship between credit risk management and non-performing loans. Adoption of credit risk management practices results to declining levels of non-performing loans. To avoid loan losses, most SACCO’s opt for credit reminders as part of credit monitoring process. The study established that internal auditors and middle/lower level employees were mostly involved in the risk identification process and most SACCO’s opt for guarantors, to mitigate themselves against any default risk. In addition, conducting proper know your client (KYC) requirements and undertaking loan review analysis form an integral part of credit risk management. The study established that SACCO’s are faced with the challenges of undercapitalization and loan pricing strategies. The former is attributable to lack of legislation on the minimum capital requirements of the SACCO’s as compared to other financial institutions like the banks, with the sole objective of safeguarding the client’s deposits. The latter is attributable to immense competition from other financiers who employ less stringent credit risk management practices resulting to a higher uptake of their loan products. Loan recovery is still a challenge to the majority of the SACCO’s.
CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Taking credit risk is part and parcel of financial intermediation. Yet, the effective management of credit risk by financial intermediaries is critical to institutional viability and sustained growth. Failure to control risks, especially credit risk, can lead to insolvency. However, too often, the mere perception of high credit risk can dissuade financial intermediaries from entering a particular market segment when a large contributing factor to that perception may be lack of adequate credit risk evaluation and management techniques. (Iqbal and Mirakhor, 2007). Credit creation is the main income generating activity for the SACCOs. But this activity involves huge risks to both the lender and the borrower. The risk of a trading partner not fulfilling his or her obligation as per the contract on due date or anytime thereafter can greatly jeopardize the smooth functioning of a financial business (Khan and Ahmed, 2001). On the other hand, a financial institution with high credit risk has a high insolvency risk that puts the depositors in jeopardy. The issue of non-performing loans (NPLs) has gained increasing attentions in the last few decades. The immediate consequence of large amount of NPLs in the financial system is financial institution failure. (Barr and Siems 1994)

Credit risk management is a structured approach to managing uncertainties through risk assessment, developing strategies to aid in risk management, and mitigation of risk using managerial resources. The strategies include transferring risk to another party, avoiding the risk all together, reducing the negative effects of the risk, and accepting some or all of the consequences of a particular risk. The process of risk management is a two step process: identify the source of the risk and devising methods to quantify the risk using mathematical models. Once a general framework of risk identification and management is developed, the techniques can be applied to different situations, products, instruments and institutions (Parrenas, 2005).

Non-performing loans have been viewed to constitute one of the most important factors causing reluctance for the financial institutions to provide credit. In a high NPL condition, financial institutions increasingly tend to carry out internal consolidation to improve the asset quality
rather than distributing credit. Also, the high level of NPLs requires financial institutions to raise provision for loan loss that decreases the revenue and reduces the funds for new lending. The cutback of loans impairs the corporate sector as they have difficulties in expanding their working capital, blocking their chances of resuming normal operation or growing. Unavailability of credit to finance firm’s working capitals and investments might trigger the second round business failure which in turn exacerbates the quality of loans, resulting in a re-emerging of financial failure. In a worse case, it triggers an endless vicious liquidity spiral (Krueger and Tornell, 1999)

The accumulation of Non-performing Loans(NPLs) is generally attributable to a number of factors, including economic down turns and macroeconomic volatility, terms of trade deterioration, high interest rates, excessive reliance on overly high-priced inter-bank borrowings, insider lending and moral hazard (Goldstoin and Turner, 1996)

According to Greuning and Bratanovic (2003) the basis of a sound credit risk management system include guidelines that clearly outline the scope and allocation of credit facilities and the manner in which the credit portfolio is managed, that is how loans are originated, appraised, supervised and collected. It is crucial for SACCO’s to have a comprehensive risk management framework since there is a growing realization that sustainable growth critically depends on the development of a comprehensive risk management framework (Greuning and Iqbal, 2007). To enhance profitability and grow their businesses, leading SACCO’s are reevaluating the way they manage their commercial credit portfolios. These SACCO’s are intent on not only finding ways to improve their credit risk management practices but also minimizing the volumes of NPL.

1.1.1 The Importance of Credit Risk Management

SACCO’s and other financial institutions are often faced with risks that are mostly of financial nature. These institutions must balance both risks and returns. For a financial institution to have a large consumer base, it must offer loan products that are reasonable enough. However, if the interest rates in loan products are too low, the organization will suffer from losses. In terms of equity, the institution must have substantial amount of capital on its reserve, but not too much that it misses the investment revenue, and not too little that it leads itself to financial instability and to the risk of regulatory non-compliance (Kwan and Eisenbeis, 2005).
Risk is often attributable to investment and capital allocation. The risks must be assessed so as to derive a sound investment decision. Likewise, the assessment of risk is also crucial in coming up with the position to balance risks and returns. The risk of losses that result in the default of payment of the debtors is a kind of risk that must be expected. Because of the exposure of SACCO's to many risks, it is only reasonable for an institution to keep substantial amount of capital to protect its solvency and to maintain its economic stability. The greater the organization is exposed to risks, the greater the amount of capital must be when it comes to its reserves, so as to maintain its solvency and stability. To determine the risks that come with lending and investment practices, SACCO's must assess the risks (Tchankova, 2002).

To manage and assess the risks faced by SACCOs, it is important to make certain estimates, conduct monitoring, and perform reviews of the performance of the savings and credit cooperative societies. However, since SACCOs are into lending and investing practices, it is relevant to make reviews on loans, scrutinize and analyze portfolios. Loan reviews and portfolio analysis are vital in determining the credit and investment risks. Credit risk management is deemed more relevant, attributable to economic crises and stagnation, company insolvencies, infraction of rules in company accounting and audits, growth of off-balance sheet derivatives, declining and volatile values of collateral, borrowing more easily of small firms, and financial globalization (Parrenas, 2005). SACCOs use various credit risk management methods such as credit limits, taking collateral, diversification, loan selling, syndicated loans, credit insurance, and securitization and credit derivatives. It is important for staff of financial institutions to understand the aspect of risk: the risks that are inherent and exposed in their business operations. Better understanding of risk management is also necessary especially in the financial intermediation activities where managing risk is one its important activities (Tchankova, 2002).

SACCOs are in the risk business. In the process of providing financial services, they assume various kinds of financial risks. Over the last decade the understanding of the place of commercial SACCOs within the financial sector has improved substantially. Over this time, much has been written on the role of commercial SACCOs in the financial sector, both in the academic literature and in the financial press. Suffice it to say that market participants seek the services of these financial institutions because of their ability to provide market knowledge,
transaction efficiency and funding capability. In performing these roles they generally act as a principal in the transaction. As such, they use their own balance sheet to facilitate the transaction and absorb the risks associated with it (Sundarajan, V. 2007,)

There are some risks that can be eliminated, or at least substantially reduced through the technique of risk transfer. Markets exist for many of the risks borne by the financial institutions. Interest rate risk can be transferred by interest rate products such as swaps or other derivatives. Borrowing terms can be altered to effect a change in their duration. Finally, the financial institution can buy or sell financial claims to diversify or concentrate the risks that result in from servicing its client base. To the extent that the financial risks of the assets created by the firm are understood by the market, these assets can be sold at their fair value. Unless the institution has a comparative advantage in managing the attendant risk and/or a desire for the embedded risk they contain, there is no reason for the institution to absorb such risks, rather than transfer them (Morsman, 1993)

1.1.2 Non-performing Loans

A simple definition of non-performing is: A loan that is not earning income and full payment of principal and interest is no longer anticipated, principal or interest is 90 days or more delinquent, or the maturity date has passed and payment in full has not been. Non-performing loans can lead to efficiency problem for financial institutions sector. It is found by a number of economists that failing financial institutions tend to be located far from the most-efficient frontier, because they do not optimise their portfolio decisions by lending less than demanded. What is more, there are evidences that even among financial institutions that do not fail; there is a negative relationship between the non-performing loans and performance efficiency (Krueger et al, 1999).

In a high credit risks, financial institutions increasingly tend to carry out internal consolidation to improve the asset quality rather than distributing credit. Further, the high level of non performing loans requires SACCOs to raise provision for loan loss that decreases its revenue and reduces the funds for new lending. The cutback of loans impairs the corporate sector as they have difficulties in expanding their working capital, blocking their chances of resuming normal operation or growing. NPLs are the most common causes of bank poor performance. This has made all
regulatory institutions to prescribe minimum standards for credit risk management. The basis of sound non-performing loans management is the identification of the existing and potential risks inherent in lending activities. Measures to counteract these risks normally comprise clearly defined policies that express the financial institution's credit risk management philosophy and the parameters within which credit risk is to be controlled. Das and Ghosh (2003) opined that specific management of non-performing loans measures typically include three kinds of policies. One set of policies include those aimed to limit or reduce credit risk, such as policies on concentration and large exposure, adequate diversification, lending to connected parties, or over-exposure. It is worthy to clearly point to the fact that non-performing loans are major intents of financial business. The degree of success of a financial institution greatly depends on the ability of management to ensure that the practice of risk management mitigates the impact of non-performing loans in such a way, and to such an extent that recorded surplus is not only robust and covers the interests of various stakeholders, but also assures the health integrity of the financial institutions.

1.1.3 Savings and Credit Co-operative Societies in Kenya

The rationale behind the formation of SACCOs was simply unity in diversity. This strength in numbers led to personal economic empowerment and financial freedom for many Kenyans. SACCOs in Kenya were formed to encourage thrift. According to the financial sector deepening study 49.2 percent of people mainly save for a rainy day, 37 percent for education and 34.9 percent for emergencies. SACCOs are found in both the private and public sectors. They have reached all sectors of society and hence developed a much broader and deeper market penetration and they are better positioned to continue serving the 'unbanked' population (WOCCU, January 2009, Online).

A SACCO is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically controlled enterprise. The members have equal rights to take part democratically in the management and administration of the company of which they share the duties and the advantages proportionally with the transactions of each member regardless of their deposit amount or the number of shares they own. All active members form the general body which
elects the Board of Directors who appoint its paid employees to run the cooperative. The primary cooperatives strategies include inculcation of saving habit, finding better ways and means to establish small and micro enterprises so as to create employment and income for the members (Tummala and Burchett, 1999).

The fundamental objective of a SACCO is to maximize the benefit which the members can obtain from their commercial transactions with the cooperative. They try to obtain maximum individual benefit through particular commercial transactions which they carry out. Thus SACCOs promote by mutual aid the economic and social welfare of its members by granting loans to cover their economic needs, supporting the spirit of initiative in agricultural or industrial work and careful use of the saving produced locally. It is a financial institution under the cooperative form which operates in the financial system as a legal entity in which individuals save their money and borrow loans in order to invest in various activities (WOCCU, August 2005 Online).

The basic structure of SACCOs is what differentiates them from other financial institutions in that they are user-owned financial intermediaries. Members typically have a common bond based on geographic location, employer, community, industry or other affiliation. SACCOs reach a wide spectrum of the population because they offer a diverse range of products which include personal and business loans, mortgages, savings, money transfers, payment services and insurance. SACCOs sometimes join together to create second-tier associations for the purposes of building capacity, liquidity management, refinancing and monitoring (WOCCU, August 2005). Its members are individuals, partnerships, corporations and associations-holding membership in a SACCO organized without capital stock or holding stock (De Jong 2006). In a SACCO with capital stock, the members are instrumental in starting and keeping the SACCO business going because they realize that they can solve their economic problems and attain their goals by working together. They voluntarily affiliate with the SACCO which reaches out to low savings and low income earning individuals by offering products geared towards their unique needs within a secure and accessible structure. In order to ensure that appropriate financial intermediaries for the poor exist, appropriate external and internal incentives must exist. High performance standards required by regulatory authorities and effective supervision will
necessarily translate into higher management capabilities, especially with regard to cost, liquidity and risk management (De Jong, 2006).

Prior to 1997, the government supported SACCOs’ movements through direct assistance and subsidized services. This ceased when the new SACCO Act and Sessional Paper number 6 of 1997 on credit unions in a liberalized economy became effective. This involved revision of the cooperative societies Act Cap 490, which was to be operational in 1997. Some functions such as approval of the budgets, capital expenditure and allowances, auditing, accounting and management systems were transferred from the Ministry of Cooperatives to SACCOs and they are now free enterprises, expected to compete with other private commercial entities in the market (Bwoma, 2003).

1.2 Statement of the problem

It is argued that the non-performing loans are one of the major causes of the economic stagnation problems. Each non-performing loan in the financial sector is viewed as an obverse mirror image of an ailing unprofitable enterprise. From this point of view, the eradication of non-performing loans is a necessary condition to improve the economic status. If the non-performing loans are kept existing and continuously rolled over, the resources are locked up in unprofitable sectors; thus, hindering the economic growth and impairing the economic efficiency. Krueger and Tornell (1999) attribute the credit crunch in Mexico after the 1995 crisis partially to the bad loans. They point out that financial institutions were burdened with credits of negative real value, thereby reducing their capacity of providing fresh fund for new projects.

Strong risk management practices can help SACCOs reduce their non-performing loans and enhance their ability to compete with other well established financial institutions like banks in the market (Iqbal and Mirakhor, 2007). Reduction of non-performing loans through adoption of risk management practices will enhance achievement of the co-operatives’ set objectives and ascertain its success. To most of the transition economies and Kenya in particular, lending activities have been controversial and a difficult matter. This is because business firms on one hand are complaining about lack of access to credit and the excessively high standards set by financial institutions, while SACCOs on the other hand have suffered huge losses on bad loans.
(Richardson, 2002). Despite the importance of operating efficiency and loan portfolio as indicators of SACCOs credit risk management performance, there is limited research on them. Al-Tamimi (2002), the prerequisites to operational efficiency include the adaptation of an effective service delivery methodology and significant institutional competence in such areas as delinquency control, information management, and staff development.

Locally, few studies have been done on credit risk management. Among them are Njiru's (2003), survey of credit risk management by coffee cooperatives in Embu district, Nduku's (2007), survey of credit risk management practices by pharmaceutical manufacturing firms in Kenya, Wambugu's (2008) survey of credit risk management practices by micro-finance institutions in Kenya and Mwirigi's (2006), credit risk management techniques adopted by micro finance institutions in Kenya.

Based on the above assessment, there exist a gap in literature that necessitates the researcher to establish the relationship between Credit risk management and non-performing loans in SACCOs. This study therefore seeks to investigate the relationship between credit risk management and non performing loans in SACCOs in Kenya.

1.3 Objective of the Study

To establish the relationship between credit risk management and non performing loans in SACCOs in Kenya.

1.4 Significance of the Study

The study will be beneficial to Savings Credit and Cooperative Society managers since its focus is on the relationship between credit risk management and non performing loans, a core ingredient of profitability for many SACCO's. The Managers will not only know of the best credit risk management practices to adopt to reduce instances of non-performing loans but also be in a better position to cascade the information to their teams to arrest any setbacks from the credit request to the approval stage. Subsequently, the co-operative movement as a whole would be in a position to minimize the level of non-performing loans.
The study will also be beneficial to the government agencies and policy makers. The relationship highlighted would be integral in the development of policy frameworks to minimize instances of non-performing loans and complement the co-operative societies where need be.

Finally, the study will contribute to the broader realm of business and academic research. In business, through its recommendations, the study will add value to better credit risk management practices and curtail the level of non-performing loans. In academia, the study will add value to academic research in the broader area of credit risk management. Moreover, future researchers will not only use this study as a form of reference, but also suggest future research activities that may be explored.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction
This chapter presents a review of the past studies on credit risk management and non-performing loans, theories of credit risk management and non-performing loans and components of credit risk management.

2.2 Theoretical review
Today, we have many different models of credit management. These models can basically be divided into heuristic models, empirical statistical models, and causal models. In addition, hybrid models are used in practices that are based on two or three of the models mentioned. However, the theories on credit risk management comprise of CAPM Theory and Arbitrage pricing theory (APT) as highlighted in these chapter. Transaction cost theory best represents non-performing loans.

2.2.1 CAPM Theory
The treatment of risk in the CAPM refines the notions of systematic and unsystematic risk developed by Harry M. Markowitz in the 1950s. Unsystematic risk is the risk to an asset's value caused by factors that are specific to an organization, such as changes in senior management or product lines. For example, specific senior employees may make good or bad decisions or the same type of manufacturing equipment utilized may have different reliabilities at two different sites. In general, unsystematic risk is present due to the fact that every company is endowed with a unique collection of assets, ideas, or personnel whose aggregate productivity may vary. Fundamental principle of modern portfolio theory is that unsystematic risk can be mitigated through diversification. That is, by holding many different assets, random fluctuations in the value of one will be offset by opposite fluctuations in another.

CAPM decomposes a portfolio's risk into systematic and specific risk. Systematic risk is the risk of holding the market portfolio. As the market moves, each individual asset is more or less affected. To the extent that any asset participates in such general market moves, that asset entails...
systematic risk. Specific risk is the risk which is unique to an individual asset. It represents the component of an asset's return which is uncorrelated with general market moves. No matter how much diversify firm's investments; it's impossible to get rid of all the risk. As investors, we deserve a rate of return that compensates us for taking on risk. The capital asset pricing model (CAPM) helps us to calculate investment risk and what return on investment we should expect.

As Sharpie (1966) indicates, the return on individual or portfolio of stocks should equal the cost of capital. The standard formulae of CAPM, which describes the relationship between risk and expected return is

$$E(R_i) = R_f + \beta_i [E(R_M) - R_f]$$

Where;

- $E(R_i)$ = the expected return on the capital asset
- $R_f$ = is rate of return on risk free security, i.e. interest rate
- $E(R_M)$ = is the expected rate of return on market portfolio
- $\beta_i$ = the beta coefficient is the sensitivity of the expected excess asset returns to the expected excess market returns

2.2.2 Arbitrage pricing theory

Whereas the CAPM formula requires the market's expected return, APT uses the risky asset's expected return and the risk premium of a number of macro-economic factors. Arbitrageurs use the APT model to profit by taking advantage of mispriced securities. A mispriced security will have a price that differs from the theoretical price predicted by the model. By going short an overpriced security, while concurrently going long the portfolio the APT calculations were based on, the arbitrageur is in a position to make a theoretically risk-free profit. Ross (1976) assumes the expected security returns are generated by multiple k factors instead of one market risk premium factor identified in CAPM.
The Arbitrage Pricing Theory (APT) describes the price where a mispriced asset is expected to be. It is often viewed as an alternative to the capital asset pricing model (CAPM), since the APT has more flexible assumption requirements. The basis of arbitrage pricing theory is the idea that the price of a security is driven by a number of factors. These can be divided into two groups: macro factors, and company specific factors. A linear relation between the expected returns and the betas is tantamount to an identification of the stochastic discount factor (SDF). The APT is a substitute for the Capital Asset Pricing Model (CAPM) in that both assert a linear relation between assets’ expected returns and their covariance with other random variables.

Arbitrage pricing theory does not rely on measuring the performance of the market. Instead, APT directly relates the price of the security to the fundamental factors driving it. The problem with this is that the theory in itself provides no indication of what these factors are, so they need to be empirically determined. Obvious factors include economic growth and interest rates. For companies in some sectors, other factors are obviously relevant as well - such as consumer spending. The potentially large number of factors means more betas to be calculated. There is also no guarantee that all the relevant factors have been identified. This added complexity is the reason arbitrage pricing theory is far less widely used than CAPM.

2.2.3 Transaction Cost Theory of Non-performing loans

Transaction cost theory has proven an essential framework for decisions on the vertical boundaries of a firm. Nowman, (2004), indicated that a transaction occurs when a good or service is transferred across a technologically separable interfaces. One stage of activity terminates and another one begins. Variables that describe a transaction are, among others, the specificity, the uncertainty, and the frequency of the transaction, whether an asset or a service is only or much more valuable in the context of a specific transaction. Transaction costs are the costs associated to the division of work. In the following, human capital specificity (the workout managers), the asset specificity (on loan and real estate level) and the site specificity (the location of the collateral) are taken into account.

Goods and services are of a high specificity, if the supply is limited and unique and if there is no comparability. A threat to breach the contract can be seen as untrustworthy, since there is no alternative. A lock-in of one transaction party leads to a hold up. Low specificity exists, if there
is a range of homogeneous services or goods and supply is secured. Since goods or services are comparable and competition exists, there is no pricing problem. Furthermore, high competition may imply motivation and quality (Tufano, 1998)

2.3 Credit Risk Management Practices

There are activities performed by credit firms which do not have direct balance sheet implications. These activities include agency and advisory services such as facilitating contracts, standard underwriting, or the packaging, securitizing, distributing and servicing of loans in the areas of consumer and real estate debt. These items are absent from the traditional financial statement because the latter rely on generally accepted accounting procedures rather than a true economic balance sheet. It is in this area that the discussion of risk management and the necessary procedures for risk management and control has centered (Altman, 1993).

2.3.1 Diversification across union members

Diversification is mostly adopted by large and international SACCO’s. It involves spreading the credit risk to avoid concentration. For high-risk parties, one may require collateral that the credit unions can sell in the event of default. The value of the sold collateral to the union members reduces the actual value and hence the risk for the SACCO. Credit risk is easily accepted if diversified (Bessis, 2003) If financial institutions are affiliated, it is necessary to look at possible loss-sharing arrangements in the rating process. The inclusion of loss-sharing arrangements makes it possible to determine the risk-bearing entities. The inclusion of a loss sharing arrangement can affect the assessment of the probability of default of the financial institutions on which the rating is based positively and negatively. Positive effect: assumption of support for the financial institution in case of a crisis Negative effect: spillover of a crisis to the financial institution. (Geczy et al, 2004).

2.3.2 Risk identification

The quality of the credit approval process from a risk perspective is determined by the best possible identification and evaluation of the credit risk resulting from a possible exposure. The credit risk can be distributed among four risk components which have found their way into the
new Basel Capital Accord; Probability of default (PD), Loss given default (LGD), Exposure at default (EAD) and Maturity (M). The most important components in credit approval processes are PD, LGD, and EAD. Reviewing a borrower’s probability of default is basically done by evaluating the borrower’s current and future ability to fulfill its interest and principal repayment obligations. This evaluation has to take into account various characteristics of the borrower (natural or legal person), which should lead to a differentiation of the credit approval processes in accordance with the borrowers served by the financial institution. Furthermore, it has to be taken into account that for certain finance transactions interest and principal repayments should be financed exclusively from the cash flow of the object to be financed without the possibility for recourse to further assets of the borrower (Batten et al, 2003).

2.3.3 Risk analysis and assessment

There are many conceptual studies made on risk analysis and assessment reference to measurement and mitigation of risk. In practice, it is useful to classify the different risks according to the amount of damage they possibly cause (Fatemi, 2000) A typical analysis process consists of two components: financial analysis (or quantitative analysis) and qualitative analysis. Financial analysis comprises an analysis of the financial data available for the credit applicant. The analysis of annual financial statements (backward-looking approach) has a central position in this context. Increasingly, however, the analysis of business planning (forward-looking approach) is being employed in the credit review process. Usually, automated programs are used to calculate indicators from the annual financial statements or the business plan (Berkman, 2004). In most cases, the financial analysis is carried out by credit analysts. If analyses are drawn up by employees other than those primarily responsible for the credit approval process, it is essential to make sure that the administrative process involved is as efficient as possible. There should be a general guideline stipulating that the analysis is confirmed by the person in charge of the organizational unit supplying the module for the credit analysis when this module is handed over to the credit officer managing the exposure. (Edelshain, 2005)
2.3.4 Human based expert systems - Repayment capacity

Credit risk management is mitigated through the use of an expert in credit. Within the credit appraisal category the principal means that a financial institution uses a solid credit evaluation done by a trained professional to control credit risk. The classic credit analysis is a highly labour and information-intensive process consisting of the steps depicted in Classic credit analysis hinges on the subjective judgments of trained personnel (Caoutte and Narayanan, 1998). It is an expert system. Credit officers are turned into experts over time, gaining authority as they acquire experience and demonstrate skills. Lending has expanded from the acquisition of fixed assets to financing working capital, the focus of analysis has shifted from the static balance sheet to cash flow, financial ratios and a consideration of the competitiveness of the borrowing firm (Schreiner 2003). Morris (2001) indicated that in aiding of the analysis, the credit officer usually employs a set of standard and specialized industry-specific ratios that are used to compare the potential borrower to industry benchmarks. Some of the most common ratios used in expert-based credit risk analysis include liquidity ratio, receivables ratio, current ratio and quick ratio.

2.3.5 Credit scoring mechanisms

Credit scoring is the evaluation of the borrower's risk. Until recently, financial institutions exclusively used so-called subjective scoring, whereby loan officers assess the clients' future repayment capacity, relying on the knowhow, experience and intuition as well as on references from informants. Statistical scoring is relatively new. This method helps to estimate the delinquency risk in a more explicit and objective way. Statistical scoring requires an electronic database containing the characteristics of current and past clients and their loans, in order to predict the repayment performance of future loans. This includes two different methods, the statistical regression and the expert system. The former requires preliminary collection of historical data on the characteristics and behavior of the institution's clients. This data can be analysed to obtain statistical relationships between past delinquency and different client characteristics. This in turn is used to predict the probability of future delinquency. The latter (expert system) is based on the experience and judgment of the loan officer. In addition to the subjective scoring, the expert system uses mathematical formulas to establish the influence of each client characteristic on the delinquency risk Schreiner, (2003)
2.3.6 Risk mitigation

Prior to disbursing the credit, the individual credit exposure should be subjected to a final check. This check should cover at least the following points: compliance with internal guidelines; completeness of the credit application; receipt of confirmation that the credit applicant has complied with the conditions imposed; and signing of the credit and collateral agreements in accordance with the decision making structure. Checklists should be used to achieve a risk-mitigating standardization of the process. Suitable samples (segment-specific, if necessary) should be included in the internal guidelines. Various models may be provided to carry out the risk mitigation. (Edelshain, 2005). The review of credit risk should comprise four major activities: assessing the personal and economic situation of borrowers based on current data; adapting the rating, if applicable; checking and evaluating the available collateral; checking and modifying the conditions. The review should focus on the development since the most recent approval or review. The decision-making structure should stipulate who is responsible for periodic reviews. In most case, it will be that level of authority which would also be in charge of approving new credit applications (Grant and Marshall, 2002).

2.4 Empirical review

Effective risk management requires a reporting and review structure to ensure that risks are effectively identified and assessed and that appropriate controls and responses are in place. Risk monitoring ensures that risk management practices are in line. Risk monitoring also helps the management to discover mistakes at early stages (Al-Tamimi and Al-Mazrooei, 2007).

Sergio (1996) in a study of non-performing loans in Italy found that an increase in the riskiness of loan assets is rooted in a financial institution’s lending policy adducing to relatively unselective and inadequate assessment of sectoral prospects. Business cycle could be a primary reason for financial institution’s non-performing loans. But the increase in bad debts as a consequence of recession alone was not empirically demonstrated. In a study of loan losses of US financial institutions, McGoven (1998) argued that character has historically been a paramount factor of credit and a major determinant in the decision to lend money. Financial institutions have suffered loan losses through relaxed lending standards, unguaranteed credits, the influence of the 1980s culture, and the borrowers’ perceptions. Thus, the study suggested that
financial institutions should make a fairly accurate personality-morale profile assessment of prospective and current borrowers and guarantors. In addition, the institutions could minimize risks by securing the borrower's guarantee, using Government guaranteed loan programs, and requiring conservative loan-to-value ratios. Bloem and Gorter (2001) suggested that a more or less predictable level of non-performing loans, though it may vary slightly from year to year, is caused by an inevitable number of wrong economic decisions by individuals and plain bad luck (inclement weather, unexpected price changes for certain products, etc.). Under such circumstances, the holders of loans can make an allowance for a normal share of non-performance in the form of bad loan provisions, or they may spread the risk by taking out insurance. Enterprises may well be able to pass a large portion of these costs to customers in the form of higher prices. For instance, the interest margin applied by financial institutions will include a premium for the risk of non-performance on granted loans.

Bercoff, et al (2002) using accelerated failure time (AFT). model in their study of Argentina's financial sectors weakness measured by the ratio of non-performing loans to total loans found that both financial institutions specific indicators such as asset growth, the ratio of net worth to net assets, the ratio of operating cost to assets, exposure to peso loans, and institutional characteristics relating to private bank and foreign bank and macroeconomic variables including credit growth, foreign interest rate, reserve adequacy and monetary expansion, besides the tequila effect were reasons behind the banking fragility. Their empirical results suggested that the bank size measured by assets had a positive effect but asset growth had a negative effect on NPLs. The variables such as operating cost, exposure to peso loans, credit growth, and foreign interest rate had negative effect on NPLs. The macroeconomic variables such as money multiplier, and reserve adequacy, institutional characteristics and tequila effect had positive influence on NPLs. Fuentes and Maquieira (1998) undertook an in-depth analysis of loan losses due to the composition of lending by type of contract, volume of lending, cost of credit and default rates in the Chilean credit market. Their empirical analysis examined different variables which may affect loan repayment such as the limitations on the access to credit, macroeconomic stability, collection technology, bankruptcy code, information sharing, the judicial system, prescreening techniques, and major changes in the financial market regulation. They concluded that a satisfactory performance of the Chilean credit market, in terms of loan repayments hinges
on a good information sharing system, an advanced collection technology, macroeconomic performance and major changes in the financial market regulation.

In another study, Fuentes and Maquieira (2003) analysed the effect of legal reforms and institutional changes on credit market development and the low level of unpaid debt in the Chilean banking sector. Using time series data on yearly basis (1960-1997), they concluded that both information sharing and deep financial market liberalization were positively related to the credit market development. They also reported less dependence of unpaid loans with respect to the business cycle compared to interest rate of the Chilean economy. Altman, et al (2001) analysed corporate bond recovery rate adducing to bond default rate, macroeconomic variables such as GDP and its growth rate, the amount of bonds outstanding, amount of default, return on default bonds, and stock return. It was suggested that default rate, amount of bonds, default bonds, and economic recession had negative effect, while the GDP growth rate, and stock return had positive effect on corporate recovery rate. Lis, et.al (2000) used a simultaneous equation model in which they explained bank loan losses in Spain using a host of indicators, which included GDP growth rate, debt-equity ratios of firms, regulation regime, loan growth, bank branch growth rates, bank size (assets over total size), collateral loans, net interest margin, capital-asset ratio (CAR) and market power of default companies. They found that GDP growth (contemporaneous, as well as one period lag term), bank size, and CAR, had negative effect while loan growth, collateral, net-interest margin, debt-equity, market power, regulation regime and lagged dependent variable had positive effect on problem loans. The effect of branch growth could vary with different lags.

Kent and D'Arcy (2000) while examining the relationship between cyclical lending behavior of financial institutions in Australia argued that the potential for financial institutions to experience substantial losses on their loan portfolios increases towards the peak of the expansionary phase of the cycle. However, towards the top of the cycle, financial institutions appear to be relatively healthy; non-performing loans are low and profits are high, reflecting the fact that even the riskiest of borrowers tend to benefit from buoyant economic conditions. While the risk inherent in financial institutions lending portfolios peaks at the top of the cycle, this risk tends to be realized during the contractionary phase of the business cycle. At this time, financial institutions
non-performing loans increase, profits decline and substantial losses to capital may become apparent. Eventually, the economy reaches a trough and turns towards a new expansionary phase, as a result the risk of future losses reaches a low point, even though banks may still appear relatively unhealthy at this stage in the cycle. Jimenez and Saurina (2003) used logit model for analysing the determinants of the probability of default (PD) of bank loans in terms of variables such as collateral, type of lender and bank-borrower relationship while controlling for the other explanatory variables such as size of loan, size of borrower, maturity structure of loans and currency composition of loans. Their empirical results suggested that collateralized loans had a higher PD, loans granted by savings banks were riskier and a close bank-borrower relationship had a positive effect on the willingness to take more risk. At the same time, size of bank loan had a negative effect on default while maturity term of loans, i.e., short-term loans of less than 1-year maturity had a significant positive effect on default.

In the Indian context, there is a considered view that financial institutions' lending policy could have crucial influence on non-performing loans (Reddy, 2004). He critically examined various issues pertaining to terms of credit of Indian banks and argued that the element of power has no bearing on the illegal activity. A default is not entirely an irrational decision. Rather a defaulter takes into account probabilistic assessment of various costs and benefits of his decision. Reddy (2004) raised various critical issues pertaining to credit delivery mechanism of the Indian financial sector. The study focused on the terms of credit such as interest rate charged to various productive activities and borrowers, the approach to risk management, and portfolio management in general. There are three pillars on which India’s credit system was based in the past; fixing of prices of credit or interest rate as well as quantum of credit linked with purpose; insisting on collateral; and prescribing the end-use of credit. Interest rate prescription and fixing quantum has, however, been significantly reduced in the recent period. The study also highlighted the issues in security-based or collateralized lending, which need careful examination in the context of growing services sector. Given the fungibility of resources, multiple sources of flow of resources, as well as application of funds, the relevance and feasibility of end-use restrictions on credit need a critical review. The link between formal and informal sectors shows that significant divergence in lending terms between the two sectors still persists, despite the fact that the interest rate in informal markets is far higher than that of the formal sectors- the banking sector. The
convergence between formal and informal sectors could be achieved by pushing the supply of credit in the formal sector following a supply leading approach to reduce the price or interest rate. Furthermore, in the context of NPLs on account of priority sector lending, it was pointed out that the statistics may or may not confirm this. There may be only a marginal difference in the NPLs banks’ lending to priority sector and the banks’ lending to private corporate sector. Against this background, the study suggested that given the deficiencies in these areas, it is imperative that banks need to be guided by fairness based on economic and financial decisions rather than system of conventions, if reform has to serve the meaningful purpose. Experience shows that policies of liberalization, deregulation and enabling environment of comfortable liquidity at a reasonable price do not automatically translate themselves into enhanced credit flow.

In an another study, Mohan (2003) observed that lending rates of banks have not come down as much as deposit rates and interest rates on Government bonds. While banks have reduced their prime lending rates (PLRs) to some extent and are also extending sub-PLR loans, effective lending rates continue to remain high. This development has adverse systemic implications, especially in a country like India where interest cost as a proportion of sales of corporates are much higher as compared to many emerging economies. The problem of NPLs is related to several internal and external factors confronting the borrowers (Muniappan, 2002). The internal factors are diversion of funds for expansion, diversification and modernization, taking up new projects, helping/promoting associate concerns, time/cost overruns during the project implementation stage, business (product, marketing, etc.) failure, inefficient management, strained labour relations, inappropriate technology/technical problems, product obsolescence, etc., while external factors are recession, non-payment in other countries, inputs/power shortage, price escalation, accidents and natural calamities.

2.5 Conclusion

In the Indian context, Rajaraman and Vasishtha (2002) in an empirical study provided evidence of significant bivariate relationship between an operating inefficiency indicator and the problem loans of public sector banks. In a similar manner, largely from lenders’ perspective, Das and Ghosh (2003) empirically examined non-performing loans of India’s public sector banks in
terms of various indicators such as asset size, credit growth and macroeconomic condition, and operating efficiency indicators. The Indian viewpoint alluding to the concepts of “credit culture” owing to Reddy (2004) and “risk pricing” owing to Mohan (2003) confirm with several studies mentioned in the above that apart from the business cycle, financial institutions’ lending policy could play an important role in the management of loan defaults.

Greuning and Bratanovic (2003), studied sound credit granting process; maintaining an appropriate credit administration that involves monitoring process as well as adequate controls over credit risk. Clear established process for approving new credits and extending the existing credits has been found to be very important while managing credit risk (Heffernan, 2003).

Local studies done on credit risk management include Njiru’s (2003) survey of credit risk management among coffee cooperatives in Embu, Nduku’s (2007) survey of credit risk management practices by pharmaceutical manufacturing firms in Kenya, Wambugu’s (2008) survey of credit risk management practices by micro-finance institutions in Kenya. There is no study known to the researcher that focuses on the relationship between credit risk management and non performing loans among SACCOs in Kenya, hence the need to conduct the study
CHAPTER THREE:  
RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out various stages and phases that were followed in completing the study. In this section, the research identifies the procedures and techniques that were used in the collection, processing and analysis of data. Specifically the following subsections are included; research design, target population, data collection instruments, data collection procedures and finally data analysis.

3.2 Research design

The choice of a design is determined by; research purpose as described by the research problem and questions, categories of data needed, sources of data and cost factors. For the purpose of this study, a casual design was adopted since the research design major emphasis was on determining a cause-and-effect relationship between the variables. This was done by obtaining causal inferences that were objective, and therefore had the best chance of revealing scientific truths. The causal design enabled the researcher to establish the relationship between credit risk management practices and non-performing loans of SACCOs in Kenya.

3.3 Population of Study

The population of the study consisted of all the 4233 registered SACCOs in Kenya (Co-op Africa, 2010)

3.4 Sampling Design and sample size

This study used simple random sampling to select 2 members of staff in the credit department in each of the 30 selected SACCOs, as presented on appendix 3. By adopting simple random sampling; each element of the target population had an equal chance of being selected. The researcher assigned a number to each element in the list and then used a table of random
numbers which was normally constructed in a way that each entry had an equal probability of being selected. The researcher believed that staffs in credit department had the information needed on the relationship between of credit risk management and non performing loans. The sample of the study was 60.

3.5 Data Collection Method

The Researcher developed the instrument with which to collect the necessary information from the Head of questions. These questions were accompanied by a list of possible alternatives from which respondents were required to select the answer(s) that best describes their situation.

The main advantage of close ended questions was they were not only easy to administer because each question was followed by alternative responses but also easy to analyse since they were in an immediate usable form

3.6 Validity and reliability

Mugenda and Mugenda (2003) asserted that, the accuracy of data to be collected largely depended on the data collection instruments in terms of validity and reliability. Validity as noted by Robinson (2002) is the degree to which result obtained from the analysis of the data actually represents the phenomenon under study. Validity was ensured by having objective questions included in the questionnaire. This was achieved by pre-testing the instrument to be used to identify and change any ambiguous, awkward, or offensive questions and technique as emphasized by Cooper and Schindler (2003). Reliability on the other hand refers to a measure of the degree to which research instruments yield consistent results (Mugenda and Mugenda, 2003). Reliability was enhanced by pre-testing the questionnaire with a selected sample from one of the SACCOs which was not included in the actual data collection.

3.7 Data Collection Procedure

Primary data was collected from the field by the researcher using semi-structured questionnaire. The questionnaires were administered using both drop and pick method and electronic mail. The questionnaires were adopted since the researcher was able to get uninfluenced responses from
the respondents. The self administered questionnaire was the best way to elicit a self report of the respondents' opinion. The questionnaire contained both closed and open ended questions as highlighted in appendix 2

3.8 Data Analysis and Presentation

The collected data was thoroughly examined and checked for completeness and comprehensibility. The data was then summarized, coded and tabulated. Descriptive statistics such as means, standard deviation and frequency distribution were used to analyze the data. Relational analysis was used to analyze the relationship among the variables. Statistical Package for Social Sciences (SPSS version 17.0) was adopted for the analysis. Data presentation was done by the use of pie charts, bar charts, graphs, percentages and frequency tables. This was meant to ensure that the gathered information was clearly understood. A linear regression model was applied to determine the relationship between the variables. The model treats Non performing loans of the SACCO's as the dependent variable while the credit risk management practices comprising of diversification across union members, risk identification, risk analysis and assessment, human based expert systems -repayment capacity, Credit Scoring Mechanism and Risk mitigation were the independent variables.

The equation below presents the algebraic expression of the analytical model applied

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 \]

\( Y = \text{Non Performing loans} \)

\( \alpha = \text{Constant} \)

\( \beta = \text{Coefficient of the factors} \)

\( X_1 = \text{Diversification across Union Members} \)

\( X_2 = \text{Risk identification} \)

\( X_3 = \text{Risk analysis and assessment} \)

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In the present study, the findings of the study were based on a survey of sixty people. The findings are presented in the form of descriptive statistics, consisting of tables of frequencies, pie charts, bar graphs, and bar charts. The study sought to investigate the relationship between credit scoring mechanisms and non-performing loans to savings and credit co-operative societies (SACCOs).

Demographic characteristics of the respondents

The demographic information of the respondents was established to show the characteristics of the people who participated in the study. The demographic information sought in the study includes gender, designation within the SACCO and duration to which the loan has been in the system.

Gender

Questions were asked to show their gender; this was expected to guide the researchers on the process regarding the segmentation of responses to the gender characteristics. The results gathered in the chart (Figure 4.2.1) indicate that a majority of the respondents were male at 68% compared to female at 32% to 44%. In this context, the findings can be generalized on respondents. This shows that most of the SACCOs have more Male than Female.
CHAPTER FOUR
DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1. Introduction

This chapter focuses on the presentation, description and analysis of the findings of the study where fifty four questionnaires were fully answered out of the sample of sixty. The findings are presented by descriptive statistics, consisting of table of frequencies, pie charts, bar graphs and percentages. In this study, the researcher sought to investigate the relationship between credit risk management practices and non performing loans in savings and credit co-operative societies in Kenya.

4.2. Demographic characteristics of the respondents

The demographic information of the respondents was established to show the characteristics of the people who participated in the study. The demographic information sought in the study include gender, designation within the SACCO and duration in which the has been in the SACCO industry.

4.2.1 Gender

The respondents were asked to show their gender, this was expected to guide the researcher on the conclusions regarding the congruence of responses to the gender characteristics. The results as highlighted in the chart (figure 4:2:1), indicate that a majority of the respondent were male at 30 or 56% as compare to female at 24 or 44%. To this extent, the findings can be generalized on the male respondents. This shows that most of the SACCO have more Male than Female employees.
4.2.2 Employee's current designation

Source: Research findings
The respondents were asked to state their current roles; this was expected to guide the researcher in classifying the responses from each department. The results of the study show that the majority of the respondents were credit officers with the response rate of 23, compared to credit managers at 18 and head of department at 13 as depicted in figure 4.2.2. The implication to the study is that varied responses from the different departments can adequately apply to the entire organization.

4.2.3: Respondents’ duration in the Sacco industry

![Graph showing respondents' duration in the Sacco industry](image)

Source: Research findings

The researchers sought to establish the years the respondents have been in the SACCO industry. The results showed that the majority have been in the profession for the period 6 to 10 years, with 23 of respondents, while 16, 8, 5 and 2 of the respondent have been in the industry for 1-5 years, 11-15 years, 16-20 years and above 21 years respectively. This implies that the majority of the respondents have adequate experience to offer acceptable responses.

4.3 Formulating Credit Risk Management Policies

From the respondents’ point of view, employees are more involved in the formulation of credit risk management policies at a mean score of 3.85 as compared to consultants’ 3.5. This is
highlighted on table 4:3:1 and chart 4:3:2. This implies employees are not only involved in the formulation of credit risk management policies but also in the implementation of the same.

Table 4:3.1 Parties involved in credit policies formulation

<table>
<thead>
<tr>
<th>Parties involved in credit policies</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Mean score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees</td>
<td>0</td>
<td>2</td>
<td>14</td>
<td>28</td>
<td>10</td>
<td>3.85</td>
</tr>
<tr>
<td>Consultants</td>
<td>1</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>14</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Source: Research findings

Figure 4.3.2 Distribution of Parties involved in credit policies

Source: Research findings
4.4 Credit Risk Identification Process

The responses obtained highlighted internal auditors as most involved in credit risk identification with a mean score of 4.48 as compared to external auditors with the least score of 2.96. Senior employees and Middle and lower level employees had a score of 3.96 and 4.22 respectively as depicted in table 4.4.1.

Table 4.4.1 Distribution of parties involved in credit risks identification process

<table>
<thead>
<tr>
<th>Parties involved in risk identification</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal auditors</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>18</td>
<td>31</td>
<td>4.48</td>
</tr>
<tr>
<td>External auditors</td>
<td>4</td>
<td>19</td>
<td>12</td>
<td>13</td>
<td>6</td>
<td>2.96</td>
</tr>
<tr>
<td>Senior employees</td>
<td>0</td>
<td>8</td>
<td>12</td>
<td>8</td>
<td>26</td>
<td>3.96</td>
</tr>
<tr>
<td>Middle and lower level employees</td>
<td>0</td>
<td>4</td>
<td>10</td>
<td>10</td>
<td>30</td>
<td>4.22</td>
</tr>
</tbody>
</table>

Figure 4.4.2 Mean scores of parties involved in risk identification

This implies most of the SACCO’s rely on the internal auditors to identify any potential credit risk with a mean score of 4.48 as compared to the least number of SACCO’s, that rely on the
external auditors at a score of 2.96. Middle and lower level employees had a mean score of 4.22 while the senior employees had a score of 3.96. This implies employees, comprising of internal auditors and middle and lower level employees are involved in risk identification

4.5: Standardised procedures for handling credit recovery

Figure 4:5:1 Response on standardised procedure for handling credit recovery

![Standardised procedures for handling credit recovery](image)

Source: Research findings

All the 54 respondents acknowledged of an existence of a credit recovery department in their respective SACCOs. However, 40 of the respondents acknowledged there exist standardised procedures for handling credit recovery compared to 14 who denied of existence of such a procedure, representing 74% and 26% respectively of the respondents as depicted in figure 4:5:1

4.6: Testing credit worthiness

Most of the SACCO’s prefer the character, reputation and the current remuneration as a yard stick of measuring their clients credit worthiness at 90%, compared to inspecting late payments at 72%. Amount of outstanding debt and length of credit history account for 76% and 84% respectively as highlighted in figure 4:6:1
Figure 4:6:1 Responses on how SACCO’s test their client’s credit worthiness

<table>
<thead>
<tr>
<th>How SACCOs test the credit worthiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>The character, reputation and the current remuneration</td>
</tr>
<tr>
<td>Inspecting late payments</td>
</tr>
<tr>
<td>Amount of outstanding debt</td>
</tr>
<tr>
<td>Length of credit history</td>
</tr>
</tbody>
</table>

Source: Research findings

4.7 Risk mitigation

Risk Mitigation covers efforts taken to reduce either the probability or consequences of a potential loss. These may range from physical to financial measures. Most SACCO’s prefer to use guarantors as a way of cushioning themselves against any potential loss and the least prefer insurance at 76% and 58% respectively. 64% of the respondents prefer the use of collateral as depicted in figure 4:7:1. However, it was established the risk mitigation technique mostly depends on the amount of amount borrowed, the available schemes, repayment duration and the purpose of borrowing.
Figure 4:7:1 Responses on preferred risk mitigation techniques

![Bar Chart: Risk Mitigation Techniques]

- Collateralization: 64%
- Guarantor: 76%
- Insurance: 58%

Source: Research findings

4.8 Non-performing loans

Figure 4:8:1: Non performing loans

![Bar Chart: Non-Performing Loans]

- Within 3 months: 50%
- Between 3-6 months: 25%
- After 6 months: 10%

Source: Research findings
All the respondents acknowledged the existence of non-performing loans. However, 49 of them acknowledged within 3 months their unpaid loans become past due whereas 5 acknowledged it takes between 3-6 months for their loans to become past due (Non-performing). This is highlighted in figure 4:8:1.

4.9 Credit Monitoring

Credit reminders are part of credit monitoring process. Of the 54 respondents, 33 acknowledged their institutions provide credit reminders after 1 to 3 months. 14, 5, and 2 stated their institutions provide credit reminders after 3 to 6 months, after 7 to 9 months and after one year respectively as depicted in figure 4:9:1.

Figure 4:9:1 Distribution of credit reminders

<table>
<thead>
<tr>
<th>Credit reminders</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>35</th>
</tr>
</thead>
<tbody>
<tr>
<td>After 1 to 3 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After 3 to 6 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After 7 to 9 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After one year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Research findings

4.10 Action taken in the event of default

In the event of loan losses, SACCO’s have a number of options to safeguard themselves. As per the respondents, most of the SACCO’s prefer to recover such losses from the guarantors, at 78% compared to legal action at 52%. Use of collateral as security, recovering from the benevolent fund and claim with insurance are at 72%, 62% and 68% respectively as represented in figure 4:10:1.
4.11 Regression Analysis

Since both descriptive and analytical approach was utilized, the researcher used Microsoft Excel and SPSS version 17.0. The data collected from the questionnaires was used to analyze the research question. The researcher established how credit risk management practices and non performing loans for the SACCOs will be applied to examine the relationship between the variables. A multi regression model was applied to determine the relative import of each of the fixed variables with respect to individual performance with credit risk management practices as the independent variables and non performing loans as dependent variable. Credit risk management practices comprised of diversification across union members, risk identification, risk analysis, human-based expert systems-repayment capacity, credit scoring mechanism and risk mitigation.

The equation presents the algebraic expression of the analytical model applied

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 \]
Table 4.11.1: Result findings

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-.338</td>
<td>.801</td>
<td>-.422</td>
<td>.675</td>
</tr>
<tr>
<td>Diversification across Union Members</td>
<td>.313</td>
<td>.117</td>
<td>2.680</td>
<td>.010</td>
</tr>
<tr>
<td>Risk identification</td>
<td>.154</td>
<td>.125</td>
<td>.147</td>
<td>1.230</td>
</tr>
<tr>
<td>Risk analysis and assessment</td>
<td>.277</td>
<td>.141</td>
<td>.236</td>
<td>1.967</td>
</tr>
<tr>
<td>Human-based Expert Systems - Repayment Capacity</td>
<td>.118</td>
<td>.149</td>
<td>.100</td>
<td>.790</td>
</tr>
<tr>
<td>Credit Scoring Mechanism</td>
<td>.203</td>
<td>.118</td>
<td>.217</td>
<td>1.725</td>
</tr>
<tr>
<td>Risk mitigation</td>
<td>.025</td>
<td>.116</td>
<td>.024</td>
<td>.216</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Non Performing loans
b. Independent variable: credit risk management practices

Source: Researcher’s computation

These are the values for the regression equation for predicting the dependent variable from the independent variable. The regression equation is presented as

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 \]

\[ Y = - 0.338 + 0.313X_1 + 0.154X_2 + 0.277X_3 + 0.118X_4 + 0.203X_5 + 0.025X_6 \]

The column of estimates provides the values for b0, b1, b2, b3 and b4 for this equation.
The coefficient for diversification across union members is 0.313. Thus, for every decline in 0.313 units of diversification across union members in credit risk management, a unit increase in non-performing loans in the SACCO’s is predicted, holding all other variables constant.

The coefficient for risk identification is 0.154. Thus, for every 0.154 unit decline in risk identification, a unit increase in the non-performing loans in SACCO’s is anticipated, holding all other variables constant.

The coefficient for risk analysis and assessment is 0.277. Thus, for every 0.277 unit decline in risk analysis and assessment, a unit rise in non-performing loans is expected, holding all other variables constant.

The coefficient for human-based expert systems - repayment capacity is 0.118. So for every 0.118 unit decrease in repayment Capacity, a unit rise in non-performing loans is anticipated, holding all other variables constant.

The coefficient for Credit Scoring Mechanism is 0.203. Thus, for every 0.203 unit decline in credit scoring mechanism, a single unit rise in non-performing loan is anticipated holding all other variables constant.

The coefficient for risk mitigation is 0.025. This translates to for every 0.025 unit decline in risk mitigation, a unit rise in non-performing loans is anticipated, holding all other variables constant.
<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean for the rate of respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversification of credit risk across union members results to lower levels of non-performing loans</td>
<td>3.3</td>
</tr>
<tr>
<td>Use of specific lending and project appraisal techniques minimizes levels of non-performing loans</td>
<td>3.8</td>
</tr>
<tr>
<td>Loan securitization prevents instances of non-performing loans</td>
<td>4.2</td>
</tr>
<tr>
<td>Risk analysis and assessment is an effective way of preventing occurrence of non-performing loans in SACCOs</td>
<td>4.6</td>
</tr>
<tr>
<td>Adoption of centralized Management Approach results to lower levels of non-performing loans</td>
<td>3.2</td>
</tr>
<tr>
<td>Adoption of an Independent credit review yields to lower levels of non-performing loans</td>
<td>3.7</td>
</tr>
<tr>
<td>Adopting credit Human-based Expert Systems - Repayment Capacity leads to lower level of non-performing loans</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Source: Research findings

### 4.12 Research findings

From the analysis, the following are a summary of the credit risk management variable compared to non-performing loans. The mean is arrived at from the scale of 1-5.

- Risk analysis and assessment is an effective way of preventing occurrence of non-performing loans in SACCOs
- Use of specific lending and project appraisal techniques minimizes levels of non-performing loans
• Credit Risk Assessment leads to declining levels of nonperforming loans
• Use of specific lending and project appraisal techniques minimizes levels of non performing loans
• Adoption of an Independent credit review yields to lower levels of non performing loans
• Adoption of Credit monitoring results to lower non performing loans
• While both Adopting of credit Human-based Expert Systems - Repayment Capacity leads to lower level of non performing loans and Adoption of centralized Management Approach results to lower levels of non performing loans with the lowest mean.

Employees of the SACCO’s are mostly involved in not only the formulation of credit risk management policies (mean score 3.85) but also in the credit risk identification process (mean score of 4.48 and 4.22) Most SACCO’s undertake know your client (KYC) requirement prior to approval and disbursement of credit as evidenced by the 90% score on testing the client’s credit worthiness. This implies that the SACCO’s take loan analysis and maintenance of clients’ proper documentation as crucial aspects of credit risk management. The SACCO’s use credit reminders to enhance credit monitoring. The study established that most SACCO’s issue credit reminders to their clients with loan arrears after one to three months. The SACCO’s also resolved to take litigation in situations where the borrowers’ financial situation and structure have been altered and the original promised values of collateral differs.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusions and recommendations of the findings of this study. The contents therein comprise of a summary of the findings in chapter four, the conclusions of the study, recommendations to the stakeholders regarding the findings, and possible areas of further research.

5.2 Summary and Conclusions

The objective of the study was to determine the relationship between credit risk management and non-performing loans among Sacco's in Kenya. Considering the demographic characteristics of the respondents, it was found that a majority of the employees were male at 56% compared to female at 44%. The findings can be generalized on the male respondents. The data was obtained from the different employees of the Sacco's, classified as per designation working in the credit department. The credit officers offered most of the responses. However, it's worth mentioning the employees were deemed to be highly competent with the majority of them having been in the Sacco industry for between 6-10 years.

Based on the analysis of the data from the survey, the following conclusions are drawn. First, employees of the Sacco's are mostly involved in not only the formulation of credit risk management policies (mean score 3.85) but also in the credit risk identification process (mean score of 4.48 and 4.22). Tchankova (2002) opined that quality credit appraisal process from a risk perspective is determined by best possible identification and evaluation of the credit risk result from a possible organizations exposure. This implies, Sacco's are able to detect any looming credit risk courtesy of their employees who are involved in the formulation and implementation of the policies. Secondly, most Sacco's undertake know your client (KYC) requirement prior to approval and disbursement of credit as evidenced by the 90% score on testing the clients credit worthiness. This implies that the Sacco's take loan analysis and
maintenance of clients’ proper documentation as crucial aspects of credit risk management. Electronic database comprising of characteristics of past and present clients and their loans is vital in predicting the repayments performance of future loans. Moreover, the SACCO’s use credit reminders to enhance credit monitoring. Reddy, (2004) argues that reminder procedures, which could be in the form of credit reminders, are part of the credit appraisal process. The study established that most SACCO issue credit reminders to their clients with loan arrears after one to three months. The SACCO’s also resolve to take litigation in situations where the borrowers financial situation and structure have been altered and the original promised values of collateral differs. The study thus concluded that the SACCO’s are well prepared to avoid loan losses by employing credit risk management practices.

Lastly, the study established that SACCO’s are faced with the challenges of undercapitalization and loan pricing strategies. The former is attributable to lack of legislation on the minimum capital requirements of the SACCO’s as compared to other financial institutions like the banks, with the sole objective of safeguarding the client’s deposits. The latter is attributable to immense competition from other financiers who employee less stringent credit risk management practices resulting to a higher uptake of their loan products. Loan recovery is still a challenge to the majority of the SACCO’s. Nevertheless, adoption of credit risk management practices was deemed vital in reducing the levels of non-performing loans in the SACCO’s.

5.3 Recommendations

This study made some findings that have important implications. Adoption of credit risk management results to lower level of non-performing loans thereby impacting on the overall profitability of the SACCO’s. Risk identification and monitoring ought to be an on-going process that aids in mitigation of loan losses. The former ought to be carried out from the loan application stage till the disbursement of the loan, while the latter ought to be conducted until the loan is repaid in full. Finally, credit granting processes are best conducted by a well trained individual who understands the delinquency risks.
5.4 Limitations of the study

The study faced a number of limitations that included inadequate time to undertake the research. More variables could have been included to highlight the components of non-performing loans such as loan interest, loan maturity, policy rate and lag dependent variable. Secondly, the research involved data analysis and errors may have occurred since some respondents were unwilling to offer the required information, that they deemed confidential. In addition, some respondents were reluctant to offer their responses while others declined, as evidenced by the number of unreturned questionnaires.

5.5 Suggestion for further research

This study is important to not only the Credit managers in the SACCO’s, but also to individuals wishing to study the relationship between credit risk management and non-performing loans. As found out, more studies should be done to ascertain the relationship between credit risk management and non-performing loans. Future studies should comprise of the same variables either in the banking or micro finance sectors.
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Appendix 1: Letter of Request

Dear Sir/Madam

REF: RELATIONSHIP BETWEEN CREDIT RISK MANAGEMENT AND NON-PERFORMING LOANS (REQUEST FOR RESEARCH DATA)

I am a student from the University of Nairobi, currently pursuing a Masters in Business Administration course. As a requirement, I am currently undertaking a management research proposal based on the above stated topic as a partial fulfillment for the award of a degree of Masters of Business Administration.

This letter is a request to kindly allow me to collect the required data from the staff in your credit department. It will involve issuing of questionnaires to the targeted members of staff. The data collected will be treated in confidence and the information provided will be used for academic purpose only.

Thank you in advance for your willingness to participate in the research.

Yours sincerely,

Jimmy Muchira
Appendix 2: Questionnaire

SECTION A: GENERAL INFORMATION

1. Name of the SACCO (Optional) .................................................................................................................................

2. Gender  Male [ ]  Female [ ]

3. What is your current designation within the SACCO?
   - Credit Manager [ ]
   - Head of Department [ ]
   - Credit Officer [ ]

4. How many years have you been in the SACCO industry?
   - 1 - 5 years [ ]  6 - 10 years [ ]  11 - 15 years [ ]
   - 16 - 20 years [ ]  above 21 years [ ]

SECTION B: CREDIT RISK MANAGEMENT AND NON PERFORMING LOANS

5. Does your organization have specific credit policies for managing loan losses?
   - Yes [ ]  No [ ]
If yes, to what extent do you involve the following parties in formulating the credit risk management policies? Use a scale of 1 to 5 where 1 is the least extent and 5 is to the most extent.

<table>
<thead>
<tr>
<th>Parties involved in credit policies</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consultants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. To what extent does your organization involve the following parties in the credit risk identification process? Use a scale of 1 to 5 where 1 is the least extent and 5 is the most extent.

<table>
<thead>
<tr>
<th>Parties involved in risk identification</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal auditors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External auditors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle and lower level employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7. (a) Does your institution have a credit recovery department that handles collection of credit in default?

Yes [ ]  No [ ]

(b) Are there any standardized procedures for handling credit recovery?

Yes [ ]  No [ ]

8. Kindly select the credit criteria (s) your institution adopts to test clients credit worthiness?

- The character, reputation and the current remuneration [ ]
- Amount of outstanding debt [ ]
- Bankruptcies [ ]
- Inspecting late payments [ ]
- Length of credit history [ ]

9. Which of the following risk mitigation techniques of managing loan losses does your institution use?

- Collateralization [ ]
- Guarantor [ ]
- Insurance [ ]

10. Does your institution have any loans that the full payment of the principal and interest is no longer anticipated?

Yes [ ]  No [ ]

If yes, after how long do unpaid loans become past due (Non performing)?

- Within 1 years [ ]
- Between 1-2 years [ ]
- After 3 years [ ]
11. Credit reminders are part of credit monitoring procedures. How often does your Institution provide credit reminders to your clients?

- After 1 to 3 months
- After 3 to 6 months
- After 6 to 9 months
- After one year

12. What actions does your institution take incase a customer defaults the loan?

- Sue customer in court
- Recover form the benevolent fund
- Claim with insurance
- Recover from guarantors’
- Use collateral as security

13. To what extent do you agree with the following statements concerning credit risk management practices and non performing loans? (Use a scale of 1 to 5 where 1 is the least extent and 5 is to the most extent.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Risk Assessment leads to declining levels of non-performing loans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of specific lending and project appraisal techniques minimizes levels of non-performing loans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loan securitization prevents instances of non-performing loans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk analysis and assessment is an effective ways of preventing occurrence of non-performing loans in SACCOs</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Adoption of centralized Management Approach results to lower levels of non-performing loans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diversification of credit risk across union members results to lower levels of Non-performing loans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adoption of an Independent credit review yields to lower levels of non-performing loans</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human-based Expert Systems - Repayment Capacity leads to lowering non-performing loans in SACCOs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 3: List of candidate SACCO's

1. Kenya bankers SACCO
2. Kenya insurers SACCO
3. Nation SACCO
4. United Nations SACCO
5. Stima SACCO
6. Amref SACCO
7. Safaricom SACCO
8. Ushuru SACCO
9. Kimisitu SACCO
10. Nyati SACCO
11. Kenatco SACCO
12. Kenya Police staff SACCO
13. Mwalimu SACCO
14. Teleposta SACCO
15. Muthaiga Country Club Staff SACCO
16. Kemri SACCO
17. Banki Kuu SACCO
18. Kiwi SACCO
19. Kencom SACCO
20. Harambee SACCO
21. Longhorn SACCO
22. Ufundi SACCO
23. Kenya Institute of Administration SACCO
24. Kasneb SACCO
25. Ufundi SACCO
26. Hazina SACCO
27. Wana-anga SACCO
28. Ukulima Co-operative SACCO
29. Elimu SACCO
30. Magereza Staff SACCO