CREDIT RISK MANAGEMENT PROCESS AND QUALITY OF LOAN PORTFOLIO OF DEPOSIT TAKING SAVINGS AND CREDIT COOPERATIVE SOCIETIES IN NAIROBI METROPOLITAN

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ABSTRACT

The enormous contribution of financial institutions on economic growth and development cannot be overlooked. They are perceived to be blood arteries of economic development and poverty eradication. They are mandated to pump financial resources and bridging the gaps between deficit and surplus savings units. In fact, well-functioning financial system is aimed at accelerating economic growth. Same results are expected among DT SACCOs in Nairobi County. Thus, the study sought to examine the influence of credit risk management process on quality of loan portfolio of DT savings and credit cooperative societies in Nairobi County. Specifically, the study sought to determine the influence of credit risk analysis and credit risk monitoring on quality of loan portfolio of DT SACCOs in Nairobi County. The study was anchored on credit risk theory, agency theory, loan portfolio theory and information asymmetry theory. The study adopted descriptive research design and 54 respondents who included credit managers, of 54 DT Sacco's in Nairobi Metropolitan. Primary data was gathered through administration of questionnaires. Descriptive and inferential statistics analyzed the data with aid of SPSS version 22. Data was presented in figures and tables. The study concludes that credit risk analysis has a positive and significant effect on quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan. The study also concludes that credit risk monitoring has a positive and significant effect on quality of loan portfolio of DT-SACCOS in Nairobi Metropolitan. Based on the findings, the study recommends that the management of DT-SACCOS in Kenya should enhance credit risk administration practices. This involves establishing a dedicated credit risk management team responsible for continuously monitoring and reviewing loan performance and risk exposure. By implementing clear policies and procedures for loan approval, monitoring, and collection, DT-SACCOs can ensure that all credit risks are effectively managed throughout the loan lifecycle.

Key Words: Credit Risk Management Process, Credit Risk Analysis, Credit Risk Monitoring

Background of the Study

Although investments are meant to generate return their capacity in inhibited by degree exposure, financial institutions are not immune of it since there are managed by human beings which may lack capacity to evaluate credit worthiness of borrower, create optimal credit portfolio and capacity to respond to sporadic business environment (Hillson & Murray-Webster, 2011). DT Savings and Credit Cooperative Societies (SACCOs) rely on membership deposits to create their credits and generate revenue. Credit creation process is prone to several risk profile which escalates likelihood of institution failure contingent to quality of loans provided.

Onuko *et al* (2020) found that credit risk management influences the level of nonperforming assets which affects loan portfolio quality thus affecting the general performance of the bank. The result obtained revealed that loan pricing had a significant positive effect on the level of NPA'S hence having an effect on the general loan portfolio quality of commercial banks. The sustainability of any financial institution basically depends on how much they can earn in terms of interest income. The interest income depends also on how well credit risk is managed.

Mwangi and Muturi (2021) found that organizational credit policies has a significant positive effect on loan repayment performance and thus the implication of this is that a more stringent organizational credit policies would lead to ensuring that only credit worthy customers get loans and thus the loan repayment performance is maintained in a good position. Risk identification process has a positive and significant effect on loan repayment performance. The implication on this is that risk identification process ensures that before even credit is extended to the borrowers the banks first evaluate the borrower's riskiness and therefore the risky customers are minimized.

Thisika and Muturi (2022) found that credit appraisal has a positive and strong relationship with non-performing loans. Good credit appraisal lowers the rate of nonperforming loans. The study established that Banks must have in place written guidelines on credit approval process and the approval authorities of individuals or committees as well as the basis of those decisions. The study established that the ability and qualifications of the credit officer is of importance in assessing the credit worthiness of the borrower.

Savings and Credit Cooperative Societies (SACCOs) were introduced in Kenya in 1964. At first SACCOs were formed by members with similar bonding such as occupation, are of residence, religion though in 1969 government regulations called for formation of them to secure employment or crop characteristics. By the SACCOs contribution was through check offs and payments were received from employers, processors or market organizations of respective products. Consequently, SACCOs in rural areas were product based and they dealt with milk, tea, coffee and dairy farming. Later they were merged to form district unions that aided in achievement of financial soundness.

In 1980s and 1990s there were stimulus cases of bank failures and withdrawal of banking services from rural areas. To enhance their financial muscles SACCOs partnered with cooperative bank. Unlike other parts of the world SACCOs have pivotal function on financial inclusion since they account for at least 40% savings and 30% credit balances in Kenya (Amunabi & Koori, 2018). World Council of Credit Unions (WOCCU) estimates that in Africa

Kenya SACCOs movement is the second largest with savings of more than 1.5 billion (Makori, Munene & Muturi, 2013). SACCO sector in Kenya have two main categories with small SACCOs having large memberships of at least 10,000, healthy balance sheet, income generating capacity, quality human capital and reliable accounting system. The second category has small membership at most 1000 members, unhealthy balance sheets and unreliable sources of income. Majority of SACCOs hails from Nairobi. To diversify membership rural and urban SACCOs have intensified their membership recruitment activities with employment-based recruiting famers, small and medium enterprises. Hence, their lending models have also changed exposing them to heterogeneity of risks.

According to Wanyama (2009) SACCOs have pivotal function on economic growth and development in Kenya. This has been possible through partnership with financial cooperatives such cooperative bank of Kenya, Kenya Unions of Savings and Credits Cooperative Limited (KUSSCO) and Saccos Societies Regulatory Authority (SASRA) that have not only liberalized their operations but also increased investors' confidence. SACCOs movement have stimulated its growth due to change from state control to liberal operating environment. In liberalization environment the government role has been on regulations. Further, government has developed policies that are aimed at expanding the scope of SACCO mandate while promoting sustainable growth and development. Consequently, SACCOs have managed to create wealth, eradicate poverty, promote private investment and create employment.

According to Gamba and Komo (2014) SACCO sector in Kenya contributes to at least 45% of Gross Domestic Product (GDP) with the sector recording a faster growth rate and is ranked 7th internationally. The sector is a source of livelihood through employment and loan provision. The average growth rate of SACCOs in Kenya is 30% (Bwana & Mwakujonga, 2013). At least 80% of SACCO sector is accounted for by DT-SAACOs (SASRA, 2019). Currently, there are 162 SACCOs licensed for deposit taking by SASRA and 54 are operating in Nairobi Metropolitan.

Problem Statement

A loan portfolio quality is the largest asset that microfinance institutions possess (Samba, 2017; Ssekiziyivu *et al*., 2017; Klomp, 2018). A loan portfolio is of good quality when it has minimal non-performing loans/assets (Onuko *et al,* 2015). This concept has been addressed by various scholars. Sufi *et al* (2015) assessed the impact of credit risk management on loan execution, empirical study of Micro Finance Banks of Pakistan with results demonstrating that credit terms and customer appraisal had positive and noteworthy effect. Sofayo (2017) documented effect of credit risk environment, analysis and regulation on loan portfolio while credit administration had inverse effect. Cirindi (2017) argued that credit administration, monitoring and mitigation affected loan portfolio. Iftikhar (2016) reported significant effect of credit evaluation on loan portfolio in banks. Banks and SACCOs differs in their customer niche hence their findings may be heterogeneous. Magali (2014) established the viability of loan portfolio management in rural SACCOS in Tanzania and showed that portfolio was decidedly affected by the loan measure.

Locally, ambivalent findings have been reported where Amunabi and Koori (2012) reported impact of credit risk management on loan portfolio of SACCOs in Nairobi City County. Qualitative and quantitative data may have been blended. Kisivuli (2013) reported effect of capital adequacy and liquidity on loan portfolio. The study may have reported diagnostic tests prior to regression modelling. Keitany (2013) uncovered that there is solid negative connection

between the loan default and the productivity of SACCOs in Nairobi County Kenya. Lagat *et al* (2013) found that credits' hazard distinguishing proof, examination, observing, assessment and alleviation affected the loaning portfolio for SACCOS' in Kenya. Onyango (2017) studied credit risk management practices and quality of loan portfolio among commercial banks in Kenya with findings showing that they were high predictors of loan performance. Muindi and Jagongo (2023) focused on micro credit risk management strategies and loan portfolio quality of Microfinance Institutions in Kenya.

Kenyan Commercial Banks registered increased NPLs as evidenced by Central Bank of Kenya (2016) which reported the widely increasing accumulation of NPLs among Kenyan CBs with common financial crises amongst these banking institutions and empirical literature on commercial banks in the country (Atem, 2017; Gathaiya, 2017; Muchoki & Were, 2016, Genga, 2016; Musau. 2014; Muriithi, 2013; Ongore & Kusa, 2013). Empirical study by Gathaiya (2017) revealed that there is an increasing accumulation of NPLs among Kenyan commercial banks which prompts financial crises among these financial institutions. Muchoki and Were (2016) found that these NPLs result in continued unhealthy operating environment within the banking sector leading to challenges including financial distress.

Since these empirical studies present methodological, conceptual and contextual gaps there is need for a study that will draw respondents from SACCOs in Nairobi Metropolitan. Methodologically, some have used primary, secondary, qualitative and quantitative data. Conceptually, credit risk analysis has been operationalized differently. Contextually, some studies have drawn data from banking sector whose findings may not be replicated in the DT SACCOs. Hence, the current study examined the influence of credit risk management process on quality of loan portfolio among DT SACCOs in Nairobi Metropolitan.

General Objective

The main objective of the study was to examine the influence of credit risk management process on quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan.

Specific Objectives

   i.   To establish the influence of credit risk analysis on quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan.
   ii. To evaluate the influence of credit risk monitoring on quality of loan portfolio of DT-SACCOS in Nairobi Metropolitan.

Theoretical Review

Agency Theory

According to Jensen and Mecklig (1976) although stakeholders own corporations they have to hire management who acts as their agents and they are in charge of running corporations. To ease this relationship there are rules and regulations that governs their operations. Agency principle relationship is characterized by information asymmetry, agency and monitoring costs. Those in management fully understand operational capacity of their respective DT SACCOs, can pursue decisions that would expose their firms into profitability or losses. Consequently, the stakeholders incur costs to access information, have to monitor organization operations. Ownership and control separation escalate monitoring and agency costs. In DT SACCOs there are expected to adhere to regulations and policies governing DT sector.

According to Garrat (1997) agent (leadership) in an organization should determine its purposes and ethics, decides on direction, plan, monitor and control and report and draw recommendations to other stakeholders. Individual departments in a DT SACCOs have liability on decisions that may injure on quality of loan portfolio (Kisivuli, 2013). For instance, lending to borrowers whose capacity was in doubt, contravening rules and regulations while lending and engaging in illegal activities. There is creation of department independence and this would aid in pursuing of information among clients to better and satisfactorily understand all. All agents should be encouraged to pursue organization interests on priority basis. The success of DT SACCOs will be contingent to its credit team creativity, imagination and skilled examination of borrower's credit worthiness (Sofayo, 2017).

Composition of credit evaluation teams would aid in monitoring credit worthiness and protection of heterogeneous stakeholders' interests (Lawal, 2017). Further, DT SACCOs should engage the services of external stakeholders such as credit reference bureaus and commercial banks banking records. Caution should be taken to minimize odds of over reliance on external information sources that may lead to poor rating due to odds of window dressing some records. Moreover, there are some proponents who argues that reliance with external information may aid in improvement of evaluation procedures. Furthermore, reliance with alternative information may aid in identification of patterns that may influence negotiations of credit terms and clustering of borrowers (Amunabi & Koori, 2018).

Agency theory is fit for the study because of the need for harmonious risk analysis procedures failure to which the chances of loan default will be higher. DT SACCOs should adopt management strategies that are clarifying use of credit scores, evaluate credit worthiness through use of 5 C's and have an independent credit referencing procedures.

Information Asymmetry Theory

It was formulated by Akerlof, Spence and Stiglitz (1971). The theory posits that there is a potential for market failure in a situation where the seller and buyer have asymmetrical valuation of their market information. Information is a critical and valuable factor when it comes to making credit and economic decisions. It determines where a consumer will allocate their economic resources to get the maximum returns at the lowest price. An efficient market assumes that both parties have perfect information.

Imperfect information - that leads to asymmetric information- is often as a result of information being too costly or all together impossible for one party to find. Information asymmetry therefore means that one party has better or different information than the other. In the financial markets, the lenders often have more information than the borrowers with regard to the product being offered as well as its cost implications. And whereas this is common in most consumer markets, it predisposes consumers to certain contractual risks: consumers are ignorant of the contractual risks and therefore are not able to choose credit terms according to their preferences. Lenders could easily exploit borrower's ignorance to offer poor quality prices for the products and lastly, information asymmetry deters lenders from offering competitive deals to consumers.

It fits the study given that DT SACCOs lending space in Kenya is one of imperfect information asymmetry. This is because DT SACCOs has not invested heavily of credit information

management as depicted by the level of information technology adoption. This may hinder optimal use of debt covenants, credit rationing and securitization.

Conceptual Framework

This schematic framework on interrelationship of variables under examination (Sekaran & Bougie, 2013). Currently, it's conceptualized that CRM practices has influence on quality of loan portfolio of DT-SACCOs. CRM process was operationalized as credit risk identification, credit risk analysis, credit risk administration, credit risk control process. Quality of loan portfolio was operationalized as changes in non-performing loans, and likelihood of existing loan borrowers borrowing new loans. The hypothesized nexus was as shown in Figure 2.1.
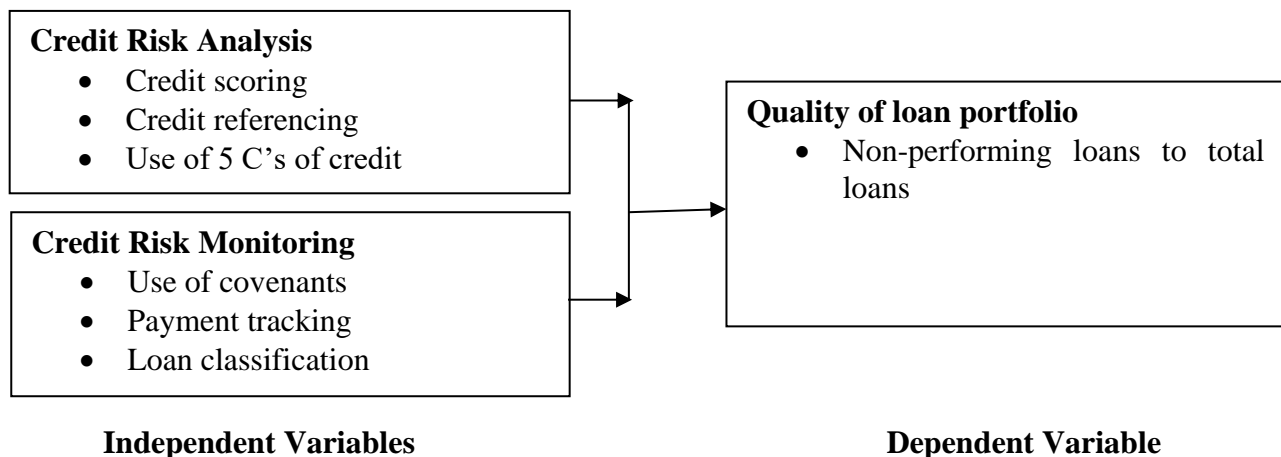
Credit Risk Analysis
- Credit scoring
- Credit referencing
- Use of 5 C's of credit

Credit Risk Monitoring
- Use of covenants
- Payment tracking
- Loan classification

Quality of loan portfolio
- Non-performing loans to total loans

Independent Variables   **Dependent Variable**

Figure 2. 1: Conceptual Framework

Credit Risk Analysis

This is quantification criterion adopted to evaluate credit worthiness of a borrower (Kisivuli, 2013). Identification of loan risk would aid in classification of borrowers into different risk levels (Lawal, 2017). The process includes the assessment of sources of income for repayment and the history of the borrower to ensure that the borrower not only has the willingness to repay but has the ability to pay (Lagat, Mugo, & Otuya, 2013). For DT SACCO loans, this includes levels of income, and history of borrower among others.

Banks can manage credit risk with several strategies. They can set specific standards for lending, including requiring a certain credit score from borrowers. Then, they can regularly monitor their loan portfolios, assess any changes in borrowers' creditworthiness, and make any adjustments (Rasure & Schmitt, 2024). The five Cs of credit include capacity, capital, conditions, character, and collateral. Performing an analysis based on these factors can help a lender predict the likelihood that a borrower will default on a loan.

There is significant causality between failure of banking institutions and increase in NPL. DT SACCOs are not immune since the highest proportion of their revenue is members' deposits. Moreover, they rely with it for revenue generation and credit creation hence failure to examine risks optimally would escalate likelihood of organization failure (Lagat *et al.*, 2017).

Ruan and Ding (2021) assert that using a single model to evaluate personal credit risk may face challenges such as low total prediction accuracy of a single model leading to errors. Nan (2016)

looked at the credit risk identification of Commercial Banks in China. Commercial bank is the core of modern finance, which plays a very important role in economic development. It is the foundation of the whole social economic stable development with the smooth operation of commercial banks.

Credit Risk Monitoring

This is a proactive way that financial institutions use to unearth any events with the potential of negatively compromising on the asset quality as well as beef-up the strength of the bank to handle such if they occurred. Credit control process is important since borrower's credit profiles change with time particularly when there is a shift in underlying variables and emergence of problems. The process of credit risk control process includes performing regular communication with borrowers, creating an atmosphere of trust so that loan providers are considered to be providing solutions and frequent reviewing of borrower's previous credit rating. Credit risk control process help providers discover lapses and potential defaulters at an early stage. They also help test whether risk management practices are sound thereby reducing on exposure to non-performing loans (Wang, 2013)

Strong and well-established procedures and policies for approving and sanctioning of credit facilities for both new and existing clients is critical for management of credit risk. Some of the practices guiding credit approval/sanction include CRB rating, borrower's history, levels of income. Some of the loaning methods that have been proven to hold water include establishing of customer credit risk management lines, distinguishing high chance advance customers as well as altering loaning conditions (Wang, 2013). Lending procedures and restrictive credit control policies are often adopted by financial institutions to deter unnecessary lending and additionally help improve the profitability of financial institutions (Kurui & Kalio, 2014; Kipchumba, 2015).

Githaiga (2015) analyzed the effects of credit risk management practices on the performance of Financial Banking Institutions. The study found out that there is a strong impact between the CAMEL components on the financial performance of commercial banks. The study also established that capital adequacy management efficiency and liquidity had a strong relationship with financial performance (ROA).The study also established that credit risk had a weak and negative relationship with financial performance (ROA).

Empirical Review

Credit Risk Analysis and Quality of Loan Portfolio

Sofayo (2017) investigated the effect of credit risk management practices on quality of loan portfolio of commercial banks in Nigeria. Expo facto and correlation research designs were adopted in the study. Descriptive statistics and regression analysis analyzed the data. Findings indicates that credit risk management practices have significant effect on loan portfolio quality. Loan portfolio was positively affected by credit risk environment, credit analysis and regulatory roles. Credit administration had inverse and significant effect on loan portfolio quality.

Ahmed, Abdul and Abdul (2016) investigated the effect of credit risk management on quality of loan of commercial banks in Sri Lanka. Specifically, the study examined the effect of risk

appraisal and risk management techniques. Cross sectional research design was adopted and primary data gathered through issue of questionnaires. Engaging measurements, connection and relapse investigation were utilized for information examination. Aftereffects of the investigation uncovered positive and critical impact of credit chance administration on nature of advance of business banks in Sri Lanka. Due to differences in states of economic development the study findings may not be generalized into Kenya deposit taking institutions.

Gizaw, Kebede and Sujata (2013) investigated the effect of credit risk management on profitability of commercial banks in Ethiopia. Specifically, the study examined the effect of non-performing loans, capital adequacy ratio, loans and advance ratio and loan loss provision ratio. Correlation research design was adopted and secondary data collected over 12 year period from 2003. Data was analyzed through use of descriptive statistics, correlation and multiple regression. Significant impact of capital sufficiency, advance misfortune arrangement and credits and advance proportion on money related execution of Ethiopian commercial banks was accounted for. The research should have incorporated qualitative analysis of credit risk management practices embraced by commercial banks in Ethiopia.

Cirindi (2017) investigated the impact of credit risk on SACCO's advance portfolio in Tharaka Nthi County. The particular objectives of the investigation were to build up the impacts of credit risk identification methods, credit risk analysis strategies, credit risk monitoring and credit risk mitigation on loan portfolio of SACCOs in Tharaka Nthi County. Descriptive research design was adopted and primary data gathered through issue of questionnaires among respondents selected through systematic sampling. Univariate, correlation and multivariate regression modelling analyzed the data. Study findings indicates that majority of SACCOs has adopted alternative credit evaluation methods and they have identified alternative credit collection criterion.

Credit was promoted through credit risk awareness creation among Sacco's staffs through trainings, appraisal and competent supervision of subordinate staffs. Three-month credit default policy was adhered to by most SACCOs though several had adopted alternative criterion. Credit risk management practices has positive and significant effect on loan portfolio of SACCOs.

Kibui and Moronge (2014) investigated the effect of credit risk management practices on financial performance of Harambee Sacco in Kenya. Descriptive research design and a sample of 53 credit officers were issued with questionnaires. Univariate, correlation and multivariate regression techniques analyzed the data. The study found that SACCO's used guarantors, shareholding, collateralization and insurance as risk mitigation strategies. It was found that credit risk management had significant effect on financial performance of SACCOs. Through computerization of reporting systems, it was possible for SACCOs to detect overdue loans. It was recommended that there was need for consideration of credit appraisal methods, systematic defaulter follow-up, loan defaulter reports, credit policy and credit risk monitoring and control methods so as to enhance financial performance of SACCOs.

Mkadoe, Shavulimo and Kambura (2017) investigated international determinants of credit risk policy of deposit taking SACCOs in Nairobi County. Specific objectives were to examine the effect of credit risk management and internal audit on credit risk policy. Descriptive research design was adopted and primary data gathered through issue of questionnaires among branch

managers and section heads. Descriptive statistics, correlation and multivariate regression modelling analyzed the data. Results indicates that there was positive and significant effect of credit risk management, internal audit on credit risk policy of DT-SACCO's in Nairobi. Since, the study drew its respondents from Nairobi County, its results cannot be generalized in Kiambu County.

Credit Risk Monitoring and Quality of Loan Portfolio

Kasana (2017) investigated the determinants of credit risks in commercial banks in Pakistan. Specifically, the study examined the effect of growth in GDP, interest rate, capital adequacy, operational efficiency, loan to deposit ratio, loan loss provision and bank size on credit risks. Causal research design was adopted and secondary data gathered for period 2007 to 2013 among 26 commercial banks. Descriptive statistics, correlation and multivariate statistics analyzed the data. Outcomes of the research indicated that capital capital adequacy and loan loss provision had positive and critical impact on credit risk. Working proficiency, GDP growth rate had critical impact on credit risk. Profitability had converse impact on execution of commercial banks. The study should not have mixed micro and macro-economic characteristics while modelling the variables.

Muigai and Maina (2017) investigated the effect of credit risk management on performance of commercial banks in Kenya. Descriptive research design was applied and primary data gathered through administration of questionnaires among credit officers and finance managers of 39 banks. Descriptive and inferential statistics analyzed the data. Results of the study indicates that loan appraisal, lending requirements, credit management tools, loan recovery process had positive and significant effect on bank performance. It was recommended that commercial banks should establish credit limits for borrowers and develop methods of approving new loans. Methods of following up on borrowers should be developed so as to remind borrowers when their debts are due for payments.

Akoth (2016) examined the influence credit risk management activities have on the efficiency of Barclays bank's loan portfolio in Kenya. The study defined, in particular, the degree to which credit risk management practices influence loan portfolio of Barclay's bank in Kenya and to establish the influence of credit risk administration policies on market growth of Barclays bank of Kenya. Descriptive research design was applied and primary data gathered through issue of questionnaires. Univariate and multivariate techniques analyzed the data. Credit issue was contingent to borrower's reputation and character, organization cash flows, repayment capability, potential for long term business success and effect of business affiliate. The study findings may not be replicated in other banks since they are unique challenges for clients hailing from Barclays bank of Kenya.

Thisika and Muturi (2017) studied the effect of credit risk management on loan performance in Kenyan banks. Specifically, the study examined the effect of loan appraisal on non-performing loans. Cross sectional research design was applied and primary data gathered through issue of questionnaires among credit managers of banks operating in Bungoma town. Data was analyzed through univariate and multivariate approaches. Study findings indicated that loan appraisal positively affected loan performance. Since commercial banks and DT SACCOs have different market targets and operating procedures the study findings may not be generalized in DT SACCOs hence the need for customized study.

Onyango (2017) investigated the effect of credit risk management on quality of loan portfolio among commercial banks in Kenya. Descriptive research design was applied and primary data collected through administration of questionnaires among 42 licensed banks. Descriptive and multiple regression analysis analyzed the data. It was found that quality of loan portfolio was dependent on risk identification, analysis, assessment, monitoring, credit sanction or approval has significant effect of quality of loan portfolio among banks in Kenya. The study may have reported diagnostic tests prior to regression modelling so as to minimize likelihood of drawing biased conclusions.

RESEARCH METHODOLOGY

Research Design

This is an outline on how a study was conducted (Saunders, Lewis & Thornhill, 2014). They can be perceived as set of beliefs and assumptions that guides execution of a study (Easterby-Smith, Thorpe, & Jackson, 2012). This study deployed descriptive research design (Kombo & Tromp, 2012). According to Sekeran and Bougie (2013) descriptive research design is adopted whenever the researcher seeks to address questions on when, where, how, why and what. The design was appropriate for the study since it sought to describe credit management practices adopted by DT SACCOs and their influence on quality of loan portfolio

Target Population

This is a collection of all elements that are related to the study and are being researched. The study population is of utmost importance given the findings will be generalized on it (Cooper & Schindler, 2013). The target population comprised of 54 registered DT SACCOs in Nairobi Metropolitan. From each DT SACCO in Nairobi Metropolitan, the credit manager consist the respondents. Nairobi Metropolitan was operationalized as SACCOs hailing from Murang'a, Kiambu, Nairobi, Kajiando and Machakos Counties.

Sampling Technique and Sample Size

Sampling is the criterion of selecting subset from population under examination (Kothari, 2014). This technique accords all respondents equal likelihood of participating in a study (Cooper & Schindler, 2013). Sampling technique can be probabilistic when all elements under considerations can be selected with equal chances. It will non-probabilistic if there is an inclusion and exclusion procedure that ought to be complied with (Sekaran & Bougie, 2013). Census of 54 credit managers of DT SACCOs in Nairobi Metropolitan was considered in the study.

Data Collection Instruments

The main data to be used in the study was primary and it was gathered through questionnaires administration. It was considered because it easy to administer, cost effective and provides consistency in the questions adopted to test study variables (Kothari, 2014). It considered all study variables and attributes. The first part consisted of questions on the respondent's demographic information. The second part sought information on CRM process adopted. The last part sought information on quality of loan administered by DT SACCOs in Nairobi Metropolitan.

Pilot Testing

Prior to issuing questionnaires they piloted in among five DT SACCOs hailing from Kirinyaga County. The selected number of SACCOs was 10% of the sample, this will be in tandem with Sekaran and Bougie (2013) who asserts that piloting should be carried out in at least 10% of the target respondents. Kirinyaga County was chosen since it has characteristics of rural and urban populations which are a dominant characteristic in Nairobi Metropolitan. According to Kothari (2011) piloting is carried out to examine the capacity of research instruments to respond to research questions. Through piloting shortcomings associated with research instruments would be identified and corrective measures undertaken prior to actual study. Sekaran and Bougie (2013) argues that failure to undertake research instruments corrections may lead to gathering of information that may fall short of research expectations.

Reliability Analysis

This is ability of research instrument to achieve mirroring findings if administered to heterogeneous respondents (Bryman & Bell, 2015). Further, Copper and Schindler (2014) is the capacity of heterogeneous group of respondents giving consistent responses. Questionnaires were administered to credit managers and finance managers of 10 DT SACCOs hailing from Kiambu County. Cronbach's Alpha evaluated internal consistency and if its coefficient was greater than 0.7 then it was reliable (Sekaran & Bougie, 2013).

Data Processing and Analysis

The quantitative data that was collected in this study was analysed using the Statistical Package for Social Sciences (SPSS version 22). Upon data collection it was cleaned, coded and entered into SPSS. Data was analysed through use of descriptive and inferential statistics. Descriptive statistics to be used in the study include; mean, standard deviation, frequency and percentages. Inferential statistics included Product Moment correlation coefficient and multiple regression analysis. Relationship looked at the quality of the impact of credit chance administration rehearses on nature of advance arrangement of DT SACCOs in Nairobi County. Different relapse demonstrating showed the idea of the impact of CRM procedure and nature of credit arrangement of DT SACCOs in Nairobi County. The model was of the form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Where

Y is Quality of loan portfolio
X_1 is Credit Risk Analysis
X_2 is Credit Risk Monitoring
β_0 is a constant
β_1, & β_2 *are* regression coefficients and represents change in Y per unit change in X
ε is the error terms.

PRESENTATION AND DISCUSSION OF FINDINGS

Descriptive Statistics Analysis

Credit Risk Analysis and Quality of Loan Portfolio

The first specific objective of the study was to establish the influence of credit risk analysis on quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan. The respondents were requested to indicate their level of agreement on credit risk analysis and quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan. The results were as shown in Table 4.4

From the results, the respondents agreed that their Sacco has a team mandated with credit risk analysis (M=3.996, SD= 0.865). In addition, the respondents agreed their Sacco has designed work flow chart for credit risk analysis (M=3.819, SD=0.945). Further, the respondents agreed their Sacco complies with credit flow analysis procedurally (M=3.798, SD=0.611). The respondents also agreed that their Sacco has standard credit analysis template for all members (M=3.731, SD=0.908).

From the results, the respondents agreed that their Sacco has centralized credit analysis function (M=3.711, SD=0.776). In addition, the respondents agreed that their Sacco utilizes customer credit rating on credit evaluation (M=3.675, SD=0.897). Further, the respondents agreed that their Sacco uses borrower character analysis to evaluate lending decision (M=3.613, SD=0.786). The respondents also agreed that their Sacco uses borrower capacity analysis to evaluate lending decision (M=3.608, SD=0.841).

From the results, the respondents agreed that their Sacco uses borrower capital analysis to evaluate lending decision (M=3.600, SD=0.567). In addition, the respondents agreed that their Sacco uses borrower capacity collateral to evaluate lending decision (M=3.598, SD=0.897). In addition, the respondents agreed that their Sacco uses credit conditions analysis to evaluate lending decision (M=3.588, SD=0.654). Further, the respondents agreed that their Sacco has clear collateral guide (M=3.581, SD=0.754). The respondents also agreed that their Sacco evaluates customers DTs prior to lending (M=3.579, SD=0.687).

Table 4. 1: Credit Risk Analysis and Quality of Loan Portfolio

	Mean	Std. Deviation
Our Sacco has a team mandated with credit risk analysis	3.996	0.865
Our Sacco has designed work flow chart for credit risk analysis	3.819	0.945
Our Sacco complies with credit flow analysis procedurally	3.798	0.611
Our Sacco has standard credit analysis template for all members	3.731	0.908
Our Sacco has centralized credit analysis function	3.711	0.776
Our Sacco utilizes customer credit rating on credit evaluation	3.675	0.897
Our Sacco uses borrower character analysis to evaluate lending decision	3.613	0.786
Our Sacco uses borrower capacity analysis to evaluate lending decision	3.608	0.841
Our Sacco uses borrower capital analysis to evaluate lending decision	3.600	0.567
Our Sacco uses borrower capacity collateral to evaluate lending decision	3.598	0.897
Our Sacco uses credit conditions analysis to evaluate lending decision	3.588	0.654
Our Sacco has clear collateral guide	3.581	0.754
Our Sacco evaluates customers DTs prior to lending	3.579	0.687
Aggregate	**3.684**	**0.784**

Credit Risk Monitoring and Quality of Loan Portfolio

The second specific objective of the study was to evaluate the influence of credit risk monitoring on quality of loan portfolio of DT-SACCOS in Nairobi Metropolitan. The respondents were requested to indicate their level of agreement on various statements relating to credit risk monitoring and quality of loan portfolio of DT-SACCOS in Nairobi Metropolitan. The results were as presented in Table 4.2.

From the results, the respondents agreed that their Sacco has clearly defined credit monitoring process (M=3.977, SD= 0.905). In addition, the respondents agreed that their Sacco has designed functional work flow to be used in credit monitoring (M=3.959, SD=0.885). Further, the respondents agreed that their Sacco credit monitoring team undergo regular training to enhance their skills (M=3.920, SD= 0.605). The respondents also agreed that their Sacco credit monitoring is allowed to continuously review collateral securities (M=3.915, SD= 0.981).

From the results, respondents agreed that their credit monitoring team ensures that their loan letter of issues adheres to all terms and conditions (M=3.911, SD0.873). In addition, the respondents agreed that their Sacco has enhanced monitoring to minimize cases of non-authorized loan issues (M=3.897, SD=0.786). Further, the respondents agreed that their monitoring ensures that they have no cases that do not comply with their collateral guidelines (M=3.789, SD=0.896). The respondents also agreed that their monitoring team guides on credit rationing criterion to be adhered to (M=3.695, SD=0.897

Table 4. 2: Credit Risk Monitoring and Quality of Loan Portfolio

	Mean	Std. Deviation
Our Sacco has clearly defined credit monitoring process	3.977	0.905
Our Sacco has designed functional work flow to be used in credit monitoring	3.959	0.885
Our Sacco credit monitoring team undergo regular training to enhance their skills	3.920	0.605
Our Sacco credit monitoring is allowed to continuously review collateral securities	3.915	0.981
Our credit monitoring team ensures that our loan letter of issues adheres to all terms and conditions	3.911	0.873
Our Sacco has enhanced monitoring to minimize cases of non-authorized loan issues	3.897	0.786
Our monitoring ensures that we have no cases that do not comply with our collateral guidelines	3.789	0.896
Our monitoring team guides on credit rationing criterion to be adhered to	3.695	0.897
Aggregate	**3.883**	**0.854**

Inferential Statistics

Inferential statistics in the current study focused on correlation and regression analysis. Correlation analysis was used to determine the strength of the relationship while regression analysis was used to determine the relationship between dependent variable (quality of loan

portfolio of DT-SACCOs in Nairobi Metropolitan) and independent variables (credit risk analysis and credit risk monitoring).

Correlation Analysis

The present study used Pearson correlation analysis to determine the strength of association between independent variables (credit risk analysis and credit risk monitoring) and the dependent variable (quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan).

Table 4. 3: Correlation Coefficients

		Quality of Loan Portfolio	Credit Risk Analysis	Credit Risk Monitoring
Quality of Loan Portfolio	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	47		
Credit Risk Analysis	Pearson Correlation	.827**	1	
	Sig. (2-tailed)	.003		
	N	47	47	
Credit Risk Monitoring	Pearson Correlation	.895**	.119	1
	Sig. (2-tailed)	.000	.067	
	N	47	47	47

The results revealed that there is a very strong relationship between credit risk analysis and quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan (r = 0.827, p value =0.003). The relationship was significant since the p value 0.003 was less than 0.05 (significant level). The findings conform to the findings of Sofayo (2017) that there is a very strong relationship between credit risk analysis and quality of loan portfolio. The results also revealed that there was a very strong relationship between credit risk monitoring and quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan (r = 0.895, p value =0.000). The relationship was significant since the p value 0.000 was less than 0.05 (significant level). The findings are in line with the results of Kasana (2017) who revealed that there is a very strong relationship between credit risk monitoring and quality of loan portfolio.

Regression Analysis

Multivariate regression analysis was used to assess the relationship between independent variables (credit risk analysis and credit risk monitoring) and the dependent variable (quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan).

Table 4. 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.862	.743	.744	.10129

a. Predictors: (Constant), credit risk analysis and credit risk monitoring

The model summary was used to explain the variation in the dependent variable that could be explained by the independent variables. The r-squared for the relationship between the independent variables and the dependent variable was 0.743. This implied that 74.3% of the variation in the dependent variable (quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan) could be explained by independent variables (credit risk analysis and credit risk monitoring).

Table 4.5: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	8.027	2	4.013	12.87	.000[b]
1	Residual	6.555	42	.156		
	Total	14.582	46			

a. Dependent Variable: quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan
b. Predictors: (Constant), credit risk analysis and credit risk monitoring

The ANOVA was used to determine whether the model was a good fit for the data. F calculated was 12.87 while the F critical was 2.594. The p value was 0.000. Since the F-calculated was greater than the F-critical and the p value 0.000 was less than 0.05, the model was considered as a good fit for the data. Therefore, the model can be used to predict the influence of credit risk analysis and credit risk monitoring on quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan.

Table 4.6: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.202	0.051		3.961	0.001
	credit risk analysis	0.481	0.121	0.480	3.975	0.001
	credit risk monitoring	0.425	0.113	0.424	3.761	0.003

a Dependent Variable: quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan

The regression model was as follows:

$Y = 0.202 + 0.481X_1 + 0.425X_2 + \varepsilon$

The results revealed that credit risk analysis has significant effect on quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan, $\beta 1=0.481$, p value= 0.001). The relationship was considered significant since the p value 0.001 was less than the significant level of 0.05. The findings conform to the findings of Sofayo (2017) that there is a very strong relationship between credit risk analysis and quality of loan portfolio.

In addition, the results revealed that credit risk monitoring has significant effect on quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan $\beta 1=0.425$, p value= 0.003). The relationship was considered significant since the p value 0.003 was less than the significant level of 0.05. The findings are in line with the results of Kasana (2017) who revealed that there is a very strong relationship between credit risk monitoring and quality of loan portfolio.

Conclusions

the study concludes that credit risk analysis has a positive and significant effect on quality of loan portfolio of DT-SACCOs in Nairobi Metropolitan. Findings revealed that credit scoring, credit referencing and use of 5 C's of credit influences quality of loan portfolio of DT-SACCOS in Nairobi Metropolitan.

The study also concludes that credit risk monitoring has a positive and significant effect on quality of loan portfolio of DT-SACCOS in Nairobi Metropolitan. Findings revealed that use of covenants, payment tracking and loan classification influences quality of loan portfolio of DT-SACCOS in Nairobi Metropolitan.

Recommendations

The study recommends that the management of DT-SACCOS in Kenya should adopt a comprehensive credit risk analysis framework. This involves implementing a systematic approach that includes quantitative assessments, such as analyzing borrowers' credit histories, income levels, and debt-to-income ratios, alongside qualitative evaluations that consider factors like market conditions and borrower intent.

The study also recommends that the management of DT-SACCOS in Kenya should implement a robust credit risk monitoring system. This involves establishing real-time monitoring mechanisms that track key indicators of borrower performance, such as repayment patterns, changes in income, and external economic factors. By utilizing data analytics and technology, DT-SACCOs can gain insights into emerging risks and identify potential issues before they escalate into defaults.

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