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Effect of Credit Risk Management on the Financial Performance of Savings and Credit Cooperative Societies in Kenya

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Abstract:
The aim of this study was to analyze the effects of credit risk management on SACCOs' financial performance. The study's target population was the 239 Non-Deposit Taking (NDTS) SACCOs in Mombasa County that were taken to represent all NDTS SACCOs in Kenya. The study adopted a survey design that is both descriptive and exploratory. Questionnaires were used to gather the primary while data collection forms were used to collect the secondary data. Both parametric (t-test) and non -parametric tests (Pearson correlation coefficient) and multiple regression were done to find the influence and the trend of the association amid credit risk management and SACCOs' financial performance. The correlation results for both primary and secondary data revealed that credit risk management had an influence on financial performance that was significant and positive. This means that credit risk management is vital and SACCOs need to be vigilant in their credit risk management as it is an area if neglected can cause a great loss to the SACCOs. The results of the hypothesis testing revealed that the null hypothesis was to be rejected. The researcher recommended that it is important for SACCOs to continue enhancing their credit risk management as it leads to improved financial performance. The research recommended that a replica of this study be done in other sectors. A similar one can also be done on SACCOs but instead of using structured questionnaire the study to use both structured and unstructured questionnaire in order to get more information from the respondents.

Keywords: *Credit risk management, financial performance, SACCOs*

1. Introduction

The background of this study describes SACCOs' financial performance from Global, African and Kenyan perspectives respectively.

1.1. Financial Performance of Saccos from Global Perspective

The concepts and values regarding how credit unions work was developed in the 19th century. In Britain pioneers of credit unions included Robert Owen, in Germany Herman Schulze-Delitzsch while in North America it was Alphonse Desjardin (Association of British Credit Unions Limited, 2016). Since then, cooperatives have increased tremendously and this is partially due to the efforts of the International Cooperative Alliance (ICA). The ICA was initiated in 1895 by E.V. Neale de Rochdale and Edward Owen Greening (Chum, 2017). The oldest cooperative was known as Rochdale Society and was formed in Rochdale in1844 by a group of 28 weavers and artisans (Khambule, 2015). More than 1.2 billion persons belong to one of the three million cooperatives in the world (World Cooperative monitor, 2017). The 300 largest cooperatives reported a total of $2.2 billion in savings (International Cooperatives Alliance, 2018).

At the end 0f 2017, there were over 89,000 SACCO's/Credit Union/ CFIs/ Mutual, offering their services in 117 countries. Jointly, they had savings of US$1.7 Trillion, Loans of US$ 1.5 Trillion, reserves of US$195 billion, total assets of 2.1 trillion and a membership of over 260million with a penetration of 9.09%, (WOCCU, 2017). Among them, there are those that have very few members and are organized exclusively by volunteers and their main agenda is to get savings and issue loan products. At the other end there are those that are full-service financial providers that manage billions of dollars in assets and have paid employees (McKillop & Wilson, 2015). Association of British Credit union Limited, (2016) stated that over 70% of the population in Ireland and around 43% in America and Canada are involved in these institutions. A fast growth of these institutions has also occurred in Eastern Europe, parts of South America, Africa and the Far East.

1.2. Financial Performance of Saccos from African Perspective

SACCOs and self- help groups are not strange to the African continent as before colonialism, savings groups known by diverse names could be found on the continent (Wanjiru. 2016). These savings groups managed savings and credit on a rotating basis and they had a simple organizational structure (Ksoll, Lilleør, Lønborg, & Rasmussen, 2016). SACCOs in Africa increased so much so till African countries decided to form an association for continental SACCOs named Africa Confederation of Cooperative savings and Credit Association, (ACCOSSCA) in 1965 (Mutai, (2016). The agenda of association was the promotion of SACCOs' principles, offering SACCO insurance and educating members on issues concerning SACCO. There are established SACCOs in twenty-eight Countries of Africa (Mutai, (2016). SACCOs have the benefit of the capability of getting customers in regions that banks are not attracted. Such regions include poverty-stricken areas or rural areas. (Njeru, 2016).

1.3. Financial Performance of SACCOs Kenyan Perspective

Lumbwa was the first cooperative to be started in Kenya in the year 1908 by the European settlers in the Rift Valley. Their aim was to exploit economies of scale in agricultural activities (Ochieng, Bogomko & Simiyu 2017). Kenyans were encouraged to establish cooperatives through a session Paper No. 10 which was published in 1965 with the goal of poverty reduction and the acceleration of development. These cooperatives were steered by the government. The government supervisorial powers were ignored and the cooperatives sought to be independent. The government in 1997 changed the cooperative societies Act of 1966 and certified that the cooperatives become autonomous (Wanyama, 2016). This freedom was abused through dishonesty and malpractices by members of the board which obligated the government to modify the 1997 Act through the amended Act of 2004 (Wanyama, 2016).

The SACCO sector in Kenya comprises 12000 registered cooperative societies with seven million members. It is rated number seven in the world and it is the largest in Africa (Warwathe, 2017). Kahuthu, (2016) argued that 63% of Kenyans take part partially or fully in cooperative societies. He went further to emphasis that Kenyans to the tune of 80% get their income directly or indirectly from cooperative related events. 1964 saw the establishment of Kenya's first SACCO. The SACCO became a sub- sector of the Kenyan cooperative movement. SACCOs in Kenya greatly increased in the 1970s though the fastest growth was experienced when commercial banks closed some of their branches in the 1990s (Nkuru, 2015). There are 7,400 registered SACCOs and out of these 3800 are active and 164 have FOSAs (SASRA, 2016). The SACCO movement has savings of more than Ksh. 150 billion (more than 30% of the National Domestic savings) and loans to the tune of Ksh. 120 billion (Njoroge & Rotich, 2016).

As stated earlier there are 7,400 registered SACCOs and out of these 3800 are active and 174 have FOSAs (SASRA, 2016). The SACCOs are divided in to two, Deposit Taking Cooperative Societies (DTSACCOs) and Non-Deposit Taking Cooperative Societies (NDTSACCOs), (KUSCO, 2018). The NDTS are governed by the law of 1997, as adjusted through Cooperatives Societies Amendment Act of 2004. This law was enacted to strengthen through the office of the commissioner for cooperative development, the cooperative movement principles. SASRA (SACCO Societies Regulatory Authority) was established in 2008 by a SACCO Act. SASRA is charged with the responsible of supervising, regulating and the issuance of license to SACCOs that receive deposits (Buluma, Kung'u & Mungai, 2017).

Mombasa County is located along the coastline of Kenyan. The second largest city in Kenya is found here. For SACCO management purposes, the County is subdivided into Mvita, Kisauni and Changamwe / Likoni. The County has a total of 244 active SACCOs. They have 35,882 shareholders with a total turnover of Ksh.1.057.831.845 and a total share capital and deposit of 3.882.055.698 (.M.I., T & C) Mombasa branch, 2016). Of these active SACCOS 5 take deposits from members while 239 do not take deposits from members. These two classifications of SACCOs are governed by different laws as indicated above and they therefore cannot be jointly studied as such, the researcher focused on those that do not take deposits (NDTSACCOs).

Financial intermediation is a major role played by SACCOs. Giving Loans is a major activity of SACCOs and it is from loans that most of their operating income is generated. This is the role that has attracted many researchers, including the current researcher, to carry out studies on the effect of credit risk management on the financial performance of SACCOs.

The Republic of Kenya (2008) governs credit management in Kenya by statute. It describes how SACCOs pay out loans and emphasizes policies and restrictions on loans (Kahuthu, 2016). (Kahuthu, 2016). (Kahuthu, 2016). The following requirements were laid down by the Republic of Kenya (2008) for calculating loan loss allowances. These categories are, Performing, Watch, Substandard, Doubtful and Loss. Performing loans are those loans that are well documented and performing, for these ones a 1% provision is recommended Watch are those loans that have been outstanding by one instalment, a 5% provision is to be provided. Substandard these are those loans that have been outstanding for 2-6 months, a provision of 25% is to be provided. Doubtful are those loans that have been outstanding for 7-12 months, a provision of 50% is to be provided. Loss are those loans that have been outstanding for more than 12 months, a 100% provision is to be made. The international standard for WOCCU is 35% for delinquency loans to the total loan portfolio while the charge offs collections should be strengthened as a standard practice (Kahuthu, Muturi, & Kiweu, 2015). The International best practice is a proportion greater than 75% as demonstrated below. Recoveries of charge offs = Sum of charge offs recovered greater or equal to 75% divided by the sum of charge offs. Loan loss provision can tend to decrease surplus for a short time, but SACCOs are ultimately able to increase liquidity and profitability due to the pressure it exerts on management of loan recoveries (Islam, 2019). The value of providing for loan losses can be due to the asymmetry of knowledge brought about by the opening of traditional SACCO membership bonds (Kahuthu, Muturi, & Kiweu, 2015). Credit unions serve as financial intermediaries between savers with excess funds and borrowers with merger funds (Hajilee, Al Nasser & Perez, 2015). As such, credit unions absorb significant levels of financial risks. Good financial performance of credit unions depends largely on efficient management of financial risks. Kimatu, (2018) in his

study on the association between loan default and performance showed the presence of a great negative association amid loan default and profitability of these SACCOs. Njogu & Omagwa, (2018) discussed that a great proportion of default reduces the loanable funds and demand a substantial amount of administrative cost and time to recover the loans. Kengia, (2015) revealed that many SACCOs and cooperatives in Tanzania suffer from inadequate organization, dishonesty, deficient capital, meagre business practices and high Non- Performing Loans (NPLs). Wamalwa and Jagongo (2017) indicated that loan portfolio management includes loan portfolio planning, credit risk control and customer screening.

Viswanadham & Nahid, (2015) in their study looked at the determinants of NPLs in commercial Banks (National Bank) in Dodoma in Tanzania. They considered the following Variables, interest rate, GDP, concentration of lending activities. Bank loans supervision capacity and economic conditions and how they affect NPLs. The study concluded that banks should develop credit culture to deal with loans and also have prudent policies to govern loans. Hassana, Ilyas and Rehman (2015) examined social and bank specific factors that affect NPLs in Pakistan using a survey questionnaire methodology. The result reviewed that credit appraisal, credit follow-up, fast credit expansion has an enormous effect on NPLs while interest has a feeble effect on NPLs. Momanyi and Njiru (2016) looked at how the Nakuru East Sub- County DTSACCOs' financial performance was affected by the management of financial risk. The study considered: - financial risk recognition process, financial risk follow-up procedures, financial risk appraisal methods and financial risk alleviation methods to be the measures of management of financial risk. Descriptive research design was used in this study. There were 45 respondents from 15 SACCOs in which 3 staff members were selected. By using a closed-ended questionnaire, the gathering of the primary data was done. Secondary data for the years 2010-2014 was compiled from the audited statements of finance for these SACCOs. Using SPSS Version 21, the data was analysed. The study suggested that SACCOs in Kenya should improve risk management procedures and use them more effectively.

Kahuthu (2015) sought to determine whether liquidity and credit management have an important role in determining of incomes of DTSACCOs in Kenya. To assess the importance of the concerned variables, the study examined coefficient of Beta before the implementation of the statutory management in 2010 and thereafter. The study findings were that liquidity and credit management greatly influenced the way SACCO's performed financially. The study recommended that SACCOs should continuously come up with appropriate loan products and retain sufficient loan balances for prosperity and constancy of the SACCO. This study agrees with one by Kibanga, Namusonge and Njeru (2018) which concluded that loan portfolio management is significantly related to member advancement as loan portfolio generates more than 95 % of the gross income of a SACCO. Esokomi & Mutua (2018) established that asset quality was negatively and significantly related to return on equity. They recommended that SACCOs should improve their asset quality by reducing the proportion of long outstanding loans through the management of credit risk. The management of credit risk was measured through the ratio between total debt and capital (total shareholders' funds plus total debt).

1.4. Research Objective
To determine the effect of credit risk management on the financial performance of Kenya's Non-Deposit-Taking Savings and credit Cooperative Societies.

1.5. Research Hypothesis
Credit risk management has no significant effect on the financial performance of Non-Deposit Taking Savings and Credit Cooperative Societies in Kenya.

2. Literature Review
This section summarizes findings by other researchers who have done their research in the same field. The areas covered include theoretical framework, conceptual framework and empirical review

2.1. Credit Risk Theory
Merton (1974) introduced the credit risk theory otherwise called the structural theory which stated that the default event arises from a firm's assets evolution process, modelled by a diffusion process with fixed parameters. Merton (1974) firstly built a model centered on the capital mix of the firm, which becomes the basis of the structural approach. In his approach a company defaults at the bond maturity time, T, if its assets value falls below some fixed barrier at time T. Hence the default time Tis a distinct random element which picks T if the company defaults and infinity if the company defaults not. This leads to equity of the firm becoming a contingent claim on the asset value (Durica, Podhorska, & Durana, 2019). Black and Cox (1974) extend the meaning of default event and generalize Merton's method into the first passage approach. In Black and Cox (1976), the firm defaults when the value of its assets is lower than barrier D (point of default, where the assets' value goes below the liabilities' value). Hence the default event could take place before the maturity date T. Long Staff & Schwartz (1995) stated that credit risk is viewed by the theory as an option available to the borrower when the circumstances are economically attractive to 'exercise' their option to default (Di Asih, Safitri, D., & Hoyyi, 2018)

The biggest risk facing all financial institutions including commercial banks is the risk raised by borrowers who default on their debt payments. Failure to fulfill their commitments has wiped out some major businesses and will threaten to bring others down if left unchecked. For example, the financial crisis of 2008-2009 brought down some household-name businesses such as Countrywide Financial and Washington Mutual (Thakor, 2015). Such incidents suggest that there is a need to pay careful attention to the credit levels expressed in the financial status statements and to track how the credits are being repaid by the borrowers. Governments, persons or companies may be borrowers. The default drivers for each group may be different, but the default principle remains the same. Wanjiru, (2017) highlighted three quantitative approaches to analysing credit risk, Structural approach, reduced form approach and incomplete

information approach. The credit risk theory is relevant to this study as it emphasizes that any credit should be closely monitored up to the last payment. SACCOs offer credit to their members and should therefore monitor all credits to ensure that they are paid.

2.2. Conceptual Framework

Wamiori (2019) refers to the conceptual framework as a graphical representation of the variables of a study's theorized relationships. In academic studies, it is imperative to theorize variables as this formulates the base for testing the research hypothesis and the formation of generalizations in the study results. Liu, Hope & Wang (2018) claimed that the conceptual framework is the collection of methodically formulated concepts to provide a focus, structure, and tool for knowledge clarification and fusion. The conceptual framework epitomizes the independent variables plus the dependent variable.
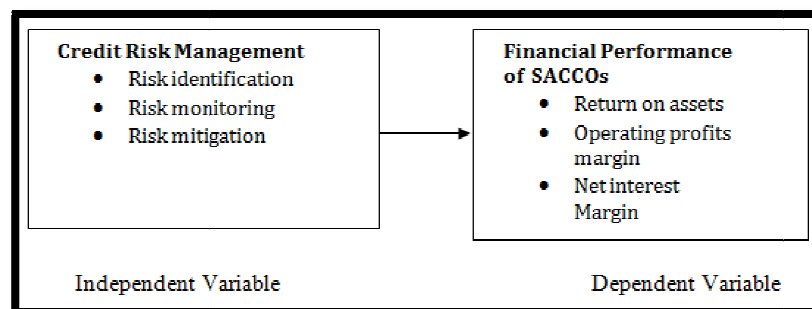

Figure 1: Conceptual Framework

2.3. Credit Risk Management

Nyasaka (2017) revealed that management of the risk occasioned by credit is a process and a comprehensive system that begins with identifying the lending market and proceeds through various stages of payment of a loan. Credit risk management tries to reduce a SACCO's risk adjusted rate of return by ensuring that risk exposures are maintained at levels that are acceptable (Makori, & Sile, (2017). Makokha, Namusonge and Sakwa (2016) studied the risk management practices that influence the financial results of commercial banks and recommended that financial institutions should adopt a risk management framework that they would use mitigate risk proactively.

Maina, Kinyariro & Muturi, (2016), stated that default comes about when the person owing fails to meet his or her legal commitments per the expressions of the contract. Wagura, & Shavulimo, (2017) discovered that the profitability of SACCOs was positively and strongly influenced by the management of risk that emanates from credit. Momanyi & Njiru (2016) carried out a study on 15 SACCOs in Nakuru East Sub- County through the use of the research design known as descriptive. The study showed that these SACCOs practiced financial risk management. The study also indicated that practices of risk management positively affect SACCOs' financial performance. Identification of Credit risk, monitoring of credit risk and mitigation of credit risk were used as indicators of credit risk practices in this study.

Credit risk identification for SACCOS is mainly done through information provided by the applicant on the document used to apply for the loan, (Unior, 2017). This loan application document should therefore be properly designed to gather as much information as possible from the loan applicant. This information is to enable the credit management committee to make appropriate decision and to hold the applicant liable for information provided. The loan application document becomes the base upon which the loan applied for will be approved as applied or reduced or even rejected all together. At this stage of risk identification is where the SACCO gets the right documentations, collaterals and guarantors of the loan agreement.

Credit monitoring is an important part of the lending activity. Maina, et al., (2016) in their study on practices of management of credit risk on the loan delinquency on SACCOs in Meru County, Kenya suggested that rural SACCOSs should be keen in credit processing, monitoring and follow up. A financial institution needs to put in place an effective and a sound monitoring system to eye the borrower's account for prompt action. Unior, (2017) revealed that efficient monitoring leads to high retrieval of loans by revealing likely changes and reminding of their responsibilities towards the lending institution. Mutua (2016) Considered how SACCOs' financial performance in Nairobi had been affected by the implementation of management practices. The study discovered that that SACCOSs embraced numerous methods of screening and evaluating risk before allowing credit to customers to curtail loan loss. This includes use of collateral, establishing capacity, conditions and borrower screening.

Credit risk mitigation involves taking action to reduce the anticipated loss. This the SACCO can do through collecting what has not been paid by the member from the guarantors. Ensuring that the lists forwarded for deductions are accurate and then ensuring that the deductions are accurately done. The other thing is to ensure that all loans are deducted within the period that was approved for the Loans to be deducted. Delayed loan recoveries will lead to reduced income for the SACCO.

2.4. Measures of Financial Performance

Financial performance of an organization is evaluated through a review of its statements of finance (Kahuthu, 2016). For this purpose, ratios such as earnings on equity, earnings on capital, earnings on assets, earnings on sales and

operating margins are worked out (Karimi, Simiyu & Muriithi, 2017). Owing to their different aims, measuring the success of cooperative enterprises is more difficult than for other investor-owned enterprises (Fujo, & Ali, 2016). The aim for investor-owned companies is to maximize profits, while the aim of the cooperative is to provide members with a good price or service (Keben & Maina, 2018). A cooperative will be successful if it is able to incorporate existing business conditions and have competent management and governance (Keben, & Maina, 2018)

Bhamornsathit, & Katawandee, (2016), indicated that ratios like return on assets (ROA) and return on investment (ROI) are made use off when evaluating the financial performance of a corporation. Kiarithe, (2015) evaluated SACCOs' financial performance through profit before tax, Net profit, Member Savings, loan disbursement and dividend paid. Kirimi, Simiyu & Muriithi (2017) measured financial performance of SACCOs through return on equity (ROE). Shibutse, Robert, Kalunda, Achoki, (2018) measured SACCOs' financial performance using return on assets (ROA). Mwatu & Abdul, (2018) also measured financial performance of Deposit Taking SACCOs through return on assets. The current study measured financial performance through return on assets, net interest margin and operating profit margin.

2.5. Empirical Review

Empirical literature review is a deliberate examination of literature from plays, published works, newspapers and books that present concerns relevant to the research at hand (Hart, 2018). This chapter evaluated previous studies done on the influence of credit risk management on how Kenyan SACCOs perform financially. A research on how sound credit appraisal practices and credit checking affected the profitability of DTSACCOs in Nairobi County was carried out by Makori & Sile (2017). The basic goals of the examination were to establish the influence of credit appraisal practices and credit monitoring on Nairobi DTSACCOs' profitability. In this review, research design known as descriptive was used. The population targeted in Nairobi County was 80 respondents directly linked to credit management drawn from the 40 DTSACCOs. The sampling method used was simple random. To access information, a questionnaire was given to the respondents. The responses were tabulated, coded and processed through the computer programme for Social Sciences Statistical Package (SPSS V 21). The results of the regression showed that the credit appraisal practices together with credit monitoring were positively and substantially linked to the financial profitability of the Nairobi SACCOs. The study resolved that credit assessment as well as credit management activities have a significant influence that is positive on the SACCOs' profitability. The research suggested that appropriate credit evaluation practices and credit monitoring practices should be adopted by the SACCOs management to enhance effective and efficient performance. Kariuki (2017) analyzed the influence of credit risk management practices on the financial performance of Kenya's DTSACCOs. The target population comprised of a hundred sixty-four DTSACCOs that were registered with SASRA. The study's aims were to evaluate how the financial performance of DTSACCOs was influenced by credit risk recognition, credit appraisal activities, credit management and credit reduction measures. The study showed the existence of a positive relationship that was significant between financial performance and credit analysis, credit reduction measures and credit risk recognition. The study suggested that SACCOs should provide robust techniques for credit review and that credit management practices should also be implemented. At the same time, it was also recommended that SACCOs plus other lending institutions should have strict mitigation instruments and processes. Therefore, all those involved in credit committees should work as a team in order to ensure credit collection at the due date.

3. Research Methodology

3.1. Introduction

The study adopted both cross-sectional research design and descriptive research design with a target population of 239 SACCOs in Mombasa.

Sub-County	Population Size
Mvita	135
Kisauni	53
Changamwe/ Likoni	51
Total	239

Table 1: Target Population
Source: Ministry of Industrialization and Enterprise Development (31-12-2016)

3.2. Sampling Technique

Stratified sampling accompanied by purposeful sampling was used in this analysis. Stratified sampling was used since the SACCOs were in various sub-counties and each county needed to pick a sample. Githaiga (2019) noted that purposeful sampling requires selecting such items or cases based on a particular purpose, rather than randomly selecting them. The supervisors, accountants and book-keepers were those with the necessary data in this report.

Sub –County	Target Population	Sample
Mvita	135	85
Kisauni	53	33
Changamwe/ Likoni	51	32
Total	239	150

Table 2: Sample Size

3.3. Data Collection Instruments

Data is a fact given or accepted upon which research findings may be based (Hayes, 2017). Data is both numeric and verbal. Verbal data comes from interviews, field proceedings and anything else that involves words. Numerical data originates from questionnaires and several other numerical data that are gathered by a researcher for the study conducted (Walsh, Holton, Bailyn, Fernandez, Levina, & Glaser, 2015). Primary data plus secondary data were used in this study.

3.4. Quantitative Analysis

The regression analysis for this model took the following form

Y $\quad$ = β_0 + $\beta_1 X_1$ + ε, where
Y $\quad$ = Financial performance of t h e SACCOs)
β_0 $\quad$ = Constant
β_1 $\quad$ = Beta coefficient.
X_1 $\quad$ = Credit Risk Management
ε $\quad$ = Error term

4. Results and Discussions

4.1. Introduction

This chapter depicts the findings of the study and how the findings have been discussed.

4.2. Response Rate

The Response Rate Analysis is given in Table 3 below.

Sub-county	Questionnaires Distributed	Questionnaires returned	% Return
Mvita	85	62	73
Kisauni	33	20	61
Changamwe/ Likoni	32	23	72
Total	150	105	70

Table 3: Response Rate

4.3. Diagnostic Tests

The data was tested for conformity to the expectations of the conventional regression linear model by performing, reliability test, validity test, sample adequacy test, normality test, linearity, autocorrelation and multicollinearity tests.

4.3.1. Reliability

The Cronbach alpha is a measurement that indicates the relationship between each item and the entire group. Cronbach alpha was used to test the reliability of the questions. The larger the coefficient, the better the instruments of measurement are. There is reasonable reliability if the value of at least 0.7 is achieved (Taber, 2018). Table 4 below displays the Cronbach Alpha coefficient results.

NO	variable	No of items	Cronbach alpha	Comment
3	Credit Management	9	0.829	Reliable
5	Financial Performance	9	0.946	Reliable

Table 4: Cronbach's Alpha Results for Reliability Assessment

4.3.2. Validity Test

The following formula was used to calculate the content validity index (CVI) in this study. **CVI = K/ N,** Where K, represents the items in the questionnaire that the raters have acknowledged to be valid. N is the sum of the items in the questionnaire. The items in this study were 43 items. Content validity in this study was done by five raters. The results of the ratings are reflected on Table 5 below.

Rater	N	K	CVI
1	43	38	.888
2	43	39	.902
3	43	36	.843
4	43	37	.860
5	43	35	.814

Table 5: Content Validity Results

Since the Raters' validity of the contents was more than 0.8 it was considered that the questionnaires were capable of gathering the required information.

4.3.3. Sampling Adequacy

Tests of sampling adequacy were done to confirm whether the study variables were valid. These were to help the study identify whether the items were fit for further analysis. Kaiser- Meyer-Olkin (KMO) of sampling adequacy and Bartlett's test of Sphericity were undertaken. KMO's lowest value is 0 and the highest is 1. A value approaching 1 show that correlation patterns are compacted and therefore the variables are suitable for the study. Gitahi, & Okech, (2018) indicated in their research KMO values of 0.5 meet the threshold. The primary data test results showed values of more than 0.5 meaning the sample were adequate. The variables in this study had the following values, financial performance 0.895 while credit risk management had 0.870. Bartlett's Test of Sphericity analyses whether the samples are from populations with equal variances. Results with a P value below 0.05 show a satisfactory degree of sampling sufficiency. All the samples were considered adequate as all of them had a p-value below 0.05 at 95% confidence level. These results are represented on Table 6 below.

Variable	KMO Test of sampling adequacy	Barlett's test of Sphericity		
		Chi square	Df	Significance
Financial performance	0.895	917.254	36	0.000
Credit risk management	0.870	257.893	36	0.000

Table 6: Primary Data Results for Kaiser-Meyer-Olkin (KMO) and Bartlett's Test

Under secondary data financial performance was represented by, ROA which had a KMO value of 0.696. NIM had a KMO measure of 0.647 and Operating profits margin had a KMO measure of 0.754, credit risk management was represented by total debt divide by the sum of total shareholder's funds and total debt had a KMO value of 0.708. The Bartlett's Test showed a p value that was below 0.05 for all the variables which meant that they had an acceptable degree of sampling. The Kaiser-Meyer-Olkin (KMO) and Bartlett's Test for the Secondary data are shown on Table 4.5 below.

Variable	KMO test sampling adequacy	Barlett's test of sphericity		
		Chi Square	Df	Significance
Return on assets	.696	237.224	10	0.000
Net interest margin	.647	123.493	10	0.000
Operating profit margin	.754	191.383	10	0.000
Debt capital ratio	.708	150.020	10	0.000

Table 7: Secondary Data Results for Kaiser-Meyer-Olkin (KMO) and Bartlett's Test

The P values revealed on Table 7 are below 0.05 which meant that the secondary data were fit for further analysis

4.3.4. Normality Test

Normality was tested through the Kolmogorov-Smirnov Test. For a distribution that is significantly similar to a normal distribution, p is below 0.05. If P is greater than 0.05 the distribution is significantly dissimilar to a normal distribution (Kilungu, 2015). The following null hypothesis was tested for every variable. Ho: The data is not normally distributed. The results are shown on Table 4.6 below.

Variable	Mean	Std.Deviation	Kolmogorov Smirnow Test Z	Significance
Financial performance	4.0021	.49881	3.154	0.000
Credit Risk Management	3.9302	.39079	2.495	0.000

Table 8: One Sample Kolmogorov Test (Primary Data)

Table 8 above reveals p-values of below 0.05. This implies that the null hypothesis should be done away with and then the alternative hypothesis be considered meaning that the data are normally distributed. They were all, therefore, fitting for further study.

Variable	Mean	STD.Deviation	Kolmogorov Smirnow Test Z	Significance
Return on assets	3.4552	.38878	1.306	0.041
Net interest margin	3.4114	.34622	2.158	0.000
Operating profit margin	3.6800	.35257	1.666	0.008
Debt capital ratio	3.2520	.33109	1.810	0.003

Table 9: One Sample Kolmogorov Test (Secondary Data)

The secondary data p values reflected on Table 9 above were below 0.05 which implies that the data was good and could be used for further analysis.

4.3.5. Linearity Test

Linearity was measured through Pearson product moment correlation coefficient. The results for this for the primary as well as the secondary data are shown on Table 10 below

Independent Variables	Pearson Product Moment Correlation Coefficient	Significance
Financial performance	0.728	0.000
Return on assets	0.323	0.001
Net interest Margin	0.575	0.000
Operating profits Margin	0.449	0.000

Table 10: Pearson's r for credit Risk Management and Financial Performance (Primary and Secondary Data)

All the Pearson product correlation coefficients shown on Table 4.8 were significant as they had p-values that ranged from 0.000 to 0.001which are lower than the conventional value of 95% or 0.95 confidence. This implies an association between the dependent variable and the independent that was statistically significant for both the primary and secondary data.

4.4. To Determine the Effect of Credit Risk Management on Financial Performance

To measure the effect of this specific objective on financial performance descriptive statistics, factor analysis, correlation and regression analyses were used.

4.4.1. Descriptive Results of Credit Risk Management.

The study responded to the objective that required to examine whether credit risk management affects financial performance of SACCOs in Kenya. To achieve this descriptive analysis was done for both the primary and the secondary data.

4.4.1.1. Primary Data

The SACCOs' credit risk management was assessed using nine measures as follows, assessing member's riskiness, analysing each member's capability to pay, monitoring member's loan repayments, assessing member's ability to pay, ensuring that all loans are properly scheduled and counter checking to ensure that proper deductions are done. The results for the descriptive analysis are shown on Table 11 below.

No	Statement	Mean	Std. Deviation
1	Risk identification procedures applied have improved financial performance of our SACCO.	3.9492	.48554
2	Assessing member's riskiness has led to improved financial performance of our SACCO.	3.8952	.53434
3	Analysing each member's capability to repay their loan has resulted to improved financial performance of our SACCO	3.8571	.42678
4	Monitoring of members' loan repayment has led to improved financial improved financial performance of our SACCO.	3.9429	.54785
5	Ensuring that all loans are properly scheduled for recovery has facilitated financial performance of our SACCO.	3.8857	.62503
6	Counter checking to ensure that proper deductions have been made has enhanced financial performance of our SACCO.	3.8762	.56662
7	Favourable credit risk policies have led to improved financial performance of our performance of our SACCO.	3.8348	.57703
8	Adequate credit risk policies have facilitated financial performance of our SACCO.	3.9905	.40943
9	Sustained credit risk policies have resulted to improved financial performance of our SACCO.	4.0692	.52223
	Average		.52165

Table 11: Descriptive results for Credit Risk Management (Primary Data)
Scale: -1.8 Strongly Disagree, 1.9-2.6 Disagree, 2.7-3.4 Neutral, 3.5-4.2 Agree And 4.3-5.0 Strongly Agree

From Table 11 above, it can be seen that sustained credit risk policies had the highest average of 4,0952, followed by appropriate credit risk policies with an average of 3,995, then by risk detection procedures with 3,9429, then by monitoring member loan repayment with an average of 3,9419, then assessing member risk with 3,8952, then examining each member's ability to pay with an average of 3.8571 and finally our SACCO's financial performance has improved with an average of 3.8348 due favourable credit risk policies. The assumption here is that the higher the mean, the more the influence a concept has on financial performance. An overall average of 3.9223 points to the fact that credit risk management was seen by the respondents as having an influence on SACCOs' financial performance. The overall standard deviation was 0.52165 meaning that about 52% of those who responded were within one standard deviation from the

mean. These results show a positive influence of credit risk management on financial performance.

These findings concur with Momanyi & Njiru (2016), who determined that management of credit risk has a positive influence on SACCOs' financial results in Kenya. Hassana, Ilyas & Rehman (2015), who studied the bank-specific and social determinants affecting long outstanding loans in Pakistan, also concurs with this study. The study findings have shown that credit evaluation, credit monitoring and rapid credit growth have a serious influence on NPLs as they are substantially reduced, resulting in improved financial performance.

4.4.1.2. Secondary Data

Here credit risk management was evaluated through the quotient of total debts to capital. The descriptive results for the secondary data on credit risk management is shown below on Table 30.

Ratio	year	mean	Std. Dev.
Debt / capital ratio	1	2.8571	0.44783
Debt / capital ratio	2	3.0286	0.35239
Debt / capital ratio	3	3.1714	0.46839
Debt / capital ratio	4	3.4667	0.53828
Debt / capital ratio	5	3.7524	0.45533

Table 12: Descriptive Results for Credit Risk Management (secondary Data)

Table 12 above shows that the means were changing from year to year with mean for year 5 being the highest at 3.7524. The greater the mean the greater the influence of each concept on credit risk management.

4.4.2. Factor Analysis of Credit Risk Management of SACCOs

Factor analysis reduces variables into fewer variables that share a common variable known as reducing dimensionality. The factors are then grouped in order to retain a small number of factors which has the highest influence. The factors extracted are presented on Table 13below. The outcome showed that there is only one critical factor that causes 43.1 % variance in financial performance in this construct. This critical factor was named risk assessment and control.

Comp	Initial Eigenvalues			Extraction Sums Of Squared Loadings		
	Total	% Variance	of Cumulative e %	Total	% Variance	of Cumulative %
1	3.877	43.072	43.072	3.877	43.072	43.072
2	.942	10.466	53.538			
3	.841	9.346	62.885			
4	.819	9.099	71.984			
5	.621	6.895	78.879			
6	.551	6.124	85.002			
7	.512	5.693	90.695			
8	.469	5.206	95.901			
9	.369	4.099	100.000			

Table 13 :Total Variance Explained.
Extraction Method: Principal Component Analysis

Factor analysis confirmation was carried out for the independent variable- credit risk management of SACCOs. The outcome is shown on Table 32 below. From the table there were nine factors (questions). Out of the nine all were retained as they met threshold values of 0.4 and above. These results validate that in this study there was only one critical factor influencing financial performance and had 43.1 % of the total variance in this construct. The critical factor had nine items with high loadings and significance namely, Risk identification procedures applied 0.703, Assessing member's riskiness 0.665, Analysing each member's capability to repay 0.698, Monitoring of members' loan repayment 0.750, Ensuring that all loans are properly scheduled for recovery 0.633, Counter checking to ensure that proper deductions have been made 0.476, Favourable credit risk policies 0.707, Adequate credit risk policies 0.715, Sustained credit risk policies 0.503, have enabled financial improvement of the SACCO .These items were all considered for further analysis

Statement	Component
	1
Risk identification procedures applied have improved financial performance of our SACCO.	.703
Assessing member's riskiness has led to improved financial performance of our SACCO.	.665
Analysing each member's capability to repay their loan has resulted to improved financial performance of our SACCO.	.698
Monitoring of members' loan repayment has led to improved financial performance of our SACCO.	.750
Ensuring that all loans are properly scheduled for recovery has facilitated financial performance of our SACCO.	.633
Counter checking to ensure that proper deductions have been made has enhanced financial performance of our SACCO.	.476
Favourable credit risk policies have led to improved financial performance of our SACCO.	.707
Adequate credit risk policies have facilitated financial performance of our SACCO.	.715
Sustained credit risk policies have resulted to improved financial performance of our SACCO.	.503
Cronbach Alpha	0.829
Mean	3.9302

Table 14: Component Matrix for Financial Performance and Credit Risk Management

4.4.3. Credit Risk Management and Financial Performance Correlation Results

Examination of the relationship between credit risk management and financial performance of SACCOs in Kenya was done through a correlation test.

4.4.3.1. Primary data

The correlation results for the primary data are shown on Table 33 below.

Correlations		Financial performance	Credit risk management
Financial performance	Pearson Correlation		
	Sig. (2-tailed)		
	N	105	
Credit risk management	Pearson Correlation	.728**	
	Sig. (2-tailed)	.000	
	N	105	105
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 15: Correlation Coefficients for Primary Data Relating to Credit
Risk Management and Financial Performance

A Pearson correlation coefficient of 0.728 and a p-value of 0.000 between credit risk management and SACCO's financial performance is shown on Table 33 above. This shows that there is a significant association that is positive between financial performance of Kenyan SACCOs and credit risk management. This result agrees with one by Wamalwa & Jagongo (2017) who indicated that portfolio management influenced financial performance positively. It is also supported by Makori & Sile (2017) who conducted an examination on how sound credit appraisal applications and credit checking influenced the profitability of Deposit Taking SACCOs in Nairobi County in Kenya. They revealed a positive and statistically significant association between appraisal practices and credit monitoring on profitability of SACCOs in Nairobi County.

4.4.3.2. Secondary Data

The results for the secondary data are shown on Table 34 below.

Table 16 below indicates that there is a statistically weak but significant correlation between debt capital ratio and return on assets and also with operating profit margin with a Pearson correlation coefficient of 0.323 and 0.449 and p values of 0.001 and 0.000 respectively. There was a somehow statistically strong association between credit risk management (debt capital ratio) and net interest margin with a Pearson correlation coefficient 0f 0.575 and p value of 0.000. This study findings concur with Makori & Sile (2017) who established that credit monitoring and appraisal practices had a statistically significant positive link with profitability of SACCOs in Nairobi County.

		Debt capital ratio	ReReturn on nn assets	Net interest margin	Operating profit margin
Debt capital ratio	Pearson Correlation				
	Sig. (2-tailed)				
	N	105			
Return on assets	Pearson Correlation	.323**			
	Sig. (2-tailed)	.001			
	N	105	105		
Net interest margin	Pearson Correlation	.575**	.592**		
	Sig. (2-tailed)	.000	.000		
	N	105	105	105	
Operating profit margin	Pearson Correlation	.449**	.554**	.660**	
	Sig. (2-tailed)	.000	.000	.000	
	N	105	105	105	105
**. Correlation is significant at the 0.01 level (2-tailed).					

Table 16: Credit Risk Management and Financial Performance Correlation Coefficients for the Secondary Data

Table 16 above indicates that there is a statistically weak but significant correlation between debt capital ratio and return on assets and also with operating profit margin with a Pearson correlation coefficient of 0.323 and 0.449 and p values of 0.001 and 0.000 respectively. There was a somehow statistically strong association between credit risk management (debt capital ratio) and net interest margin with a Pearson correlation coefficient 0f 0.575 and p value of 0.000. This study findings concur with Makori & Sile (2017) who established that credit monitoring and appraisal practices had a statistically significant positive link with profitability of SACCOs in Nairobi County.

4.4.4. Credit Risk Management and Financial Performance Regression Results

The credit risk management mean values were regressed against the mean values for financial performance for both the primary and secondary data.

4.4.4.1. Primary Data

Table 17 below contains the primary data regression results.

Financial Performance	Coefficient	Std. Error	t	Significance
Constant	-0. 092	0.382	-0.242	0.019
Credit risk management	1.039	0.082	10.763	0.000
R Square	0.529			
F-Statistic	115.837			
P-value	0.000 [b]			

Table 17: Credit Risk Management and Financial Performance Regression Results
For the Primary Data
$$Y = B_0 + B_1 x_1$$

The specific model is Financial performance = -0.092 +1.039 credit risk management
From Table 17 it can be seen that R square is 0.529. This implies that credit risk management causes a variation of 52.9 % of the financial performance of SACCOs in Kenya. A p-value of 0.000 shows that Credit risk management is significant statistically. The model, at the 95 % confidence level, has an F- statistic report of 115.837 and a p-value of 0.000. This suggests that the model is a good predictor of financial performance as the p-value is below the required value of 0.05 at 5% significance level. This finding is supported by Kahuthu (2015), who revealed that the financial performance of SACCOs was greatly influenced by liquidity and credit management. Momanyi and Njiru (2016) also supported this outcome, noting that financial performance of SACCOs was influenced by the management of credit risk.

4.4.4.2. Secondary Data

The indicator for credit risk management was taken as the Debt- capital ratio while that of financial performance was taken as return on assets (ROA), net interest margin (NIM) and operating profit margin (OPM). The regression results are shown on Tables 18 and 19 below.

ROA	Coefficient	Std. Error	t	Significance
Constant	2.222	0.358	6.200	0.000
Debt-capital ratio	0.379	0.110	3.460	0.000
R-Square	0.104			
F-Statistic	11.972			
P-value	0.000b			

Table 18: Regression Results for Return on Assets and Debt- Capital Ratio

$Y=\beta_0 + \beta_1 X_1$

The specific model is Return on Assets = 2.222+ 0.379 Debt-Capital Ratio

NIM	Coefficient	Std. Error	t	Significance
Constant	1.454	0.276	5.272	0.000
Debt capital ratio	0.601	0.084	7.131	0.000
R Square	0.331			
F- Statistic	50.855			
p- value	0.000b			

Table 19 Regression Results for Debt- Capital Ratio and Net Interest Margin

$Y= \beta_0+\beta_1 X_1$

The specific model is, Net Interest Margin = 1.454 + 0.601 Debt-Capital Ratio.

OPM	Coefficient	Std. Error	t	Significance
Constant	2.122	0.307	6.919	0.000
Debt capital ratio	0.479	0.094	5.108	0.000
R Squared	0.202			
F-Statistic	26.071			
P-value	0.000b			

Table 20: Regression Results for Debt-Capital Ratio and Operating Profit Margin

$Y = B_0 + B_1 x_1$

The specific model is Operating Profit margin= 2.122 + 0.479 Debt Capital Ratio.

Results on Tables 18 – 19 indicate that the management of credit risk measured through debt to capital ratio explains the variation in financial performance measured through return on assets, net interest margin and operating profits by 10.4%, 33.1% and 20.2 %. This is confirmed by R square of 0.104, 0.331 and 0.202 respectively. This result indicate that these models are statistically significant as supported by p- values of 0.000 which are lower than the critical value of 0.05 at 5% significance level. This implies that credit risk management is a good predictor of financial performance measured through return on assets, net interest margin, operating profit margin respectively. This is confirmed through F statistics of 11.972, 50.855 and 26.071 and reported p-values of 0.000 respectively.

4.4.5.Hypothesis Testing

Hypothesis was tested using ordinary linear regression. The null hypothesis is to be approved when a p-value greater than 0.05 was attained at 5 percent level of significance. It was disapproved when the p-value attained was less than 0.05. The results showed p-values of 0.000 in Tables 4.16- 4.19. The null hypothesis, H01 stated that credit risk management has no significant effect on the financial performance of Non-Deposit Taking SACCOs in Kenya. Since the p-values were below the critical value, it was appropriate to reject H01 and consider the alternative hypothesis. Credit risk management was found to have a substantial effect on the financial performance of non-deposit taking SACCOs in Kenya. This result is in agreement with Wagura & Shavulimo (2017), who revealed that there is a correlation between SACCO profitability and management of credit risk that is positive and strong. The results also coincided with those by Momanyi & Njiru, (2016) who indicated that credit risk practices were positively associated with financial performance of Nakuru East Sub-County's SACCOs in Kenya.

5. Summary, Conclusions and Recommendations

5.1. Summary

The majority of the respondents acknowledged that the management of credit risk had an influence on SACCOs' financial performance in Kenya that was positive. When the correlation analysis was conducted, it reflected a relationship that was significant and positive between financial performance of SACCOs in Kenya and credit risk management for both the primary and the secondary data. Regression analysis indicated that there was a positive association that was statistically significant between financial performance of SACCOs in Kenya and credit risk management for both the

secondary and primary data. Hypothesis testing reviewed that for both the primary and the secondary data credit risk management had a positive and statistically significant relationship with financial performance.

5.2. Conclusions

From the results of the study, it can be seen that credit risk management had an influence on the financial performance measured though the primary data of SACCOs in Kenya. The regression results indicated that there was a positive and significant influence on the financial performance of SACCOs. From the regression results for the primary data, it can be concluded that an improvement of 1unit of credit risk management resulted with an increase of 0.529 unit of financial performance.

From the secondary data, credit risk management has been shown to have a positive and significant effect on financial performance as measured by return on assets, net interest margin and operating profit margin. It is therefore concluded that an increase of 1 unit of credit risk management resulted to an increase of 0.104 units of financial performance measured by the return on assets. An increase of 1 unit of credit risk management resulted in an improvement of 0.331 of financial performance measured by the net interest margin while an increase of 1 unit of credit risk management resulted in an increase of 0.479 of financial performance calculated by operating profit margin.

5.3. Recommendations

From the findings of the study, SACCOs should improve on their credit risk management in order to enhance their financial performance. They should particularly monitor the loans to ensure that all loans are properly scheduled for recovery. That all loans are recovered as scheduled and that members are given loans in line with their capacity to repay. All loans and deductions should be counter checked to ensure that the necessary recoveries are being affected. All SACCOs should improve and adhere to their credit risk policies.

5.4. Areas for Further Study

The researcher used closed ended questions with Likert Scale. It is suggested that a similar research be carried out using, both open and close ended questionnaires. It is also suggested that a similar study be carried out in other sectors like the manufacturing sector, the main stream financial institutions like the banks, Small and Micro Enterprises and on Deposit Taking SACCOs. A study can also be carried out using non-financial measures.

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