RELATIONSHIP BETWEEN INVESTMENT DECISIONS AND LIQUIDITY OF FARMERS BASED DEPOSIT TAKING SAVINGS AND CREDIT CO-OPERATIVES IN KENYA

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A THESIS SUBMITTED TO SCHOOL OF CO-OPERATIVE AND COMMUNITY DEVELOPMENT IN PARTIAL FULFILLMENT FOR THE AWARD OF DEGREE OF MASTER OF CO-OPERATIVE MANAGEMENT OF THE CO-OPERATIVE UNIVERSITY OF KENYA

JANUARY, 2022

DECLARATION AND APPROVAL

Declaration

This thesis is my original work and has not been presented for a degree or any other award in any other University.

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Approval

We confirm that the work reported in this thesis was carried out by the student under our supervision and has been submitted with our approval as University supervisor.

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DEDICATION

I dedicate this thesis to my parents Boniface Gachenga, Gladys Wanjiru and siblings Samuel Kamenju, Ann Wanjiku, Rhodah Wambui and Polly Muthoni whom I denied lots of time while busy with my studies. I can never thank you enough.

ACKNOWLEDGEMENT

First of all, I wish to thank God for is grace and gift of life, His divine protection, guidance and good health. I wish to acknowledge everyone who assisted in various ways towards completion of this thesis. A lot of thanks go to my supervisors Dr. Kinyariro and Dr. Wambu for giving me the required direction all the way through. Additionally, I acknowledge contributions made by Dr. Maina Justus and Dr. Wilson Metto whom in various ways cannot be forgotten since their contribution had a positive impact. Additionally, the researcher acknowledges finance and credit managers of farmers-based Deposit Taking SACCOs who sacrificed their time in responding to the questionnaires.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACCOSCA African Confederation of Co-operative Savings and Credit Associations

ACCU Asian Confederation of Credit Unions

CBDA Co-operative Bank Development Agency

CRB Credit reference bureau

DT-SACCOs Deposit Taking Savings and Credit Cooperative

ICA International Co-operative Alliance

ILO International Labor Organization

IMF International Monetary Fund

NDTS Non-Deposit Taking Savings and Credit Cooperative

SACCO Savings and Credit Cooperative

SASRA SACCO Societies Regulatory Authority

SDG Sustainable Development Goals

WOCCU World Council of Credit Unions

WCM World Co-operative Monitor

DEFINITION OF OPERATIONAL TERMS

Effect: refers to the impact or influence of one variable to the other either independent and dependent variable or moderating variable impact on independent and dependent variable (Foe, 2018).

Farmers' based deposit taking saving and credit co-operatives: These are financial co-operatives owned or whose membership predominantly relies on agriculture and agribusiness based production like coffee, tea, sugarcane and dairy farming (Finaccess, 2019).

Financial investment decision: Financial investment decision relates to the decision made on portfolio diversification or pool of assets on basis of risk and return. The portfolio according to SASRA Act, (2008) should consist of lending as the core investment and the remaining fund to government securities, shares in institutions licensed under the banking act and deposits to licensed SACCOs.

Human capital decision: These are decisions made by employees to maximize the economic value of the business and to ensure that SACCO is financial stable (Munjuri, 2013).

Investment decisions: refers to commitment of funds to short-term assets that will yield return in future. Investment resources can be both financial and human (Pricewatercoopers, 2020).

Lending decision: refers to decisions made on advancing loan to members and groups whether secured or not secured (Nyaga, 2014).

Liquidity: This is the ability of an organization towards meeting current obligation or converting assets to cash at a short duration of time (Pandey, 2012).

SACCO size: relate to ways in which SACCOs are clustered according to total assets, gross loans and total deposits

SACCOs: These are financial co-operatives owned and operated according to the co-operative principles with core mandate of encouraging saving and use of pooled resources to extend loans to members at low interest enabling them to improve their economic and social well-being (ICA, 2019)

ABSTRACT

The basic growth trend of SACCOs in Kenya start from non-deposit taking and gradually progress to deposit taking. This enables them to grow financially and expand their financial services offered to their members. However, closure of these SACCOs has been on the rise due to imprudent investment decisions made by unskilled staff that often leads to unmanageable loan portfolio and investment in pyramid schemes. This might be the reason for the 74 percent of farmers-based DT-SACCOs being illiquid. Thus, the general objective of the study seeks to assess the relationship between investment decisions and liquidity of farmers-based DT SACCOs. The specific research objectives are to determine the influence of lending decision, financial investment decision, research and development decision and human capital decision on liquidity of farmers-based deposit taking SACCOs. The study was anchored on modern portfolio theory and human capital theory. Descriptive cross-sectional survey research design was employed where the study population consisted of 49 finance managers and 49 credit managers of the 49 farmers-based DT SACCOs respectively. Further, the study utilized Yamane formula to determine the sample size where cluster sampling was employed to sample the DT SACCOS and simple random sampling were used to sample 78 out of 98 respondents. Reliability tests was considered and revealed that the data collection instruments were appropriate with cronchbach values between 0.761 and 0.813 whereas, Kaiser-Meyer-Olkin Measure of Sampling Adequacy index was above 0.5 and Bartlett's test of Sphericity with P value less than 5 percent significance level thus appropriate for factor analysis. The study further analyzed data through multiple regression models. The regression models revealed that; lending decision, financial investment decision, research and development decision and human capital decision had a p-value of 0.000, 0.004, 0.014 and 0.005 revealing that there exists a significant nexus between predictor variables and liquidity of farmers-based DT-SACCOs. Moreover, the study found that; SACCO size strengthens the relationship between investment decision and liquidity of farmers-based DT SACCOs. Based on the findings, the study concluded that an increase in one unit of lending decision, financial investment decision, research and development decision and human capital decision improves liquidity of farmers-based DT-SACCOs. Thus, the study recommends SACCOs to desist from investments classified as other assets as they are deceitful activities which affect liquidity and at the same time expose members' funds at risk of being lost. This was supported by study findings that investment in other assets had an inverse nexus on liquidity meaning that an increase in one unit of other assets leads to a decrease in liquidity

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Co-operatives are independent association of members who collectively come together voluntarily to meet their economic, societal and cultural aspirations through an enterprise that is mutually possessed and democratically controlled (International Labor Organization [ILO], 2020). They assist in achieving economic growth and foster aggregation of income by collecting members produce, process, package and market on behalf of the members. This contributes to achieving the sustainable development goal 1 and 5 on reducing poverty, gender inequality and supporting social development through collective action (World Co-operative Monitor, 2020). Globally, co-operatives constitute of different sector of activity; agricultural, insurance, banking, education, health and social work, consumer, community, government, transport and housing. Agricultural co-operatives have the largest number of co-operatives with a 35 percent representation globally. In an effort to raise cheaper credit for farmers they have formed credit unions or SACCOs (Euricse, 2020).

Savings and Credit Cooperative (SACCO) are financial co-operatives owned and operated in accordance with the co-operative principles with core mandate of encouraging saving and use of pooled resources to extend loans to members at low interest. Since the first co-operative was formed by the Rochdale Society of equitable pioneers in Great Britain in 1844, they have continued to facilitate in the improvement of members' economic and social well-being (Asian Confederation of Credit Unions [ACCU], 2020). Globally, the sector which has 86,451 credit

unions has continued to attract more membership to a record of 376 million members in the 118 countries in the 6 continents. They also have created quality employment opportunities to 250 million individuals either directly or indirectly. In addition, their penetration rate of 12.2 percent has enabled them to mobilize $ 2.2 trillion for investment in loans portfolio, government securities, shares and stocks this makes them to be a key investment vehicle (World Council of Credit Unions [WOCCU], 2020). Lending as a major investment represent 85 percent of portfolios held internationally with investment in government securities, shares and stocks having 16 percent (WOCCU, 2020).

Currently, SACCOs have opened their original common bond to non-members, groups and institutions to mobilize more savings for investment. It has improved liquidity and capital to cushion members hard earned savings while distributing the risk associated with common catchment area of membership (Maina, Kiai & Kyalo, 2020). On reduction of liquidity risks the World Council of Credit Unions has restrained SACCOs on explicit investment zones. It ensures that investment made doesn't expose them to fraudulent and risky activities (Ntoiti & Jagongo, 2021). On the other hand, SACCOs' have invested in incompetent employees who have been associated with the imprudent investment decisions that expose the enterprises to illiquidity (World Bank report, 2020; Cuevas & Buchenau, 2018). It may have resulted to a 19 percent increase in illiquid SACCOs globally due to investment in pyramid schemes, fraudulent investments activities (personal investments), improper credit management practices and other undisclosed investments (Maina, Kiai & Kyalo, 2020). This may jeopardize the going concern of the SACCOs and investments as funds available for investment are held in loan portfolio and risky investments (International Monetary Fund [IMF], 2021).

In the United States of America in less than two years more than 1,500 SACCOs have collapsed, whereas in Ireland and Germany 210 SACCOs and 900 branches have been declared non-operational in less than one year (Coelho, Mazillo, Svoronos & Yu, 2019). Majority of those affected are the farmers SACCOs who depend on irregular and uncertain cash crop payment. It has resulted to an increase in the non-performing loans by 26 percent and huge unmanageable loans (Hystra, 2020). In addition, short term and long-term operations are disrupted hence affecting the going concern of the venture. This calls for investment in skilled human capital, better lending decisions, research and development and financial investment to enhance the liquidity of these SACCOs. More emphasis has been channeled to African SACCOs which are considered as an investment vehicle for reduction of abject poverty that contributes to 48 percent of the global poverty level (Aseno & Otieno, 2021).

Africa is the leading continent with the largest number of SACCOs followed by Asia recording 47 and 39 percent respectively of SACCOs globally. They have played a significant role of financial inclusion and inclusive finance to 38 million members through provision of small and affordable loans (WOCCU, 2020). This has assisted in the growth of the loan portfolio to a tune of $ 12.7 billion (African Confederation of Co-operative Savings and Credit Associations [ACCOSCA], 2020). Nevertheless, collection of loan portfolio from debtors is never 100 percent as part of loan is diverted to devious financial activities like pyramid schemes (Maina, Kiai & Kyalo, 2020) resulting to increased credit risk. Consequently, information asymmetry between lenders and borrowers seem to contribute to increase in credit risk as borrowers have more information on loan utilization.

Borrowers usually take advantage of lenders with inadequate information leading to SACCOs advancing loans to bad borrower's thus increasing risk. To reduce the risks, SACCOs have been advocated to utilize credit reference bureaus to determine their borrower's credit history (Maina, Kiai & Kyalo, 2020). In African countries for instance, in Kenya, 74 percent of farmers-based Deposit taking SACCOs are not able to maintain liquidity as in the case of South Africa where 71.3 percent of SACCOs were also not able to maintain liquidity (Co-operative Bank Development Agency [CBDA], 2017). This is not exceptional to Uganda as 47 percent are not able to maintain liquidity at 13 percent due to poor credit management practices (Bank of Uganda [BOU], 2019). Additionally, non-performing loans increased to 26 percent while loans to deposits still stand at 126 percent whereas Kenya registered 110 percent meaning that investments are funded by external funds. This increases liquidity risk as returns are wiped away by high cost of borrowing (Bank of Uganda [BOU], 2019). This raises the need for SACCOs to employ skilled manpower to make prudent investment decisions which will enable SACCOs grow progressively.

Traditionally in Kenya, the basic growth trend of SACCOs started from non-deposit taking and gradually progressed to deposit taking. This enables them to grow financially and expand their financial services offered to their members. SACCOs that offer front office services are 175 being clustered in their original common bond linkage criteria; such as government based, teachers based, farmers based, private based and community based (SASRA, 2020). The total deposit mobilization accounts to Kshs 431.46 billion in 2020 which is equivalent to 56 percent of gross domestic savings whereas financial inclusion increased to 27.86 percent (FinAccess, 2019). This might have led to gross domestic product rising from 4.7 percent to 5.1 percent and hence contributing to achievement of sustainable development goal eight on promoting sustainability, inclusivity, economic growth and decent work for all. Loan portfolio accounts for 110.2 percent

of savings meaning that; part of loan portfolio is funded from external sources. The mismatch between the working capital has led to three SACCOs being delicensed due to over borrowing (SASRA, 2019).

Despite the mismatch, the number of SACCOs continues to remain stagnant even though more and more SACCO keeps on being converted from Non-Deposit Taking to Deposit Taking SACCOs. However, most of the Deposit Taking are being delicensed as a result of illiquidity. Non liquidity is related to severe under-capitalization, unsustainable high borrowing and inability to meet obligations to depositors and third parties. In 2020, SACCOs that were able to maintain the set liquidity ratios of 15 percent were 48.5% (SASRA, 2020). This shows that 51.5% of the DT-SACCOs were not able to meet short term obligations when they were due. This calls for administrative initiatives as liquidity challenge is raising concern as in the most recent years SACCOs liquidity has been in deterioration from 54.10% in 2017 to 48.5% in 2020. Additionally, total loans to total deposits increased to 110 percent affecting sustainability in long run and investment decisions as funds are held by the borrowers leaving no option for alternative investments.

Lending being major investment collection is never 100% due to increment in non-remittance and non-performing loans. For instance, in 2020, DT-SACCOs were owed Kshs. 5.04 billion of which kshs 4.31 billion related to lending portfolio (SASRA, 2020). SACCOs that had well diversified loan portfolio had low level of delinquency and that long-term loans had high non-performing loans in comparison to short term loans. SACCOs with sound lending procedures registered low credit risk improving liquidity (Ndambiri, Munene & Wanjohi, 2017).

According to Mukhebi, (2019) despite the increase of SACCOs in the country, growth of product sales is on a downward spiral (Murray, 2011) affecting the main purpose of savings mobilization and offering credit to the members. This has created a puzzle as they recruit low and unskilled staff who end up lowering down the satisfaction of customers due to poor customer service delivery. On human capital, SACCOs have ensured that proper strategies are employed to ensure that customer needs are met. On the other hand, unskilled employees are involved in implementing business decisions, without proper involvement of all stakeholders hence poor growth as evidenced by license revocation by 19 percent in 2016 to 2018 (SASRA, 2018; SASRA, 2020). Customers have previously been viewed in the past and present as source of income rather than source of core competence to the business (Vogelgesang, 2003). However, customers have become an important resource to businesses as they possess valuable information towards the firms' products.

In Kenya farmers-based Deposit Taking SACCOs are owned by members who predominantly rely on agriculture and agri-business activities like dairy, coffee, tea and sugarcane (SASRA, 2017). Agriculture remains the mainstay of the Kenyan economy having employed 60 percent of Kenyans directly or indirectly. Farmers SACCOs control 52 percent of membership and 29 percent of all SACCOs. Regardless of this, they control only 10 percent of total assets, where 38 representing 76 percent have deposits less than one billion reflecting low growth (SASRA, 2020). In addition, price fluctuation of agricultural products is on the downward spiral affecting remittances to SACCOs as members rely on income from their seasonal cash crops. This puts SACCOs funds at risk of being lost since farmers are not insured towards price fluctuation like in the developed countries, where they hedge their agricultural products towards price fluctuation.

Additionally, despite the introduction of sinking fund to mitigate loan loss, loan portfolio has remained unmanageable. Moreover, deterioration of non-performing assets has been on rise. In 2019 non-performing assets rose to 14 percent against the set yardstick of 5 percent affecting lending decisions (SASRA, 2019). Previous researchers Maina, Kiai and Kyalo, (2020); Gweyi, (2018); Murithi, (2013) found that despite SACCOs opening their common bond, liquidity risk continues to affect the going concern of the business. For instance, Maina, Kiai and Kyalo, (2020) carried out a study on credit management practices, SACCO size and sustainability. The study found that SACCO size moderates credit management practices and sustainability. Moreover, the study found that 30 percent of SACCOs made imprudent credit practices which affected lending decision. Lending seems to increase credit risk as reflected by unremitted funds to 3.9 billion despite government investing in SACCO Society Regulatory Authority to ensure that SACCOs comply to the set regulations and the SACCO models (SASRA, 2019). Furthermore, violation of the set standards continues to affect investment as SACCOs that have not yet maintained the set standards such as non-performing ratio rose to 57 percent. This portrays a vivid picture why SACCOs don't recover loans despite the set models, guarantors, sinking funds and other collaterals (Kenya Police SACCO Report, 2018). Therefore, the current study seeks to determine whether the investment decision influences SACCOs liquidity and also examine if SACCO size enhances or strengthens the relationship between investment decision and liquidity.

1.2 Statement of the Problem

Despite SACCOs offering financial services to the unbanked in Kenya, 74 percent of farmers SACCOs do not make prudent investment decisions (SASRA, 2020). This is due to the SACCOs not able to recover more than 50 percent of loans advanced to members and 26 percent registering a deficit from other investment (Farm Kenya, 2019). This has led to 33 percent increase in their license revocation by SASRA. This puts members' funds at risk of being lost since SACCOs do not have deposit insurance facility and a lender of last resort like commercial banks (SASRA, 2018). This inversely affects the SACCOs objectives of offering affordable financial services to the unbanked and improving their living standards (FSD, 2020). Moreover, this poses a great threat to the economy at large as members may lose confidence with the SACCOs as they may not be in a position to meet their needs. This might lead to the continued failure of SACCOs hence reducing the employment level and the gross domestic product of the country as they are leading source of employment and capital for business (John, 2011). Also, achievement of sustainable development goal eight on promoting sustained, inclusive and sustainable economic growth and decent work for all (Sustainable Development Goals, [SDG] 2021) may not be achieved fully as employee layoffs may increase and tax contributed to the government will lower when SACCOs close due to poor lending.

A solution is still needed on investment decisions even after the introduction of investment regulations and policies by SACCO society's regulatory authority. This will assist in offering protection for the member funds and hence gain more public confidence in offering their financial services. SACCO management will gain more insight on making prudent investment decisions that lead to SACCOs liquidity. Furthermore, the study will offer more insight to SACCO

management and SACCO society's regulatory authority on lending decisions, financial investment decision, research and development decision and human capital decision on how to enhance farmers-based Deposit Taking SACCOs liquidity hence, solving the revocation of licenses in the Sub-sector. However, a study is still needed to solve the problem of revocation of licenses and witness of deposit taking SACCOs liquidity that can assist in improving the economy and attaining Vision 2030 that will promote high levels of savings to finance investment needs and create vibrant financial sector that will help to achieve the set 10% gross domestic product.

In Kenya, researchers have come up with conflicting findings about investment decisions on financial performance. For instance, Musau, (2016) on the study, effect of investment decision on financial performance of savings and credit co-operatives in Kitui central found that investment decision had a statistically significant effect on financial performance while (Cheluget & Loise, 2019) on their study effects of liquidity and investment policies on financial growth of savings and credit co-operatives found that investment policies had insignificant effect on financial growth of SACCOs agreeing to that of (Ngeno, 2018) on determinants of financial performance of investment banks in Kenya who found that; investment in banks has insignificant impact on bank profitability. Additionally, studies carried out by (Njenga & Jagongo, 2019; Njoki, 2015) in relation to SASRA prudential guidelines and compliance found that; SACCO managers defaulted liquidity guidelines, others paying dividends at the disadvantage of core capital, incompliance of proper and fit test during recruitment, non-performing asset hiking to 16 percent and operating expense to 37 percent defaulting the 2008 SASRA act section 61. Therefore, this study intends to investigate on investment decisions and liquidity.

1.3 General Objectives

To determine the relationship between investment decisions and liquidity of farmers-based Deposit Taking savings and credit co-operatives societies in Kenya

1.3.1 Specific Objectives

i) To determine the effect of lending decision on liquidity of farmers-based Deposit Taking SACCOs in Kenya.
ii) To analyze whether financial investment decision affects liquidity of farmers-based Deposit Taking SACCOs in Kenya.
iii) To assess whether research and development decision affect liquidity in farmers-based Deposit Taking SACCOs in Kenya.
iv) To investigate the effect of human capital decision on liquidity of farmers-based Deposit Taking SACCOs in Kenya.
v) To evaluate whether SACCO size has a moderating effect on investment decision and liquidity of farmers-based Deposit Taking SACCOs in Kenya.

1.3.2 Research Hypothesis

The study tested the following null hypothesis;

i) H_{01}: There is no relationship between lending decision and liquidity of farmers-based Deposit Taking SACCOs
ii) H_{02}: There is no relationship between financial investment decision and liquidity of farmers-based Deposit Taking SACCOs
iii) H_{03}: Research and development decision does not have significant effect on liquidity of farmers-based Deposit Taking SACCOs

iv) H_{04}: There is no relationship between human capital decision and liquidity of farmers-based Deposit Taking SACCOs

v) H_{05}: There is no moderating effect of SACCO size on the relationship between investment decision and liquidity of farmers-based Deposit Taking SACCO

1.4 Significance of the study

The study is of significance to stakeholders such as SACCO managers and supervisory committee, policy makers and SASRA, government and scholars

1.4.1 Government

The study will play a significant role in improving the economy and attaining Vision 2030 promoting high levels of savings to finance investment needs and create vibrant financial sector that will help in achieving the set gross domestic product at 10 percent. Also, by ensuring liquidity achievement of sustainable development goal eight on promoting sustained, inclusive and sustainable economic growth and decent work for all will be achieved fully as employee layoffs will reduce. The recommendations of the study will help in ensuring liquidity thus creating sources of capital for investors and source of income to the government though corporate tax, turnover tax and income tax.

1.4.2 Policy Makers and SASRA

The study will be beneficial to policy makers and SASRA in improving liquidity policies and guidelines. This will reduce license revocation, improve earnings and offer protection to members' funds and hence gain more public confidence in offering their financial services. The study will be helpful to SASRA in creating additional financial investments so as to reduce the overall risk by diversifying investment over a variety of stocks in diverse sectors in consideration of liquidity.

1.4.3 Financial Institutions

One of the goals of vision 2030 (economic pillar) is to have vibrant and competitive financial sector that will lead to high levels of savings and financing investment needs. This study might be beneficial to all financial institutions as liquidity affects operations of business thus may affect savings and investment rates set from 17 percent to 30 percent (SDG, 2021).

1.4.4 SACCO Managers and Supervisory Committee

The study will be beneficial to SACCO managers and supervisory committee in making prudent investment decisions thus reducing financial distress due to illiquidity. Managing liquidity in all SACCOs reduces unnecessary run by depositors' thus instilling confidence. The study will also help management optimize members' returns by diversifying securities offered to better the range of portfolio combinations available to them. This will also enhance growth and enable them compete globally.

1.4.5 Scholars

The study will hopefully open opportunities for the future researchers who would want to carry out further research on investment decisions and liquidity of Deposit Taking SACCOs in Kenya.

1.5 Scope of the Study

The study focused on the relationship between investment decision and liquidity of farmers-based deposit taking SACCOs. Specifically, the study intends to examine the effect of lending decision, financial investment decision, research and development decision and human capital decision on liquidity. Thus, the study will be limited to four variables, yet there might be other investments decisions that may have an effect on liquidity. SACCOs are classified into five clusters (government based, farmers based, private based, community based and teachers based) Consequently, the study was carried out in farmers-based Deposit taking SACCOs because of their high illiquidity levels and these farmers SACCOS are located in five regions in Kenya (Central, Rift valley, Nyanza, Western and Nairobi). The five regions were selected because the other three regions (coast, North Eastern and Eastern Kenya) have no presence of farmers-based Deposit Taking SACCOs. Kenya was selected due to the improved infrastructure in SACCOs in their effort to improve members' welfare. Descriptive cross-sectional survey research design was employed to ensure that research gains more insights on research under inquiry. The sample was drawn from the 49 farmers-based Deposit Taking SACCOs where the financial managers and the credit managers were considered in filling the questionnaires.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter contains studies done by other researchers on their research studies related to study variables; lending decisions, human capital decisions, financial investment decisions, research and development decisions and liquidity. The specific areas covered in the chapter are the theories underpinning the study, the empirical review recognizing studies done and their contribution to the study and the conceptual framework having study constructs that were employed in data collection.

2.1 Theoretical Review

2.1.1 Modern Portfolio Theory

Modern portfolio theory was developed by Markowitz, (1952). The theory states that portfolio is a pool of assets held in expectation of maximum returns from the investments (Kariuki, 2016). Markowitz believed that expected risk of an asset should not be judged on isolation but on contribution to pooled risks, thus choosing efficient portfolios with high expected return at the lowest degree of risk (Nderitu, 2018). The theory is based on assumption that investors will relinquish other assets to assets with high returns and low risks. Additionally, the theory assumes that investors are risk averse; implying that they invest in well diversified portfolios with low risk. However, portfolios are faced by market risk and diversifiable risk which are reduced when investors hold efficient portfolios (Mutuma, 2013). Financial institutions diversify their

investments due to high exposure to market, credit and liquidity risk. To mitigate credit risk financial institutions has adopted policy of dealing with creditworthy persons and utilization of credit history where asymmetric information appears. On the other hand, to mitigate liquidity risk financial institutions ensure that there are adequate reserves, banking facilities and borrowing reserve for matching maturity profiles of financial assets and liabilities (Kenya police SACCO, 2020).

SACCOs may perhaps be among the financial service providers investing in risk free assets unlike the others which are exposed to high risks. Other financial service providers have asset combination which includes investments in international stocks, futures, options, corporate bond, real estates and emerging stock bonds (CBK, 2018). Unlike other financial service providers which maximize profits, SACCOs invest in risk free assets to ensure that liquidity is maintained. Therefore, portfolio combination consists of loans, government securities, shares in institutions licensed under the banking act and deposits to licensed SACCOs (SASRA, 2019). According to Markowitz investing in homogeneous assets do not reduce risk but increases risk therefore reducing returns. Thus, financial institutions are supposed to invest in inversely related assets or heterogeneous assets to reduce risk and maximize returns (Nderitu, 2018).

The theory however, faces several challenges as it cannot be applied in the real world where the investors usually have asymmetric information (Fama, 1976). Additionally, Akerlof, (1970) tested the theory in the study of market for melons where it was established that, market is full of information asymmetry. Information asymmetry reflects inefficiency of information between borrowers due to insider trading and one party having more information than the other. This

explains why some investors purchase securities which are overvalued and others undervalued meaning that investors do not have perfect information.

Despite critiques by researchers, the theory is known with wealth creation. The theory employs mathematical equations that reduce investors' exposure to risks so as to ensure investments generate regular income stream. Development of efficient frontier plays a greater role in trading off between risk-returns serving as an appropriate pedestal to weigh every investment based on investors return for a certain risk (Kimeu, 2015). Financial institutions such as SACCOs being a member owned organization it ensures that liquidity is maintained at all times. Therefore, investments made are risk free to ensure that members funds are secure. Additionally, the theory has enabled investors appraise their investments using mathematical model. The model has helped them invest in blue chips assets reaping high returns at the lowest level of risk (Kamwaro, 2013).

Mutuma, (2013), asserts that modern portfolio theory led to investors selecting assets with high returns at the lowest risk. It is through this model that investors employ variance to measure risk and correlation to determine the most preferred assets. Assets that are correlated or homogeneous have high risks and low returns in comparison to assets that are heterogeneous or inversely correlated. This is also supported by Nderitu, (2018) who found that firms with well diversified portfolios had high returns in comparison to those that invested in homogeneous assets. This study is guided by research of Markowitz, (1952), Mutuma, (2013) and Nderitu, (2018) who support the objective of this study.

In the study context, modern portfolio theory was employed to explore effect of loan portfolio and financial assets on liquidity of farmers SACCOs. Thus, modern portfolio theory underpins lending and financial investment decision. The theory exhibits that organizations should hold heterogeneous assets as suggested by the theory so as to reduce risk, maximize returns thus improving liquidity. Therefore, co-operative stewards should ensure that, portfolio held is well diversified to ensure that assets yield more returns thus improving liquidity.

Modern portfolio theory enumerates on ways of diversifying assets to maximize returns. Thus, investment in human capital, research and development may not be explained as they cannot be quantitatively measurable in monetary terms, indivisible, knowledge, experience and competency in employee is not inseparable making them fixed factor of production. This necessitates the second theory human capital theory. This filled the gap that the first theory could not explain on how investment in human capital improve organizational performance through prudent decisions and competitive advantage.

2.1.2 Human Capital Theory

Human capital theory emanated from Schultz, (1961) and advanced by (Becker, 1964: Garrick, 1999). According to Hitley, (2018) human capital refers to intangible asset or stock of knowledge and attributes attained by an employee. Schultz, (1961) and Becker, (1964) assumed that investing in human capital is through education and training. This gives rise to employees being competent, innovative, efficient and increase employee intellectual capacity. Thus, this has created competitive advantage through creation of products that are rare to imitate and substitute. Additionally, Munjuri, (2013) in the study of human capital and organizational performance found that investment in human capital leads to high productivity and performance due to knowledge

diversity, intelligence, workers health and depth of information held by the employees (Becker, 1964). On the other hand, human capital theory is backed up by Barnley, (1991) that investment in human capital which is an internal resource creates competitive advantage as the resources are rare, hard to imitate and substitute. Therefore, investment in human capital helps organization to full exploit their strength and neutralize organizational weaknesses.

The model is based on assumption that education determines firm's productivity and profitability (Becker, 1964). However, McCracken et al. (2017) asserts that employee competency, experience, innovativeness and creativity lead to firm's productivity. The researchers further postulate that innovativeness play a greater role in firms' product development and market expansion. Competent employees seem to be innovative and unique thus, creating competitive advantage and ensuring members' wealth is growing (Odhong, Were & Omolo, 2014). Additionally, study done by Karahan et al. (2018) on human capital and regional disparities in Turkey found that the cause of uneven economic development between West and the East was due to recruitment of unskilled staff.

According to signaling theory, education creates favorable impression however, that may not be the case because experience and deepness of information held by the employee create competitive edge. Training tailor fits education to match organization requirements. This ensures that employees are equipped with the required skills and knowledge to manage crisis. Knowledge diversity creates competitive advantage while competency leads to product innovation, aggressiveness and firm being able to withstand market crisis (Jackonia, 2018).

In the study context, human capital theory underpins human capital, research and development decision. According to the theory education and training leads to employees being competent, innovative and efficient. Therefore, experience, deepness of information and knowledge achieved through education will lead to organizations manage crisis thus improving performance. Thus, if SACCOs recruit competent employees through proper and test fit methods, might lead to them making prudent investment decisions which will lead to improvement in liquidity thus reducing the liquidity challenge and delicensing experienced in the recent years. Thus, recruiting right personnel for the right job, will lead to SACCOs making prudent decisions hence solving illiquidity issues and de-licensing experienced in the sector thus instilling confidence to members. In addition, stock of knowledge attained by an employee will lead to innovation as postulated (Jackonia, 2018) that knowledge diversity creates competitive advantage while competency leads to product innovation. Thus, diversity of knowledge or deepness of information in an employee will lead to SACCO being innovative which will create a competitive advantage and SACCOs able to cope with the market risk which lead to financial distress.

2.1.3 Asymmetric Information Theory

Information asymmetry was established by Akerlof, (1970) and advanced by Meza and Webb, (1976). asymmetric information refers to the reality that in many situations people behave differently from the way they would if they had symmetric information about the situation and outcomes that are achieved are correspondingly less desirable than if everybody knew about a situation Akerlof, (1970); Meza and Webb, (1976) Gweyi, (2018). This gives rise moral hazard and adverse selection. Moral hazard is the principal that individuals who are allowed to avoid the consequences of the risks they take are more likely to behave recklessly in the future. Thus, moral

hazard has led to financial institutions advancing loans to borrowers without knowing fully the risks.

In their study, Maina, Kiai and Kyalo, (2021) entails that small sized SACCOs with low capital respond to moral hazard incentives by increasing loan portfolio risk, which in turn results to increased non-performing loans experienced recently. The problem occurs because it is difficult for one party to a transaction to monitor the second party. Moral hazard is the principal that individuals who are allowed to avoid the consequences of the risks they take are more likely to behave recklessly in the future (Mudida, 2009). The bank customer who is the borrower may not enter into the contract with the bank in good faith, hence giving misleading information about his financial status. The theory postulates that, the problem of moral hazard may result from information asymmetric between banks customer and the bank which makes it almost impossible to distinguish bad from good prospective borrowers (Richard, 2011). Moral hazard theory underpins lending decision since information asymmetry between borrower and lender has led to overtime pilling of non-performing loan which leads to contingent liabilities, financial distress and licenses being revoked in the deposit taking SACCOs.

2.2 Empirical Review

2.2.1 Lending Decision and Liquidity of Deposit Taking SACCOS

Olokoyo, (2011) did a study with an aim of determining commercial banks' lending behavior in Nigeria. To determine the lending behavior the study used volume of deposits, investment portfolio, lending rate, cash reserve requirement ratio, gross domestic product and exchange rate. Theories anchoring the study were loan pricing theory, firm characteristics theory, theory of multiple lending, budget constraint theories, signaling theory and credit market theory. The study employed analytical research design and census technique on eighty-nine commercial banks. To determine the lending behavior secondary data was used for a period of twenty-six years from 1980 to 2005. The regression analysis results revealed that volume of deposits, investment portfolio, gross domestic product and exchange rate were statistically significant on lending behavior while lending rate and cash reserve requirement ratio were insignificant on lending behavior. Based on the findings, the study concluded that proper policies should be brought up to enhance good credit management and recommend banks to strategize on ways of attracting and retaining deposits to improve liquidity.

Ndambiri, Munene and Wanjohi, (2017) found that portfolio diversification, loan tenure and loans to shareholders have a positive nexus on the level of non-performing loans. Their study was to determine the effect of loan portfolio on non-performing loans in Kirinyaga. This was guided by modern portfolio theory, capital asset pricing model theory and arbitrage pricing theory. Descriptive and casual research design were adopted where secondary data for 5 years from 2011 to 2014 was used to collect data. The study revealed that long term loans have high rate of non-performance in comparison to short term loans due to unforeseen eventualities. SACCOs were

advised to diversify loans in different products to reduce non-performance. However, the study relied on portfolio diversification and loan tenure yet, there are other parameters such as natural lending and artificial lending. Henceforth, these parameters having not been studied leaves the gap to determine whether they have an impact on SACCOs liquidity.

Githaka, (2017) in the study employed commercial loan theory, Baumol model of cash management, anticipated income theory, liquidity premium theory and free cash theory on the issue of financial factors affecting liquidity of savings and credit co-operatives in Kirinyaga County. Measurements for financial factors comprised of liquidity management, net cash flow, credit lending and investment in non-core business. Cross sectional descriptive research design and questionnaires were used to collect data. Purposive method was employed to determine respondents with information required from 18 SACCOs. Data collected was analyzed using inferential statistics. Multiple regression analysis revealed that credit lending, investment in non-core business, liquidity management and liquidity were statistically significant and concluded that SACCOs with sound lending procedures have low credit risk and advised SACCOs to have loan insurance to reduce loss of members' funds due to loan defaults. Additionally, the study was carried out in non-deposit taking and deposit taking SACCOs in Kirinyaga County. The current study will be in deposit taking SACCOs which are regulated by SASRA.

Nzayisenga (2017) did a study to examine the effect of mobile lending on the financial performance of commercial banks in Kenya. Mobile lending measurements were mobile loans, loan applicants and lending rate. The study was anchored on agency theory, bank focused theory, innovation diffusion theory and financial intermediation theory. Secondary data was collected

from four commercial banks that offered mobile banking and analyzed using inferential statistics. The study revealed that mobile loan had a negative relationship on financial performance of commercial banks and advised commercial banks to implement mobile banking as it reduces cost and increases competitive advantage. From the findings, study recommended commercial banks to adopt mobile lending to help customers make transactions in their convenient time even at their rural areas. However, from Nzayisenga's study, it is not clear on how data was analyzed and for which duration, this creates suspicion of the results and the relationships in the study. Furthermore, Nzayisenga (2017) carried out the research in commercial banks and not in SACCOs raising the need for similar study to determine the effect in SACCOs.

Transaction cost theory anchored the study carried out to determine the relationship between short term loans and financial sustainability of Micro-finance institutions in Imenti North sub-county (Kamba, Lyria, Wachira and Maina, 2016). Census method was carried out in eleven micro-finance institutions while purposive sampling helped to get respondents. Primary data by use of a questionnaire was analyzed using Pearson correlation and descriptive statistics. From the correlation, the study found a significant nexus between short term loan and financial sustainability and concluded that micro-finance should utilize credit reference bureau to check credit report of borrowers. Consequently, the study found that long-term loan increases poverty in comparison to short term loans. The study recommended micro-finance to be innovative enough to ensure sustainability. According to Kamba, Lyria, Wachira and Maina, (2016) the study was based on purposive design which may be judgmental hence leading to high level of biasness, this makes it hard to make decisive conclusion. Additionally, the study was carried out in Imenti North due to

the high rising of micro-finance and not a social problem therefore the research findings cannot represent a clear picture of effects of short-term loans and financial sustainability.

To measure investment decision Kipkorir, Namiinda and Njeje, (2015) employed real estate investment, lending to members, investment in front office activities, lending to government and return on equity. The study was expected to determine the influence of investment decision and financial performance of SACCOs in Baringo County. Based on the findings, the study concluded that SACCOs need to expand investments so as to improve profitability and advised them to embrace FOSA activities so as to improve financial status. The study was biased in that according to the researcher's ICT personnel had equal information with credit officers on investment decisions related to real estates and financial investments. These decisions are made by investment committees so respondents may not have information. From the analysis of Kipkorir, Namiinda and Njeje, (2015), the study fails to recognize the fact that deposit taking SACCOs are regulated by SASRA and constrained to various investments zones unlike non-deposit taking SACCOs. This would not hold thresh-hold of making conclusions and generalizing findings of investments in deposit taking SACCOs.

Nyaga, (2014) carried out a study to determine the effect of lending on the financial performance of savings and credit co-operatives societies in Nairobi County and found that lending had a positive nexus on financial performance. The measurements for lending decision were lending volume, loan default, lending interest rate and deposit volume. The study adopted gamblers ruin theory, cash management theory and transaction cost theory. Census method was employed to collect secondary data for five years from 2009 to 2013 for thirty-four SACCOs in Nairobi County.

Data collected was analyzed by help of statistical package for social sciences to determine the relationship between lending and financial performance. The analysis revealed that lending volume, loan default and lending interest rate was statistically significant on return on equity but deposit volume was insignificant on financial performance. The study recommended SACCOs to have credit policies so as to reduce loan delinquency. The role of data analysis is to give direction and a basis for making decision from the study, however, from Nyaga's study the method used for analysis is not indicated making it hard to rely on conclusions and recommendations.

Kerage and Jagongo, (2014) conducted a study with purpose of determining the relationship between credit information sharing and performance of commercial banks in Kenya. The study employed non-performing loan, level of interest, volume of lending and operating cost to measure credit information sharing. The study adopted descriptive survey design and census technique on forty-three commercial banks. Questionnaires and credit annual reports from 2008 to 2012 were considered in data collection. By help of SPSS, the analysis revealed that non-performing loan, level of interest, volume of lending and operating cost was statistically significant on financial performance. Additionally, the study found that SACCOs suffer due to insufficient information as they don't share members' credit history. The conclusion made, proposed the study of (Maina & Kinyariro, 2015) on credit risk management on loan delinquency who found that credit policies don't apply to most of the institutions. The study advised institutions to share credit history so as to mitigate bad loan. The study failed to incorporate study theories, the role of theories in research is to predict, explain and add knowledge. Therefore, this creates a gap on the reliability of this study.

Mohamed, (2017) carried a study to determine the effect of mobile banking on financial performance of commercial banks in Kenya. The controllable variables of study were mobile banking access, mobile banking loans and mobile banking risks where the dependent variable was financial performance. The study adopted descriptive research design and stratified random sampling. The study was conducted in forty-three commercial banks in Kenya offering mobile banking. Primary data was collected using questionnaires and secondary data for six years from 2013 to 2018 and analyzed using Pearson correlation. From the analysis the study revealed a significant relationship between mobile banking access, mobile banking loans, mobile banking risks and financial performance. Consequently, mobile banking seems to have increased customer outreach and reduced bank cost. The study advised banks to be transparent on charges related to mobile loan. This study lacks theories to explain its reliability, making it hard to explain the gap and its relationship to objectives of the study. Thus, the current study will employ modern portfolio theory to expound the importance of assets diversification in-order to maximize returns and reduce the risks.

2.2.2 Financial investment Decision and Liquidity of Deposit Taking SACCOs

Morwabe and Muturi, (2019) carried out a study to establish the effect of investment decision on financial performance of deposit taking savings and credit co-operatives in Nairobi County. Front office service activities, investment in government securities, investment in fixed deposit accounts and investment in shares were used to measure investment decision. The study was based on Keynesian theory of investment, Tobin's Q theory of investment, modern financial portfolio theory, pecking order theory and wreckers' theory of financial distress. The study considered descriptive research design and census method in forty-three SACCOs using time series secondary data from 2014 to 2018. The regression model indicated that investment in front office service

activities, investment in government securities, investment in fixed deposit accounts and investment in shares were statistically significant on financial performance. The study recommended SACCOs to invest in front office. The study considered financial investments which accounts for 5 percent failing to consider major investments like lending which accounts for 85 percent. Therefore, financial investments may be a weak representative of investments decisions made in SACCOs.

Karimi, (2011) established that investment assets, expected returns, risks and liquidity were statistically significant on profitability of investment companies. Additionally, the regression model revealed that investment portfolio choice and profitability were positively correlated on their study. The investment portfolio was underpinned by modern portfolio theory, expected utility theory and financial inter-mediation theory. The study was based on descriptive research design and stratified random sampling technique. Structured questionnaires were distributed to 49 respondents and analyzed by help of statistical package for social sciences. From the regression analysis the study concluded that investment companies to diversify their investments in both short term and long-term loans so as to improve returns. Karimi, (2011) employed statistical package for social sciences in data analysis which helps to determine the correlation between predictors and the response. However, the study failed to mention regression models employed making the study incomplete.

Auma, (2013) carried out a study to on relationship between portfolio holding and financial performance of insurance companies in Kenya. To determine the relationship portfolio holding was measured by investment in stock, government securities, real estate and bank deposits. The regression models revealed that investment in government securities and financial performance were statistically significant while investment in stock, real estate and bank deposit were insignificant on financial performance. Theories adopted consisted of modern portfolio theory, capital asset pricing model and arbitrage pricing theory. Descriptive research design was employed targeting 46 insurance companies. Data for eleven years from 2003-2012 was captured and analyzed using SPSS. The regression model revealed that the profits declined in 2007-2009 due to hostile political environment. To ensure liquidity, the study recommended management to make proper investment decisions that supports the performance of insurance companies. According to the study in the statement of the problem human capital has been a problem leading to closure and low liquidity. The study did not investigate human capital variable which was said to negatively influence financial performance in Insurance companies. Thus, the study intends to fill the gap by investigating whether human capital has a positive or a negative relationship on performance.

The study carried out by Hussein, (2017) adopted neoclassical theory of investment and Q theory of investment while determining the nexus between investment and financial performance of commercial banks in Kenya. According to neoclassical theory of investment and Q theory of investment, investment in organizations are determined by the capital appreciation in order to earn returns. Investment was measured using government securities, corporate bonds, stocks and properties while financial performance was the dependent variable. The study adopted descriptive research design and audited reports for five years from 2012 to 2016 in forty-two commercial

banks. The regression model revealed that investment in government securities, corporate bonds and properties were insignificant on financial performance while investment in stocks were significant on financial performance. The study concluded that banks should hold corporate bonds and government securities for liquidity purposes and not for investments. Additionally, banks should come up with other areas of investment as only stock that increased profitability. The aim of the study was to determine nexus between investment and financial performance. However, the study carried out a regression model using a moderator diverting from the main objective. Therefore, it makes it hard to conclude whether there is a nexus between investment and financial performance of commercial banks.

Njiiri, (2015) conducted a study to determine the relationship between investment and financial performance of insurance companies in Kenya. Real estate investment, government securities, certificate of deposits, stocks and corporate bonds were used as controllable variables while financial performance was the independent variable. Resource dependency theory, agency theory and slack resources theory anchored the study. Descriptive research design was adopted targeting 45 insurance companies and secondary data was analyzed by help of statistical package for social sciences to determine the relationship. Regression analysis revealed that real estate, government securities, certificate of deposits, stocks, corporate bonds and financial performance were statistically significant. Insurance companies seem to invest more in real estates, seconded by certificate of deposits and government securities. Study concludes that there is need to increase investments in real estates, certificate of deposits and government securities as they contribute to higher returns. The study advised insurance companies to invest in other areas for higher liquidity. The study concentrated on financial investments but never took into consideration other

investment decisions that insurance companies have like human capital investment, technology and innovation where the current study want to fill this gap.

Mweresa and Muturi, (2018) carried out a study with objective of determining the effect of investment decision on financial performance of public sugar firms in western Kenya. The study adopted investment in production, financial assets and distribution chain as the controllable variables while financial performance was the dependent variable. Acceleration theory of investment, Tobin Q theory and behavioral finance theory anchored the study. Structured questionnaires were distributed to 786 respondents from 6 sugar companies. Regression analysis established that investment in production, distribution chain and performance were statistically significance while investment in financial assets and performance were insignificant. The study recommended that; for sugar industries to achieve shareholders wealth maximization they should invest in distribution chain and production. Study being carried in sugar industry raises a need for a similar study in financial institutions to determine the effect of financial investments on performance.

Kamwaro, (2013) conducted a study to establish the impact of investment portfolio choice on financial performance of investment companies in Kenya. Explanatory variables of investment portfolio choice were bonds, equity, real estate and mutual funds where financial performance was the dependent variable. Theories that anchored the study were modern portfolio theory, expected utility theory and financial theory. Census method was employed to collect data from four investment companies for a duration of five years from 2007 to 2011. The study found that investment in bonds, equity, mutual funds and real estates were statistically significant on financial performance. The study concluded that investing in liquid assets reduces the risk and

recommended companies to invest in mutual funds to reduce uncertainties. The study carried out a regression model with interaction of a moderator thus making it hard to determine if investment portfolio and financial performance have an influence on investment companies.

Kimeu, (2015) carried out a study on portfolio composition and financial performance of investment companies listed in Nairobi seIn the study carried out by Ombima and Njiru, (2018) on investment portfolio and financial curities exchange. Portfolio composition was controlled using investment in bond, equity and real estates while financial performance was the dependent variable. The study employed Markowitz portfolio theory, modern portfolio theory and theory of active portfolio management. Data was collected from annual reports from 2012 to 2014 and analyzed by use of ordinary least squares by help of statistical package for social sciences. The study revealed that investment in bond, equity, real estates and financial performance were statistically significant and concluded that returns are determined by portfolio choice and risk associated. The study recommends that investments should be diversified in other areas with more returns so as to boost capital hence improving capital. Additionally, the researcher insisted that there is a need of competent management with diverse knowledge to mitigate risks associated with investments. The study analyzed the interaction term instead of determining the effect of portfolio composition and financial performance. The nexus was not witnessed in the study making it incomplete.

Ombima and Njiru, (2018) carried out a study on investment portfolio and financial performance of life insurance companies and revealed a positive nexus. Additionally, the study found that there exists a positive nexus between mortgage investment, bond investment and equity investment on financial performance. Theories adopted were investment theory, modern portfolio theory and

agency theory. A questionnaire was used to collect data from 75 respondents and data analyzed using regression models. The study concluded that investment in mortgage, bond and equity are held for investment purposes and not for liquidity in life insurance companies. The study recommended that investments in life insurance should be directed to mortgage so as to mitigate risks of holding liquid funds. The study was carried out in life insurance companies. Thus, there is a need for a similar study in SACCOs as the have explicit zones of investments in comparison to insurance companies.

Kariuki, (2016) carried out a study to establish the effect of asset quality on financial performance of savings and credit co-operative societies in Nairobi County. Independent variables adopted were loans and advances, money market, government securities, quoted equities, corporate bonds, fixed and call deposit, unquoted equities and debentures where financial performance was the dependent variable. The study employed modern portfolio theory, capital asset pricing model and arbitrage pricing theory. Descriptive research design and census study was carried on 44 SACCOs in Nairobi County. Data regressed was from audited reports for a period of five years from 2011 to 2015 and analyzed with help of statistical package for social sciences. The regression analysis established that investment in loans, money market, government securities, quoted equities, corporate bonds, fixed and call deposit, unquoted equities and debentures were statistically significant on financial performance. The study concluded that loans contributes the highest income thus proper credit management needs to be put in place and recommended that SACCOs need to improve on savings mobilization to boost lending decision. The study concentrated on financial investments. This raises a need for carrying out a study to determine human capital, research and development on liquidity.

2.2.3 Research and Development on Liquidity of Deposit Taking SACCOs

Malak, (2014) conducted a study on financial innovation and financial performance of commercial banks in South Sudan. The study considered regulation innovation theory, constrained induced innovation theory, circumvention innovation theory and transaction cost innovation theory. Financial innovation was measured using transactions via ATM, phone and lending using internet while financial performance the dependent variable. Descriptive research design and census method was adapted to 18 commercial banks in South Sudan. Secondary data was considered for a period of five years from 2009 to 2013 and analyzed through inferential statistics. The study revealed that transactions via ATM, phone and lending are statistically significant on financial performance. The study recommended need of policies that encourage financial innovation to spur economic growth and reduce the number of people financially excluded. The study failed to mention the sampling method used, making the study incomplete.

Ariemba, Evusa and Muli, (2016) conducted a study to determine influence of investment decision on performance of savings and credit co-operatives in Kitui central sub-county. To determine the influence investment decision was measured using expansion decision, replacement decision, renewal decision, research and development decision while return on equity measured performance. Theories considered were Q theory of investment, transaction cost theory, Modigliani miller theory and accelerator model. Questionnaires and time series data for a period of ten years 2006 to 2015 was considered for the study and analyzed using inferential statistics. The regression model revealed that expansion decision, replacement decision, renewal decision and financial performance were negatively correlated whereas research and development was positively correlated with financial performance. The study recommended due diligence when

deciding on investment portfolios as they are irrevocable. The study employed multivariate regression model explaining moderating effects diverting from main purpose of determining the influence between investment decision and performance.

In their study Mbithi, Muturi and Rambo (2015) found that market development strategy and performance were positively correlated. To measure performance market development strategy was measured using development of new market segment and extension to new location. The study considered Industrial organization theory and resource-based theory where cross-sectional survey research design employed. Census method was adopted to nine sugar companies with 120 respondents comprising of senior and mid-level managers. Primary data was collected by use of questionnaire and analyzed using both descriptive and inferential statistics. The study found that market extension was significant on sales volume and insignificant to capacity utilization and total turnover. The study concluded that Sugar Companies should work with agencies to reduce cost of opening new branches. The study recommends government to impose quotas to protect sugar industries. The study was carried out in sugar industry thus the need for similar study in SACCOs to determine the influence.

Macharia and Tirimba, (2018) conducted a study to determine the effect of product innovation on the financial performance of deposit taking savings and credit co-operatives in Nairobi. To determine the relationship between product cost, product location and product range with financial performance. The study adopted descriptive research design and census method to thirty deposit taking SACCOs in Nairobi. Purposive method was adopted to select ninety respondents where semi-structured questionnaires and time series secondary data was employed to collect data for five years from 2013 to 2017. Inferential statistics revealed that branch network, product cost and

financial performance are statistically significant. The study concluded that SACCOs should concentrate on investing in branch network and product range as respondents confirmed they increase performance. The study recommended SASRA to develop policies that favour product innovation. The study was based on research and development; thus, there is need for study to determine whether investment decision has significant or insignificance nexus on liquidity. To achieve this lending decision, human capital and financial investment will be considered for the study.

Mutuma, (2013) did a study on effects of expansion strategies on performance of commercial banks in Kenya; case study of tier one banks. Expansion strategies was measured using market penetration, product development, product diversification and market development while sales controlled organizational performance. The study adopted resource-based theory, modern portfolio theory and financial inter-mediation theory. Descriptive research design and simple random sampling was considered. Structured questionnaires helped to collect data from seventy respondents while secondary data was from audited accounts. Inferential statistics was employed and SPSS revealed that market penetration, product development, product diversification and market development were significant on performance. Additionally, study revealed that external business environment enhances expansion strategies and performance. Study recommended banks to increase research and development expenditure to boost innovation. The study did not consider market expansion and innovativeness as expansion strategies that might improve performance. Thus, the current study intends to determine the effect of market expansion and innovativeness on liquidity in farmers-based deposit taking SACCOs where the study intends to fill the gap.

Mwania, (2017) adopted transaction cost theory and resource-based theory on nexus between growth strategy and performance of commercial banks in Kenya. The independent variables considered were; product development, market expansion, diversification and market penetration. Structured questionnaires were filled by 43 senior managers where secondary data collected from published accounts. Regression analysis revealed that product development, market expansion, product diversification, market penetration and financial performance were statistically significant. The study concluded that innovation reduces the financially excluded and has helped to fight poverty. The study recommended banks to invest in human capital for capital growth and membership. Nonetheless, the research failed to support the choice of commercial banks and on the same time did not consider innovation to be a measurement of commercial growth strategy. Thus, the current study will fill the gap by analyzing whether innovation has any effect on financial institutions.

Munywoki, (2016) carried out a study to determine whether innovation has positive influence on financial performance of commercial banks in Kenya. Innovation was measured using product innovation, process innovation, marketing innovation and organizational innovation where financial performance was measured using return on assets. Constraint induced innovation theory, circumvention innovation theory, regulation innovation theory, transaction cost innovation theory and location theory were considered for the study. Government policy moderated the study and based on descriptive research design. Questionnaires and secondary data for five years of Deposit Taking SACCOs from 2010 to 2015 was considered and analyzed using inferential statistics. The study concluded that the innovation was worth a reward and recommended banks to have intellectual rights for their innovation.

Kiptum, (2016) conducted a study to examine; effects of innovation investment on financial performance of commercial banks in Kenya. The study employed institution innovation, product innovation and marketing innovation as controllable variables and financial performance as dependent variable. The study was guided by circumvention innovation theory, constrained induced financial innovation theory, regulation innovation theory and location innovation theory. The study was based on descriptive study design and census method to forty-one commercial banks. Data was collected from published statements for a duration of ten years from 2006 to 2015 and analyzed through inferential statistics by help of STATA and excel. The study found that product innovation, marketing innovation and financial performance were statistically significant where institution innovation was insignificant. The study recommends banks to invest in product and marketing innovation as they contribute to banks profits. The study carried out did not consider market expansion as one of the innovations that can contribute to competitive advantage and performance to the organization. Thus, the study will fill the gap by carrying out study to examine whether product innovation and market expansion positive effect on performance and liquidity.

2.2.4 Human Capital and Liquidity of Deposit Taking SACCOs

Munjuri, Obonyo and Ogutu, (2015) carried out a study to determine the nexus between human capital and performance of commercial banks and insurance firms in Kenya. Education level, tenure and job-related skills were considered as controllable variables while performance was measured using financial and non-financial indicators. The study was guided by human capital theory and based on descriptive cross-sectional survey design. Census was done in forty-five insurance companies and forty-three commercial banks. Questionnaire was adopted in data

collection and analyzed through inferential statistics. The regression analysis revealed that there exists positive nexus between human capital and performance in commercial banks and insurance companies. The conclusion was that; both institutions recruit skilled employees and train them to ensure efficiency. Additionally, employees with higher qualifications seems to better performers, very creative and are problem solvers. The study advised banks to match right employees with right job for higher efficiency. The study was carried out in commercial banks and insurance companies based on human capital investment. There is a need to carry a study in SACCOs taking into consideration other investment decisions that improves liquidity and performance.

Shouvik and Mohammed, (2018) conducted a comparative study of training and development on performance of banks in Sultanate of Oman. Descriptive research design and convenience sampling were considered in the study whereas questionnaires and published statements employed in collecting data. The analyzed data revealed that there is a significant nexus between training and development on financial performance and concluded that training employees motivate them and feel appreciated. The study advised companies to train their employees to maximize employee performance. The study was carried in a developed country hence a need to carry a similar study in developing country like Kenya to find out if training and development has a positive or a negative relationship on financial performance.

Odhong, Were and Omolo, (2014) conducted a study on human capital management drivers and organizational performance of investment and mortgages bank. A case study in I & M bank. Human capital management drivers were measured using leadership practices, employee engagement, knowledge accessibility, workforce optimization and learning capacity. Resource

based view theory and human capital theory anchored the study. A case study research design and stratified random sampling were considered. Questionnaires were adopted in collecting data from 325 respondents. The inferential analysis revealed that leadership practices, employee engagement, knowledge accessibility, workforce optimization and learning capacity were positively correlated to organizational performance. They recommended the human capital management to benchmark organizational capabilities and apply the SWOT (strength, weaknesses, opportunities and threats) analysis. The study was carried out in I & M bank raising the need for a similar study in SACCOs to determine if investment in human capital have positive or negative relationship on liquidity.

Jackonia, (2018) conducted a research study to establish the effect of training and development on employee performance at Safaricom Company limited. Training and development were measured by training need assessment, training methods, training content and development programs. The study adopted human capital theory, goal setting theory and social learning theory. Jackonia, (2018) based the study on descriptive research design and stratified sampling method. Questionnaires were employed to collect data from 377 respondents and analyzed using multiple linear regression. The regression analysis revealed that training need assessment, training methods, training content, development programs and employee performance were positively correlated. The study concluded that the need of training is tailor fit education for the future job. Additionally, respondents proposed that training improve competency at workplace and recommends the need of evaluation to determine areas with skills deficiency. The study was carried out in Safaricom Company which is service industry with an aim of profit maximization and shareholders wealth maximization in comparison to SACCOs. This raises a need to carry out a similar study in deposit

taking SACCOs which is operated by members who make their own decisions during the annual general meeting on investment vehicles.

Omolo, (2017) carried out a study to establish the strategic factors affecting compliance with the SACCO Act of 2008. Human resource capacity, information and communication technology (ICT) and corporate governance were the controllable variables. The study adopted stakeholder theory and diffusion theory of innovation. Correlation approach research design, census method was considered and data collected from forty two SACCOs through questionnaires and analyzed through multiple regression analysis. The study found that corporate governance was insignificant on compliance whereas human resource capacity, information and communication technology and compliance were positively correlated. Omolo, (2017) recommends SACCOs to recruit competent persons. The study did not indicate the choice of the forty two SACCO which makes it incomplete.

Ukenna, Ijeoma, Anionwu and Olise, (2010) conducted a research study to determine the effects of human capital development on organizational performance: empirical examination of perception of small business owners in Nigeria. The study employed training, education, knowledge and skills as controllable variables and human capital effectiveness as the mediator. Human capital theory and resource-based view theory was considered for the study. Questionnaires were used in data collection and analyzed through multiple regression. Regression analysis revealed that training was negatively correlated to organizational performance `whereas education, knowledge, skills and organizational performance are positively correlated. The study recommended staff to be trained for competitive advantage. The research was carried out in small businesses in Nigeria. The study failed to mention the scope of small businesses employed. On the other hand, the study was carried out in small businesses in Nigeria raising the need for a similar

study in Kenya. Thus, the current study will be carried out in farmers deposit taking SACCOs in Kenya.

Gikonyo, (2018) conducted a study to determine the relationship between employee engagement and performance of research and training state corporations in Kenya. Traits engagement, psychological state engagement and behavioral engagement were the controllable variables and organizational performance the dependent variable. Resource based theory, stakeholder theory, social exchange theory and work adjustment theory anchored the study. Positivism research paradigm, descriptive and explanatory research design were considered. The study adopted multi-stage sampling targeting 378 respondents and data collected through questionnaires. The regression analysis revealed that there exists a significant nexus between traits engagement, psychological state engagement, behavioral engagement and organizational performance. Additionally, the study found that organizational commitment mediates employee engagement on organizational performance and demographic characteristics moderate's employee engagement on organizational performance. Gikonyo, (2018) recommends management to consider incentives that motivate employees like non-cash benefits, clean environment, office that is spacious and staff to be involved in decision making. The study did not consider other parameters such as staff competence and incentives. Consequently, the study was carried in state corporations but there was no justification of the study. The current study will be carried out in deposit taking SACCOs and will consider incentives and recruiters competence as recommended in the study.

Munjuri, (2013) conducted a research study to examine human capital, social capital, employee empowerment, quality of decisions and performance of commercial banks and insurance firms in

Kenya. Education level, tenure and job-related skills were the controllable variables and firm performance was the dependent variable. The study employed social capital and employee empowerment to moderate human capital on firm performance. Quality of decision was employed to mediate human capital and firm performance. The study was guided by resource-based theory, human capital theory and social capital theory. That study was based on positivism research philosophy and descriptive cross-sectional design. Census technique was employed to eighty-eight firms forty-five being insurance companies and forty-three commercial banks. Study employed primary data and secondary data for three years 2010 to 2013. Data was analyzed by help of statistical package for social sciences and pearson correlation test. The study found that there is a positive relationship between human capital and performance. Social capital and employee empowerment mediate human capital and firm performance. Munjuri, (2013) recommends that management should match right job to employees with required knowledge and skills. Management should implement retention strategy to enhance competency at work place. The study was carried out in commercial banks and insurance companies where human capital was measured through education level, tenure and job-related skills. This raises a need to carry out a study in SACCOs taking into consideration other parameters of human capital such as staff competence and incentives.

2.3 Research Gaps

Despite extensive studies done on investment decision and liquidity, researchers have come up with conflicting findings about investment decisions and financial performance. For instance, Musau, (2016) on the study, effect of investment decision on financial performance of savings and credit co-operatives in Kitui central found that investment decision had a statistically significant effect on financial performance while (Cheluget & Loise, 2019) on their study effects of liquidity

and investment policies on financial growth of savings and credit co-operatives found that investment policies had insignificant effect on financial growth of SACCOs agreeing to that of (Ngeno, 2018) on determinants of financial performance of investment banks in Kenya who found that; investment in banks has insignificant impact on bank profitability.

On the other hand, studies which has been carried out have proved existence of research gaps both theoretically and contextually. A study carried out by Auma, (2013) on the relationship between portfolio holding and financial performance of insurance companies in Kenya had an objective in the study statement of the problem that human capital has been a problem leading to closure and low liquidity. The study did not investigate human capital variable which was said to negatively influence financial performance in Insurance companies. Thus, the study therefore intends to fill the gap by investigating whether human capital has a positive or a negative relationship on performance. Despite the contradicting findings and the empirical gaps experienced in the previous studies, there is no specific study conducted to establish the relationship between investment decisions (lending decision, financial investment decision, research and development decision and human capital decision) on liquidity of farmers deposit taking SACCOs in Kenya.

2.4 Conceptual Framework

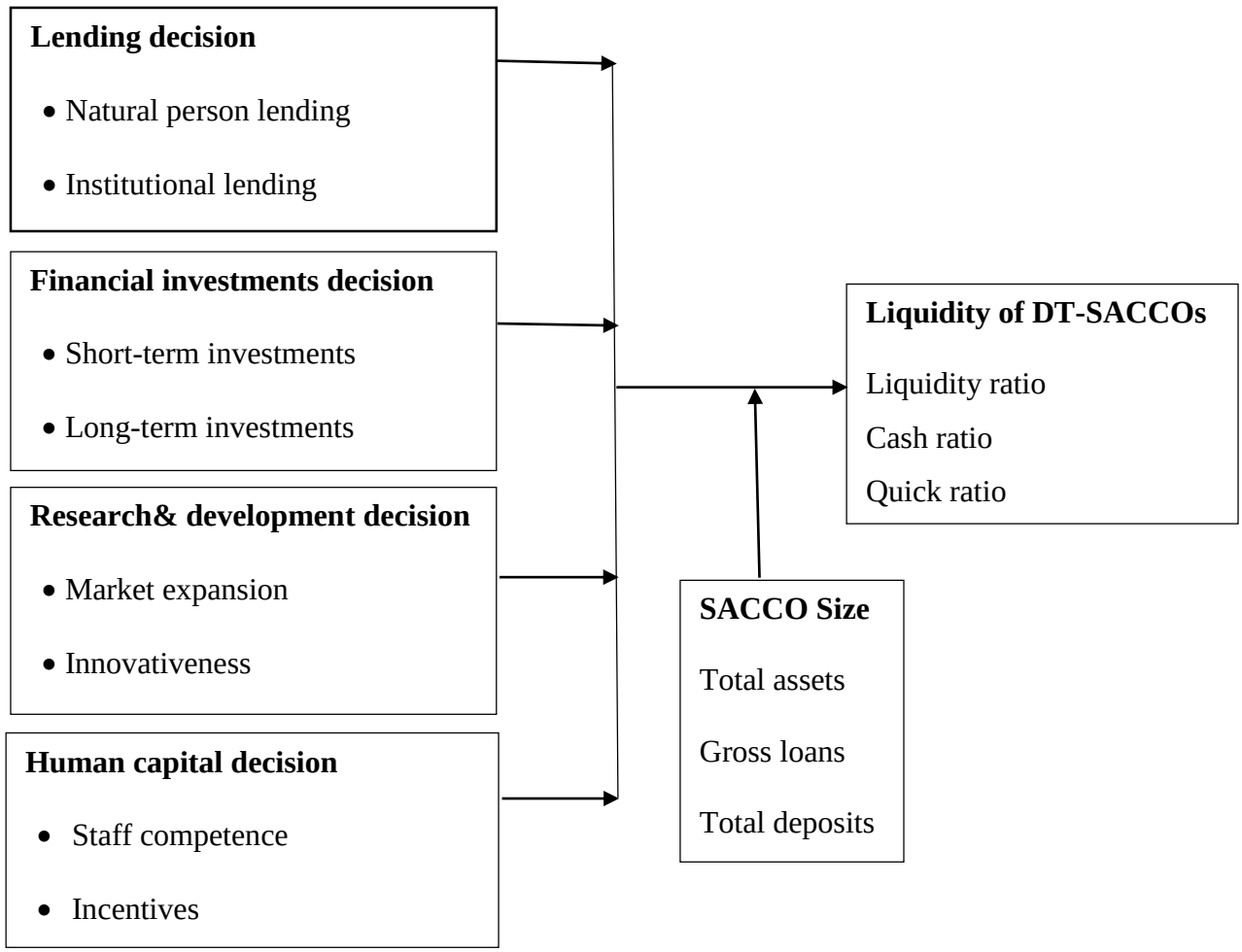


Figure 2.1: Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methods employed in the study which are; research design, target population, sampling design and sample size, methods of data collection, pilot study, data analysis and presentation, model specification test and ethical consideration.

3.2 Research Design

Research design is a conceptual structure in which research is conducted. It focuses on choice of collection techniques, time horizon and analysis procedures of the study (Kothari, 2011; Sekaran, 2010). This enables the researcher to set procedures that will lead to testing hypothesis and provide scheme for answering research questions. Research design helps to reflect purpose of inquiry which can be characterized as explanatory, descriptive and survey (Sekeran and Bougie, 2010). The study adopts descriptive research design which describes the state of affairs at present. According to Njeru, (2016); Zikmund, Babin, Carr and Griffin, (2010) descriptive design employs cross-sectional and survey method. Survey method employs quantitative and qualitative data which is analyzed through descriptive and inferential statistics. Additionally, the design allows sampling method which act as a representative of the entire population. Cross-sectional design is usually used in explaining the current situations which is at a short duration of time.

Therefore, this study adopted descriptive cross-sectional survey research design which outlines the situation relating to moderating effects of SACCO's size on the link between investments decisions and liquidity of farmers-based DT-SACCO.

3.3 Target Population

Population refers to collection of elements or objects that possess information sought by the researcher and where reference is to be made (Sekeran, 2009) and according to Orodho (2009), population is the sum of units in a universe with common observable characteristics. Target population refers to the section of the aggregate population the researcher narrows down to. The study targets farmers-based deposit taking SACCOs located in the five regions in Kenya. The five regions were selected because the other three regions (coast, North Eastern and Eastern Kenya) have no presence of farmers-based Deposit Taking SACCOs (SASRA, 2020). Kenya was selected due to the improved infrastructure in SACCOs in their effort to improve members' welfare. The choice of farmers deposit taking SACCOs in Kenya was because they are licensed and regulated by SACCO Societies regulatory authority (SASRA). Moreover, these SACCOs are registered and regulated under the ministry of co-operatives. These deposits taking SACCOs are expected to be liquid which is otherwise; there illiquidity level is high. The farmers deposit taking SACCOs started reporting their yearly reports to SASRA in the year 2010. There are 49 farmers-based Deposit Taking SACCOs which are fully licensed by SASRA (SASRA, 2020). The 49 finance and 49 credit managers of the 49 farmers-based Deposit Taking SACCOs will form the target population as shown in table 3.1 below.

Table 3.1 Sample Frame

Region	Target Population	
	SACCOs	**Financial & Credit managers**
Central	29	58
Rift valley	12	24
Nyanza	5	10
Western	2	4
Nairobi	1	2
Total	**49**	**98**

3.4 Sampling Design and Sample size

Sample size refers to a specific number that the study will consider as unit of analysis from sample frame or total population (Ndungo, 2018) and also sampling refers to a process of obtaining sample from a given population (Saunders, Lewis & Thornhill, 2010).

Mixed sampling techniques was considered for the study which consist of cluster and simple random sampling. According to Mugenda, (2012) cluster sampling refers to grouping of units with similar characteristics in a universe. Cluster sampling is used when natural grouping is evident in the population. Population was grouped in regions where farmers-based deposit taking SACCOs are located (Mugenda, 2012). Farmers based Deposit Taking SACCOs are located in 5 regions namely (Central, Rift valley, Nyanza, Western and Nairobi). Thus, SACCOs were clustered into regions which were previously provinces currently headed by regional commissioners.

The unit of analysis was selected through simple random sampling. This ensured that the clusters representing population was fairly represented. Additionally, judgmental method was considered to ensure that respondents selected were well conversant with the study. According to Kaplan & Norton, (2015) judgmental method is a technique that allows a researcher to use cases that have the required information with respect to the objectives of the study. Cases of subjects are therefore chosen because they have the information or possess the required characteristics. Judgmental method was used in selecting the respondents for the study from the 49 farmers-based deposit taking SACCOs. According to the study financial and credit managers are the respondents who have information relating to investment decisions. The formula below (Yamane 1967) was utilized to determine the sample size.

$$n = \frac{N}{1+N(e)^2}$$

Where N represents the target population and e the error term at 95 percent confidence level (Yamane 1967).

The unit of observation consisted of 98 respondents. By use of the Yamane formula; the study arrived to 78 respondents as shown.

$$n = \frac{98}{1+98(0.05)^2} = 78$$

The details are represented in table 3.2.

Table 3.2 Sample Size

Region	Population	Sample size
Central	58	$\frac{58 * 78}{98} = 46$
Rift valley	24	$\frac{24 * 78}{98} = 19$
Nyanza	10	$\frac{10 * 78}{98} = 8$
Western	4	$\frac{4 * 78}{98} = 3$
Nairobi	2	$\frac{2 * 78}{98} = 2$
Total	**98**	**78**

3.6 Data Collection

Data collection refers to procedures set to gather information from respondents or unit of analysis to prove some facts (Creswell, 2014). Before data collection the researcher obtained approval from the Cooperative University Board of Post Graduate Studies. After which a research permit was obtained from National Commission of Science Technology and Innovation (NACOSTI).

3.6.1 Data Collection Instruments

Data collection instruments refers to tools employed to collect data. The study employed primary and secondary data collection. Primary data was collected through questionnaire whereas secondary data was collected through secondary data collection sheet. Primary data refers to data collected for the first time by the researcher. Munoru, (2017) asserts that questionnaire is the most appropriate data collection instrument due to its ability of providing insights in research problem by describing the variables of interest and state of affairs at present. Therefore, questionnaires were used as the study was concerned with facts rather than impression. Furthermore, questionnaires use data coding which make it easy to transform qualitative data to quantitative for inferential analysis (Saunders, Lewis & Thornhill, 2009).

Secondary data was used to obtain liquidity ratios, total assets, gross loans and total deposits from SACCOs audited financial statements for the year 2020 where secondary data collection sheet was used to collect information. This ensured that the data collected reflected the current status of liquidity of farmers-based DT-SACCOs.

3.6.2 Data Collection Procedures

Data collection procedures refers to steps employed from preparation of data collection instruments to data analysis and interpretation (Fwamba, 2017). The study considered both primary and secondary data. Primary data was collected through self-administered questionnaires, specifically, the questionnaires collected information relating to lending decision, financial investment decision, research and development decision and human capital decision. A 5-point

Likert-scale type questionnaire was used to collect information from financial and credit managers where they were required to tick the appropriate answers. Additionally, the questionnaires were structured in five sections; section one; background information, section two; lending decision, section three; financial investment decision, section four; research and development decision and section five; human capital decision.

On the other hand, secondary data was collected from SACCOs audited financial statements. Secondary data sheet collection collected information relating to total assets, gross loans, total deposits and liquidity ratios.

3.7 Operationalization of the Study Variables.

Operationalization refers to way in which variables or constructs was measured. Table 3.3 indicates the variables under study, the type of a variable, parameters of each variable and how it was measured.

Table 3.3 Operationalization of Study Variables.

Variable	Type	parameters	Measurement
Lending decision	Independent variable.	Natural person lending Institutional lending	Ordinal
Financial investment decision	Independent variable.	Short term investments Long term investments	Ordinal
Research and development decision	Independent variable.	Market expansion Innovativeness	Ordinal
Human capital decision on liquidity	Independent variable.	Staff competence Incentives	Ordinal
SACCO size	Moderating variable.	Total assets Gross loans Total deposits	Ordinal
Liquidity	Dependent variable	Liquidity ratio	Ratio

3.8 Pilot Study

Pilot study refers to a study carried out to a sample of actual population with an aim of making inference to the entire population. The major role of pilot study is to align questionnaires to the objectives of the study and ensure that the instrument of data collection measures what it is supposed to measure (Mandala, 2018). This ensured that questionnaires reflected phenomenon

under study and assessed whether tools employed for data collection served the intended purpose. Consequently, the study was conducted on twenty remaining respondents who were not captured in Yamanes 1967 formula from the sample of ninety eight as illustrated in table 3.2 to ensure that the instruments of data collection were unambiguous, adequate and to unfold problems that may have occurred during data analysis.

3.8.1 Reliability

Reliability refers to measure of consistency in a certain concept (Jollife, 2011). Reliability is attested in different methods but deduce similar conclusions (DeVellis, 2016). Study can be reliable when questionnaire, interview guide or any instrument of data collection provide consistent results. The study adopted internal consistency method where Cronbach alpha was used to determine consistency of the results. Cronbach alpha utilizes the scale between 0 and 1 (Zahrabi, 2013). According to Williams and Brown, (2010), Zahrabi, (2013) a value between 0 and 0.5 the questionnaire is termed unsatisfactory meaning no consistency, 0.5 to 0.6 questionnaire needs to be restructured and if higher than 0.7 the study should rely on the questionnaires. The study established a reliability value of 0.791 thus, relied on the questionnaire.

3.8.2 Validity

Validity is the accuracy and meaningfulness of inferences, based on the research results. Validity determines whether the parameters in the underlying construct measures what is purported to measure. According to Kaplan and Norton, (2015) content and construct validity play a major role in a pilot study. Content validity involves experts to signal valuable content that may not be captured whereas construct determine whether the underlying construct in theoretical framework

covers what is supposed to cover. Construct validity with high correlation greater than 0.5 or near 1 will reflect high construct validity. Therefore, to measure the validity of data collection instruments, a pilot test was carried out to 20 respondent financial and credit managers. This helped to redefine instruments of data collection to ensure they were adequate. It also helped to unfold problems and improved respondent's understandability so as to give credible and reliable information. On the other hand, for findings to be valid the questionnaires should reflect phenomenon under study and assess whether the tools employed for data collection serves the intended purpose (Saunders, Lewis and Thornhill, 2009).

The study employed content and construct validity. Content validity employs experts to determine whether constructs in a certain variable measure what is purported to be measured. The study considered financial and credit managers who gave indication on instrument of data collection. This helped to adjust questions so as to ensure that investments made in SACCOs were well researched and inclusive. Construct validity determines the extent to which the questionnaire is closely related to the conceptual framework. Thus, it helps to determine whether financial investment decision can be measured by short-term and long-term investments.

Construct validity employs also factor analysis to determine correlation. Therefore, factor analysis has been used to determine the correlation between proposed constructs.

3.10 Data Analysis and Presentation.

Data analysis indicate how variables were analyzed and presented using a justifiable statistical method. The statistical method to be used in analyzing data is highly determined by the measurement level of variables and the study hypothesis (Mugenda, 2011). To determine the

relationship, primary data was analyzed and interpreted to provide meaningful insights for the study using both descriptive and inferential statistics. Statistical package for social sciences was employed to assist analyze the coded data. Descriptive statistics were presented in percentages and frequency tables whereas inferential statistics employed regression models. This helped to determine the correlation between; lending decision and liquidity of farmers-based Deposit Taking SACCOs, financial investment decision and liquidity of farmers-based Deposit Taking SACCOs, research and development decision and liquidity in farmers-based Deposit Taking SACCOs, human capital decision and liquidity of farmers-based Deposit Taking SACCOs.

The regression model was applied to determine the effect of lending decision, financial investment decision, research and development decision and human capital decision on the dependent variable. Regression is concerned with describing and evaluating the relationship between a given variable with one or more variables. On the other hand, regression attempts to explain movements in a variable with reference to movement in one or more variables.

To test the moderating effect, hierarchical regression models were considered. The models follow steps laid down.(Baron and Kenny, 1986). According to Baron and Kenny, (1986) regressions are usually conducted to test whether moderator strengthens, weakens or antagonizes the relationship, hence, SACCO size was employed to examine the effect between the predictors and the response variable.

The following multiple-linear regression were used;

$$Y=\beta_0 + \beta_1 LD + \beta_2 FID + \beta_3 RDD + \beta_4 HCD + \varepsilon$$

Equation 1

Where;

Y= liquidity (Dependent Variable) Liquidity ratios

β_0 = Intercept or Constant

β_1, β_2, β_3, β_4 are coefficients

LD = lending decision

FID = financial investment decision

RDD = research and development decision

HCD = human capital decision

ε=Error Term

Regression analysis yields a statistic called coefficient of determination or R-square which refers to the amount of variation explained by the independent variable or variables.

In-order to examine moderation and interaction effects, SACCO size was employed to determine the relationship between investment decision and liquidity

$$Y= \beta_0 + \beta_1 LD + \beta_2 FID + \beta_3 RDD + \beta_4 HCD + \beta_5 SZ + \varepsilon$$

Equation 2

$$Y= \beta_0 + \beta_1 LD+ \beta_2 FID+ \beta_3 RDD + \beta_4 HCD+ \beta_5 SZ + \beta_6 LD*SZ + \beta_7 FID*SZ+ \beta_8 RDD*SZ + \beta_9 HCD*SZ + \varepsilon$$

Equation 3

Where;

Y = liquidity (Dependent Variable),

β_0 is the intercept or Constant, β_1, β_2, β_3, β_4, β_5, β_6, β_7, β_8, β_9 are coefficients

LD, FID, RDD, HCD are the predictor variables (lending decision, financial investment decision, research and development decision and human capital decision)

SZ = SACCO size (moderating variable)

LD*SZ = lending decision * SACCO size

FID*SZ = financial investment decision * SACCO size

RDD*SZ = research and development decision * SACCO size

HCD*SZ = human capital decision * SACCO size

ε = Error Term

3.11 Model specification test

Model specification tests were carried out to examine suitability of data for analysis. This ensured that the data employed in data analysis was complete, free from errors and that the constucts are not correlated. Therefore, the tests considered comprised of normality test, multicollinearity tests and auto-correlation test.

3.11.1 Normality test

Normality test checks whether data is normally distributed. To test normality Meme, (2013), Oscar, (2007) employed Shapiro wilk test to determine normality. If p value is greater than 0.05 or 5% data is normally distributed. Kimathi, (2015) employed Kolmogorov smirnov test to determine normality. The p-values less than 5% at 95% indicate that data is not normally distributed like the Shapiro wilk and data is normally distributed if the p-value is greater than 5% at 95%. This helps to either accept or reject the null or alternative hypothesis. Gweyi (2018) and Gikonyo, (2018) employed skewness and kurtosis z-values to test normality. Values between -1.96 to 1.96 reflects that data is normally distributed and also employed histograms, normal Q-Q plots and box plots to indicate the distribution of data.

To determine normality P-P plot was considered as it employs normal probability plot due to the advantage of revealing whether data deviates from the diagonal line thus violating the set normality assumption. Based on the findings, the study found that the data was normally distributed along the diagonal line thus proving that data employed in the study was normally distributed as shown in the figure below

3.11.2 Multicollinearity test

Multicollinearity happen when predictors are correlated. If predictors are highly correlated to each other affects the reliability of the regression as it inflates the standard error of the coefficient. This lead to some or all the predictors being significant when they should be insignificant. Thus, researcher may end up rejecting the null hypothesis and accepting the alternative hypothesis.

Variance inflation factor and tolerance will be employed to determine collinearity (Gikonyo, 2013; Daoud, 2017). If variance inflation factor values is between one and five proves that there is low correlation between the predictors, variance inflation factor values between five and ten prove that the predictors are moderately correlated and variance inflation factor above ten the predictors are highly correlated and requires correction (Kimathi, 2018; Meme, 2017; Gweyi 2018; Irungu, 2019). Tolerance test indicates that values near critical value one implies no correlation between the predictors and values near zero imply predictors are highly correlated. Tolerance value less than 0.1 indicates that predictors are highly correlated and requires correction. Variance inflation factor and tolerance test were carried out to determine collinearity between lending decision, financial investment decision, research and development decision and human capital decision.

3.11.3 Auto-correlation test

Auto-correlation tests checks the relationship between two errors; error in one predictor whether correlated to the error in another or previous predictors (Saunders, Lewis and Thornhill, 2009). Irungu, (2019) employed Wooldridge test for auto-correlation detection. To check if auto-correlation is present the p-value is supposed to be less than 0.05 and to detect absence the p-value is supposed to be greater than 0.05 to accept the null hypothesis. To detect correlation between predictors Durbin Watson test will be employed. According to Gezu, (2014); Meme, (2017) value near critical value 2.0 portrays negative or absence of auto-correlation. This will enfold that error term in one predictor is not correlated to another predictor in the study. If Durbin Watson is near zero reflects presence or positive auto-correlation. The study employed Durbin Watson to test autocorrelation between predictors.

3.12 Ethical Consideration

The researcher ensured that confidentiality of the data was kept and that high levels of ethics was maintained as per the promise before study. Additionally, a consent was sought from the participants with adequate information about anonymity, voluntary participation and confidentiality in all aspects and freedom to stop participation at any time without explanation.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND INTERPRETATIONS

This chapter contains findings and explanations drawn from the analyzed data. The study examined the relationship between investment decisions and liquidity of farmers-based Deposit Taking savings and credit co-operatives in Kenya. Specifically, the study intended to test and determine whether there exists relationship between lending decision, financial investment decision, research and development, human capital decision and liquidity of farmers-based Deposit Taking SACCOs. Additionally, the study examined whether SACCO size moderates the relationship between investment decision and liquidity of farmers-based Deposit Taking SACCO. Both descriptive and inferential statistics was employed in presenting data analyzed.

4.1 Response Rate

Questionnaires were distributed to 78 respondents in the 39 farmers-based Deposit Taking SACCOs. Out of the 78, 70 (90%) questionnaires were returned. However, 8 questionnaires were never returned representing 10 percent.

Table 4.1 Response Rate

Response Rate	**Frequency**	**Percentage**
Complete	70	90%
Never Returned	8	10%
Total	**78**	**100%**

In reference to table 4.1, returned questionnaires has a response rate above 50 percent which is termed adequate for population representation (Nderitu, 2018). Thus, the current study can be used to make inference of Deposit Taking Savings and Credit Co-operatives in Kenya as response rate was above the recommended rate. On the other hand, farmers based deposit taking SACCOs are the largest with a 47 percent representation in Kenya. This gives them ground for inference about investment decision and liquidity in Deposit Takings SACCOs.

4.2 Reliability Test Results

To determine reliability of the questionnaire internal consistency method was employed where Kuder-Richardson 20 method type was used. Cronbach alpha was considered as internal method of consistency was applied. From the study findings in table 4.2, reliability scales were above 0.7 meaning that; items employed in the constructs had consistent results. Thus, the study relied on study items. The measures of lending decision had a Cronbach alpha value of 0.788; financial investment decision had a Cronbach alpha value of 0.800; research and development had a Cronbach alpha value of 0.761 whereas human capital had a Cronbach alpha value of 0.813.

Table 4.2 Reliability Results

Variable	Number of items	Cronbach Alpha
Lending decision	12	**0.788**
Financial investments decision	12	**0.800**
Research & development decision	12	**0.761**
Human capital decision	12	**0.813**
Average reliability		**0.791**

In reference to table 4.2 cronchbach alpha values were between 0.761 and 0.813. Cronbach alpha value between 0 and 0.5 the questionnaire is termed as unsatisfactory meaning no consistency, 0.5 to 0.6 questionnaire needs to be restructured and if higher than 0.7 the study should rely on the questionnaires (DeVellis, 2016). Therefore, the study relied on the questionnaires as cronbach alpha was greater than the set yardstick of 0.7 meaning, they were adequate and served the intended purpose.

4.3 Gender of the Participants

Consequently, the study intended to examine demographic characteristics of respondents. Therefore, the study employed gender criterion so as to understand gender involvement in the SACCOs investment decisions. In reference to table 4.3, the results show that majority of the respondents (financial and credit managers) were dominated by males representing 63 percent whereas female having 37 percent.

Table 4.3 Gender of the Participants

Gender	**Frequency**	**Percentage**
Male	44	63%
Female	26	37%
Total	**70**	**100%**

This means that gender equality in financial and credit management is observed as enshrined in international labor organization, sustainable development goals to ensure gender inclusivity and two third gender rule as required by the Kenyan 2010 Constitution has been achieved. Furthermore, this shows that farmers' deposit taking SACCOs ensures that gender mainstreaming is observed in their work place.

4.4 Level of Education

The study sought to establish the highest level of education attained by the respondents, this was to determine the role of education, training and information as human capital is a pertinent resource in any organization's increased productivity (Kiswili, (2021). Since SACCOs management face critical financial challenges, this calls for better and equipped human capital in terms of skills and knowledge towards a dynamic micro and macroeconomic environment. Hence, training and development is offered to tailor fit education and suit the requirement of the organization. This study therefore sought to establish how knowledge and skills can enable employees in performing their duties more efficiently and be of influence in quality decision making notwithstanding the laid down policies (Miriti, 2021).

In reference to table 4.4, the results depict that 63 percent of the respondents had first degree whereas 29 percent had diplomas and 8 percent had post-secondary certificates. This means farmers SACCOs employees have the required knowledge and are better informed on issues managing SACCOs and have better financial investment decision making.

Table 4.4 Level of Education

Responses	Frequency	Percentage
Degree	44	63%
Diploma	20	29%
Certificate	6	8%
Total	**70**	**100%**

On the other hand, these findings were similar to (Matonya, 2020) who established that, SACCOs should employ competent credit officers as delinquency and ineffective lending is a major challenge facing SACCOs performance. Thus, credit officers should therefore ensure that loan portfolio is well managed to mitigate financial burden. Education, training and equipping staff with the required skills creates competency that lead to efficiency, motivated employees and achievement of the set goals by an organization (Miriti, Seneja & Rintiri, 2021).

Therefore, the results alluded that level of education play a greater role in ensuring SACCOs liquidity by making prudent decisions. The findings were also supported by approximated Chi-square of 91.627 and 16 degrees of implying a positive nexus between level of education and SACCOs liquidity.

4.5 Length of Service in a SACCO

The study sought to establish the duration finance and credit managers had been in office to ensure that they were conversant with investments made and impact they had on liquidity. Table 4.6 depicts that 20 percent of the respondents had worked in the SACCO for a duration of 3-6 years. Additionally, 32 percent of the respondents had been in SACCO for a duration of 6-9 years whereas 37 percent has been there for a duration of 9-12 years and 11 percent had been in SACCOs for more than 12 years. This means that 80 percent of the employees have been in these SACCOs, thus they have vast knowledge in the investment made in these SACCOs.

Table 4.6 Length of Service in a SACCO

Respondents	**Frequency**	**Percentages**
3-6 years	14	20%
6-9 years	22	32%
9-12 years	26	37%
More than 12 years	8	11%
Total	**70**	**100%**

4.6 Age of the Members

The study sought to determine age of members. Therefore, studying age composition could help to establish the active group that usually use financial services offered by farmers-based deposit taking SACCOs knowing that SACCOs in Kenya are formed by members who have a common bond. Additionally, the age of members plays a greater role in defining consumers of SACCO's products. Members' age can determine to some extent which products to invest in. for instance, SACCO insurance products can improve on farmers-based deposit taking SACCO mobilization of funds as majority of farmers are in age bracket of 50 and above as illustrated in table 4.8.

On the other hand, the study revealed that 11 percent of members were in the age bracket of between 18 to 25 whereas 19 percent were in the age bracket of 25 to 35. Majority of SACCO's membership are in the age of between 45 to 55 representing 33 percent whereas those in the age bracket of above 55 years represented 17 percent and 20 percent are between the ages of 35 to 45.

Table 4.8 Age of the Members

Respondents	Frequency	Percentage
18-25	8	11%
25-35	13	19%
35-45	14	20%
45-55	23	33%
55 and above	12	17%

The findings in table 4.8 disagrees to study carried out by SASRA, (2019) who found that majority of members in farmers-based Deposit Taking SACCOs are between the ages of bracket of 36 and above. Therefore, the study fills the gap from the survey carried out by SASRA, (2019) on the SACCO subsector demographic study; an in-depth study on age and gender composition of the members of deposit taking SACCOs in Kenya. Thus, the study explains the undisclosed age composition of 33.74 percent.

4.7 Access through Automatic Teller Machines

The study sought to determine the number of automatic teller machines to examine members' access to financial services without queuing at the banking hall. This would help to understand whether members easily access their accounts at their convenient time and if ATMs improves financial services usage. Additionally, this portrays a vivid picture of SACCOs towards reducing the financially excluded, thus ensuring that the unbankables are able to use financial services offered. The findings revealed that, none of the SACCOs in the study case had established ATM services. However, the financial services were offered by third parties who are commercial banks. This can be alluded to high technological infrastructure involved, this requires high investment by any financial organization intending to offer such services as individual organization. This created a window of collaboration between SACCOs and commercial banks ensuring that customers' satisfaction and accessibility to their financial resources is enhanced.

Furthermore, the study intended to determine the number of branches or market expansion per SACCO. This was to provide information relating to improvement on financial deepening and financial inclusion to the members. Opening branches closer to members improves financial usage thus increasing members' conveniences as products offered at branches and by their agents such as "coop kwa Jirani" seems to be affordable to them, thus improving customer satisfaction and creating trust towards usefulness of the SACCO products.

4.8 Non-performing loan

The study intended to determine the percentage of non-performing loan in the SACCO. A five likert scale was employed to determine rate effect it may have on liquidity. Therefore, establishing percentage of non-performing asset would help to portray a picture on effect it has in farmers SACCOs portfolio.

Based on the analysis in table 4.9, the study found that none of the farmers SACCO that had non-performing loan below 12 percent. Majority of the SACCOs represented by 60 percent had non-performing loan above 15 percent whereas 40 percent had non-performing loans between 12 to 15 percent. This means that credit portfolio management in farmers SACCOs is not prudent.

Table 4.9 Non-performing Loan

Responses	Frequency	Percentage
12-15%	26	37%
Above 15%	44	63%
Total	70	100%

4.9 Lending Decision and Liquidity of Farmers Deposit Taking SACCOs

The first objective of the study was to determine the effect of lending decision on liquidity of farmers Deposit Taking Saving and Credit Co-operative Societies. Lending decision was assessed through natural person lending and institutional lending parameters. The study posed questions based on these measures of lending decision in farmers Deposit Taking Saving and Credit Co-operative Societies. Respondents were required to indicate their level of agreement on various lending decisions. The scale was from 5 to 1 where 5 was strongly agree (SA), 4 was agree (A), 3 was neutral (N), 2 was disagree (D) and 1 was strongly disagree (SD).

The parameter that had the highest score was on; price fluctuation has affected members loans repayment with a mean of 4.3 and a standard deviation of 0.705, lending to members is highly preferred has a mean of 4.22 and standard deviation of 0.710, investment in long terms loans is more preferred by the members has a mean of 4.12 and standard deviation of 0.712, investment in short term loans is highly preferred by the members has a mean of 4.06 and standard deviation of 0.718, medium term loans are more preferred by the members has a mean of 3.94 and standard deviation of 0.771, Investment in lending to groups is highly preferred by the members has a mean

of 3.82 and standard deviation of 0.811, lending to members has high risk of default in comparison to groups has a mean of 3.70 and standard deviation of 0.825, before lending the organization usually considers the credit history of the borrower has a mean of 3.84 and standard deviation of 0.831, lending to groups is considered risky by members has a mean of 3.85 and standard deviation of 0.860, SACCO insures its loans towards loan defaulters has a mean of 3.81 and standard deviation of 0.827, Majority of borrowers are groups has a mean of 3.65 and standard deviation of 0.821, Majority of borrowers are above 50 years of age has a mean of 3.52 and standard deviation of 0.942. These results are shown in the table 4.10.

Table 4.10: Mean and standard deviation statistics for Lending Decision

Statements	**SD %**	**D %**	**N %**	**A %**	**SA %**	**Mean statistic**	**Std. Deviation Statistic**
Investment in long terms loans is more preferred by the members	2.9%	11.4%	12.9%	47.1%	25.7%	4.12	0.712
Investment in short term loans is highly preferred by the members	1.4%	5.7%	10%	51.4%	31.5%	4.06	0.718
Medium term loans are more preferred by the members	1.4%	5.7%	18.6%	42.9%	31.4%	3.94	0.771
Lending to members is highly preferred	2.8%	8.6%	10%	44.2%	34.4%	4.22	0.710
Investment in lending to groups is highly preferred by the members	2.9%	14.3%	17.1%	45.7%	20%	3.82	0.811

Lending to members has high risk of default in comparison to groups	1.4%	11.4%	20%	44.3%	22.9%	3.70	0.825
Before lending the organization usually consider the credit history of the borrower	15.7%	21.4%	17.1%	28.7%	17.1%	3.84	0.831
Lending to groups is considered risky by members	2.9%	10%	14.3%	45.7%	23.5%	3.85	0.860
SACCO insures its loans towards loan defaulters	4.3%	17.1%	20%	40%	18.6%	3.81	0.827
Price fluctuation has affected members loans repayment	0%	5.7%	12.9%	35.7%	45.7%	4.3	0.705
Majority of borrowers are groups	21.4%	12.9%	14.2%	30%	21.5%	3.65	0.821
Majority of borrowers are above 50 years of age	25.7%	24.3%	11.4%	20.1%	18.5%	3.52	0.942

The results from table 4.10 above indicates that price fluctuation has a major impact on loan repayment as 82 percent of the respondents agreed that price fluctuation has a major impact on loan repayment thus affecting lending decision. Consequently, 78 percent of the respondents agreed that lending to members is more preferred to investment in groups. This reveals that; SACCOs continue to play their role of advancing loans to members as their primary activity. On the other hand, members prefer investing in long term loans in comparison to short term and

medium-term loans. Moreover, the study found that loan advanced to members has high default rate in comparison to loan advanced to groups. However, 41.4 percent of the respondents are of the view that SACCOs don't hedge loan loss through insurance and that SACCOs don't consider borrowers credit history before advancing loans.

The findings were supported by Farmfit, (2020) who established that dwindling of price fluctuation has been on the downward spiral which has led to a major impact on financial institutions performance mostly SACCOs. Additionally, the study was in line with Ndambiri, Munene and Wanjohi, (2017) who found that members prefer borrowing long term loans in comparison to short term loans despite the unforeseen eventualities and price movement of their agricultural goods. However, findings on whether lending to groups is considered risky by members or lending to members has high risk of default in comparison to groups revealed a divergent finding on study carried out by Nderitu, (2018) who established that lending to individuals in the group increases the risk of default in comparison to group which disagrees to study findings.

4.9.1 Sample Adequacy Test on Lending Decision

Sample adequacy test was carried out to confirm that the collected data was appropriate for factor analysis. Test for multicollinearity was first carried out. The calculated correlation matrix determinant was 0.113 which is more than the value of 0.00001 thus, indicating absence of multicollinearity between variables. Absence of multicollinearity is detected when the determinant of the correlation matrix has an identity matrix greater than 0.00001 (Field, 2000). The Kaiser-Meyer-Olkin and Bartlett's measure of sampling adequacy was used to determine whether factor analysis is appropriate for the study. The computed value for the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.857 while Bartlett's test of Sphericity was at approximated Chi-square

of 238.860 and 66 degrees of freedom it was highly significant with a P value of 0.000 (P=0.000<0.05) as shown in table 4.11

Table 4.11 KMO and Bartlett's Test of Lending Decision

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.857
Bartlett's Test of Sphericity	Approx. Chi-Square	238.860
	Df	66
	Sig.	.000

As shown in table 4.11 the computed value for the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.857. This was found to be an acceptable measure. Therefore, the analysis variables sum was 85.7 percent which is an indication that correlation patterns have no diffusion. Thus, the factor analysis of these data should result in dependable and distinguishable factors. The findings support the recommended values by (Zikmund, Babin, Barr & Griffin, 2010) who explained that Kaiser-Meyer-Olkin Measure of Sampling Adequacy index should be greater than 0.5 and Bartlett's test of Sphericity P value to be less than 5 percent significance level.

The Bartlett's test of Sphericity results indicated that null hypothesis test; whether the correlation matrix was equal to identity matrix, was highly significant with a P value of 0.000 (P=0.000<0.05) at approximated Chi-square of 238.860 and 66 degrees of freedom. Therefore, the null hypothesis was rejected and the correlation matrix is not an identity matrix. Hence, factor analysis was further considered appropriate for the data set in the study. The P value was less than 0.05 at 95 percent level of confidence implying that factors employed were adequate and significant therefore the study rejected the null hypothesis. Thus, the factors are considered to be orthogonal or uncorrelated

factors (Field, 2013). The factor analysis was appropriate for the study since Bartlett's test of Sphericity was significant at 5 percent significance level.

4.9.2 Factor Analysis on Lending Decision

Factor analysis is used to compress massive factors so as to extract fewer factors with capability of elucidating the variances observed in a large number of factors (Field, 2013). Observed variances were reduced to fewer factors. Principal components method of extraction and varimax rotation was further carried out. All the components were found to be highly loaded on only three factors. Creating three factors solution for the test while ignoring the other factors that had a low loading. The Eigen values were greater than 1.0 for the three factors extracted which explained 56.618 percent of the variance of lending decision as shown in table 4.12

Table 4.12 Principal Component Analysis Results for Lending Decision

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.354	36.284	36.284	4.354	36.284	36.284	4.140	34.503	34.503
2	1.322	11.014	47.298	1.322	11.014	47.298	1.355	11.289	45.792
3	1.118	9.320	56.618	1.118	9.320	56.618	1.299	10.825	56.618
4	.920	7.670	64.288						
5	.814	6.784	71.072						
6	.717	5.974	77.046						
7	.653	5.443	82.488						
8	.566	4.718	87.207						
9	.469	3.912	91.118						
10	.455	3.790	94.908						
11	.374	3.120	98.029						
12	.237	1.971	100.000						

As shown in table 4.12 three factors were retained after conducting the principal component analysis as they had an Eigen value greater than one and they accounted for total variance of 56.618 for observed variables. The other two items were deleted since they loaded on the three factors with an Eigen value greater than one. Cooper & Shindler, (2011) indicated that an eigen value of a component greater than one accounts for more variance and thus, are of more use in the study as compared to an eigen value which is lesser than one; which has no use. Thus, the components with eigen values greater than one, are usually considered or kept for further analysis. Hence, components 1, 2 and 3 were retained.

Since the factors were orthogonal or uncorrelated in nature, an orthogonal rotation was sought. Orthogonal rotation is carried out to derive new factor loadings sets when the analysis factors are uncorrelated. The orthogonal rotation can either be equamax, quartimax, or varimax rotation. Varimax rotation is highly preferred in case there is an orthogonal rotation (Kaplan & Norton, 2015). Thus, in the principal component analysis, varimax rotation was conducted. The varimax rotation with Kaiser Normalization gave the correlations of the variables with each of the extracted factors. Factor loadings with an absolute value greater than 0.4 were extracted and were sorted according to size. Each of the variables were highly loaded in one variable unlike the other variable as shown in table 4.13

Table 4.13: Results for Rotated Component Matrix for Lending Decision

Rotated Component Matrix[a]

Constructs	Component		
	1	2	3
1	.843		
2	.832		
4	.719		
5	.667		
7	.604		
8	.640		
9	.770		
3		.526	
11		.801	
12		.450	
6			.563
10			.780

After varimax rotation is conducted, any rotated factor loadings greater than or equal to ±0.4 of a component is considered appropriate in a study (Field, 2009). The factor loading for all the three components were greater than 0.4 leading to their retention and later interpretation and naming. Interpretation entailed identification of variables that were loading to a certain component highly and assessing what the variables shared in common. This supports the study carried out by Muchiri, (2019) on influence of strategic management practices on sustainable growth of private hospitals in Kenya who retained all variables with a factor loading of higher than 0.4. Nevertheless, Nyenze, (2017) used a factor loading cut off point of 0.5 on the study moderating effect of personality traits on the relationship between institutions responsiveness and competitiveness of public universities in Kenya.

On the other hand, the retained component was allocated a name that explains its content. The naming was guided by the theoretical and conceptual framework of the study. The factors are usually rotated with the aim of attaining a simple structure guided by reviewed literature (Reddy & Kulshrestha, 2019; Field, 2013). From table 4.13 the first components represented natural lending and they were named so while the second component represented institutional lending and the third component group lending which were named so. The variables were further used in the multiple linear regression.

4.10 Financial Investments Decision and Liquidity of Farmers Deposit Taking SACCOs

The second objective of the study was to determine the effect of financial investments decision on liquidity of farmers Deposit Taking Saving and Credit Co-operative Societies. Financial investments decision was assessed through short term and long-term investment parameters. The study posed questions based on these measures of financial investment decisions in farmers Deposit Taking Saving and Credit Co-operative Societies. Respondents were required to indicate their level of agreement on various financial investments decisions. The scale was from 5 to 1 where 5 was strongly agree (SA), 4 was agree (A), 3 was neutral (N), 2 was disagree (D) and 1 was strongly disagree (SD).

Table 4.14 provides a summary of response on parameters measuring financial investment decision where, investment in treasury bills is preferred by members has a mean of 4.28 and a standard deviation of 0.739, investments in companies' shares is mostly preferred by members has a mean of 3.21, standard deviation of 1.113, members rarely prefer fixed deposits has a mean of 3.90, standard deviation of 0.801, members always discourage undisclosed investments has a mean of

4.21, standard deviation of 0.743, the members prefer to invest in financial markets has a mean of 3.68, standard deviation of 0.923, the members usually advocate for investment in corporate bonds has a mean of 3.17, standard deviation of 1.129, the members usually prefer to issue commercial papers to ensure liquidity has a mean of 3.34, standard deviation of 1.096, investment in treasury bonds is highly preferred by the members has a mean of 3.98, standard deviation of 0.762, the SACCO prefer investing in real estates has a mean of 3.72, standard deviation of 0.966, SACCOs rarely prefer holding balances with other SACCO societies has a mean of 4.0, standard deviation of 0.785 and investment in lands is highly discouraged has a mean of 3.40, standard deviation of 1.064).

Table 4.14: Mean and standard deviation statistics for Financial Investment Decision

Statements	SA	A	N	D	SD	Mean	Std Deviation
Investment in treasury bills is highly preferred by the members	24.3%	51.4%	20%	4.3%	0%	4.28	0.739
Investments in companies' shares is mostly preferred by the members	8.5%	21.4%	48.6%	18.6%	2.9%	3.21	1.113
Our members rarely prefer fixed deposits	24.3%	45.7%	24.3%	5.7%	0%	3.90	0.801
Members always discourage undisclosed investments	30%	44.3%	21.4%	4.3%	0%	4.21	0.743
The members prefer to invest in financial markets	17.1%	25.7%	51.4%	2.9%	2.9%	3.68	0.923
The members usually advocate for investment in corporate bonds	5.7%	27.1%	40%	18.6%	8.6%	3.17	1.129
The members usually prefer to issue commercial papers to ensure liquidity	11.4%	20%	62.9%	4.3%	1.4%	3.34	1.096
Investment in treasury bonds is highly preferred by the members	37.1%	32.8%	18.6%	8.6%	2.9%	3.98	0.762

The SACCO prefer investing in real estates	12.7%	47.2%	28.6%	8.6%	2.9%	3.72	0.966
SACCOs rarely prefer holding balances with other SACCO societies	30%	41.4%	20%	22.7%	5.7%	4.0	0.785
Investment in lands is highly discouraged	14.3%	37.1%	21.4%	24.3%	2.9%	3.40	1.064

Table 4.14: Mean and standard deviation statistics for Financial Investment Decision

The analysis in table 4.14 shows that investment in treasury bills is highly preferred by the members as 76 percent were in agreement that members prefer to invest in risk free assets and in fixed deposits whereas 71 percent agreed that SACCOs rarely prefer holding balances with other SACCO societies which was in line with study carried out by Morwabe and Muturi, (2019) who established that SACCOs prefer investing in government securities, fixed deposit accounts and prefer to hold balances with other SACCOs and commercial banks to mitigate the liquidity gap. However, the study had a diverse finding to that of Auma, (2013) who found that bank deposits had an inverse nexus on financial performance of insurance companies. Moreover, the study examined whether SACCOs prefer investing in real estates and if members discourage investment in lands. The study revealed that 51 percent of the respondents were in agreement that, members always discourage investment in lands and real estates which is in support of study carried out by Auma, (2013) who found that investment in lands and real estate are statistically insignificant on financial performance of insurance companies.

Consequently, the study revealed that more than 25 percent of the respondents disagreed that investment in financial markets, corporate bonds, shares and commercial papers are encouraged by the members whereas 40-63 percent were not sure. However, the study had a diverse finding to that of Hussein, (2017) Mweresa and Muturi, (2018), Kariuki, (2016) Ombima and Njiru, (2018) who strongly agreed that investment in financial markets, corporate bonds, shares and commercial papers are highly encouraged in deposit taking savings and credit co-operatives, commercial banks, sugar industries and in insurance companies in Kenya. Regardless, of the contradicting findings the study was in support of Auma, (2013) who found that investments in corporate bonds had insignificant nexus on financial performance of insurance companies. The results further indicated that 74 percent of the respondents agreed that members discourage undisclosed investments. The findings were in support of (SASRA, 2020; Maina, Kiai & Kyalo, 2020) who established that members always discourage undisclosed investments

4.10.1 Sample Adequacy Test on Financial Investment Decision

Sample adequacy test was carried out to confirm that the collected data was appropriate for factor analysis. Test for multicollinearity was first carried out. The calculated correlation matrix determinant was 0.035 which is more than the value of 0.00001 thus, indicating absence of multicollinearity between variables. Absence of multicollinearity is detected when the determinant of the correlation matrix has an identity matrix greater than 0.00001 (Field, 2000). The Kaiser-Meyer-Olkin and Bartlett's measure of sampling adequacy was used to determine whether factor analysis is appropriate for the study. The computed value for the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.793 while Bartlett's test of Sphericity was at approximated Chi-square of 214.478 and 66 degrees of freedom it was highly significant with a P value of 0.000 ($P=0.000<0.05$) as shown in table 4.15

Table 4.15 KMO and Bartlett's Test for Financial Investment Decision

KMO and Bartlett's Test of Financial Investment Decision		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.793
Bartlett's Test of Sphericity	Approx. Chi-Square	214.478
	Df	66
	Sig.	.000

As shown in table 4.15 the computed value for the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.793. This was found to be an acceptable measure of 0.5. Therefore, the analysis variables sum was 79.3 percent which is an indication that correlation patterns have no diffusion. Thus, the factor analysis of these data should result in dependable and distinguishable factors. The findings support the proposed values by (Williams & Brown, 2010) who purports that Kaiser-Meyer-Olkin Measure of Sampling Adequacy index should be greater than 0.5 and Bartlett's test of Sphericity P value to greater than 95 percent significance level.

The Bartlett's test of Sphericity results indicated that null hypothesis test; whether the correlation matrix was equal to identity matrix, was highly significant with a P value of 0.000 ($P=0.000<0.05$) at approximated Chi-square of 214.478 and 66 degrees of freedom. Therefore, the null hypothesis was rejected and the correlation matrix is not an identity matrix. Hence, factor analysis was further considered appropriate for the data set in the study. The P value was less than 0.05 at 95 percent level of confidence implying that factors employed were adequate and significant therefore the study rejected the null hypothesis. Thus, the factors are considered to be orthogonal or uncorrelated factors (Field, 2013). The factor analysis was appropriate for the study since Bartlett's test of Sphericity was significant at 5 percent significance level.

4.10.2 Factor Analysis on Financial Investment Decision

Factor analysis is used to compress massive factors so as to extract fewer factors with capability of elucidating the variances observed in a large number of factors (Field, 2013). Observed variances were reduced to fewer factors. Principal components method of extraction and varimax rotation was further carried out. All the components were found to be highly loaded on only four factors. Creating four factors solution for the test while ignoring the other factors that had a low loading. The eigen values were greater than 1.0 for the four factors extracted which explained 64.152 percent of the variance of lending decision as shown in table 4.16

Table 4.16 Principal Component Analysis for Financial Investment Decision

Principal component analysis Results for Financial Investment Decision

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.975	33.127	33.127	3.975	33.127	33.127	2.913	24.277	24.277
2	1.552	12.931	46.058	1.552	12.931	46.058	1.713	14.278	38.555
3	1.152	9.602	55.660	1.152	9.602	55.660	1.617	13.471	52.026
4	1.019	8.491	64.152	1.019	8.491	64.152	1.455	12.125	64.152
5	.747	6.223	70.374						
6	.721	6.005	76.379						
7	.666	5.550	81.929						
8	.585	4.873	86.803						
9	.486	4.049	90.852						
10	.408	3.396	94.248						
11	.384	3.199	97.447						
12	.306	2.553	100.000						

Extraction Method: Principal Component Analysis.

As shown in table 4.16 four factors were retained after conducting the principal component analysis as they had an Eigen value greater than one and they accounted for total variance of 64.152 for observed variables. Constructs that are valid need to have a total variance of at least 60 percent for observed variables (Kline, 2017). The other two items were deleted since they loaded on the four factors with an Eigen value greater than one. Williams & Brown, (2010) indicated that an eigen value of a component greater than one accounts for more variance and thus, are of more use in the study as compared to an eigen value which is lesser than one; which has no use. Thus, the components with eigen values greater than one, are usually considered or kept for further analysis. Hence, components 1, 2, 3 and 4 were retained.

Since the factors were orthogonal or uncorrelated in nature, an orthogonal rotation was sought. Orthogonal rotation is carried out to derive new factor loadings sets when the analysis factors are uncorrelated. The orthogonal rotation can either be equamax, quartimax, or varimax rotation. Varimax rotation is highly preferred in case there is an orthogonal rotation (Zikmund, Babin, Barr & Griffin, 2010). Thus, in the principal component analysis, varimax rotation was conducted. The varimax rotation with Kaiser Normalization gave the correlations of the variables with each of the extracted factors. Factor loadings with an absolute value greater than 0.4 were extracted and were sorted according to size. Each of the variables were highly loaded in one variable unlike the other variable as shown in table 4.17

Table 4.17 Rotated Component Matrix for Financial Investment Decision

Rotated Component Matrix[a]

Constructs	Component			
	1	2	3	4
1	.742			
2	.762			
4	.682			
7	.675			
10	.608			
3		.680		
5		.789		
6		.573		
8			.701	
9			.707	
11				.636
12				.891

After varimax rotation is conducted, any rotated factor loadings greater than or equal to ±0.4 of a component is considered appropriate in a study (Zahrabi, 2013). The factor loading for all the four components were greater than 0.4 leading to their retention and later interpretation and naming. Interpretation entailed identification of variables that were loading to a certain component highly and assessing what the variables shared in common. This supports the study carried out by Langat, (2017) on the effect of branding strategies on post graduate students' choice of universities in Nakuru County Kenya who retained all variables with a factor loading of higher than 0.4. Nevertheless, Fwamba, (2017) used a factor loading cut off point of 0.5 on the study influence of financial management practice on financial performance of sugar manufacturing companies in Kenya.

On the other hand, the retained component was allocated a name that explains its content. The naming was guided by the theoretical and conceptual framework of the study. The factors are usually rotated with the aim of attaining a simple structure guided by reviewed literature (Reddy & Kulshrestha, 2019; Field, 2013). From table 4.17 the first components represented short term investment and they were named short term and medium-term investments while the second component represented long term investment and were named long-term and other investments. The variables were further used in the multiple linear regression.

4.11 Research and Development Decision and Liquidity of Farmers Deposit Taking SACCOs

The third objective of the study was to determine the effect of research and development decision on liquidity of farmers Deposit Taking Saving and Credit Co-operative Societies. Research and development decision was assessed through market expansion and innovativeness parameters. The study posed questions based on these measures of research and development decision in farmers Deposit Taking Saving and Credit Co-operative Societies. Respondents were required to indicate their level of agreement on various research and development decisions. The scale was from 5 to 1 where 5 was strongly agree (SA), 4 was agree (A), 3 was neutral (N), 2 was disagree (D) and 1 was strongly disagree (SD).

Table 4.18 provides analysis of financial investment decision on the basis of agreement to study parameters. The results revealed that use of ATMs has improved customers convenience with a mean of 3.22 and standard deviation of 1.071, parameter on number of branches has reduced has a mean of 2.89 and standard deviation of 1.217, the SACCO is struggling to introduce mobile banking has a mean of 3.14 and standard deviation of 1.044, the SACCO has established internet banking has a mean of 3.18 and standard deviation of 1.171, agency banking improves customers

access has a mean of 3.21 and standard deviation of 1.092, product innovation improves total deposit has a mean of 4.32 and standard deviation of 0.701, market penetration has improved customer base has a mean of 4.19 and standard deviation of 0.753, product diversification improves surplus has a mean of 4.26 and standard deviation of 0.741, members can be able to access loans through mobile phones has a mean of 3.86 and standard deviation of 0.954, service innovation has improved customers loyalty has a mean of 3.70 and standard deviation of 1.055, membership has increased has a mean of 4.0 and standard deviation of 0.761 and loan book has increased over the years has a mean of 4.16 and standard deviation of 0.756.

Table 4.18: Mean and standard deviation statistics for Research and Development Decision

Statements	SA	A	N	D	SD	Mean	Std Deviation
Number of branches has reduced	0%	20%	24.3%	35.7%	20%	2.89	1.217
Use of ATMs has improved customers convenience	12.5%	28.9%	31.4%	22.9%	4.3%	3.22	1.071
The SACCO is struggling to introduce mobile banking	14.3%	25.7%	37.1%	12.9%	10%	3.14	1.044
The SACCO has established internet banking	17.1%	24.3%	24.3%	30%	4.3%	3.18	1.171
Agency banking improves customers access	10%	30%	31.4%	24.3%	4.3%	3.21	1.092
Product innovation improves total deposit	14.3%	61.4%	12.9%	4.3%	7.1%	4.32	0.701
Market penetration has improved customer base	32.9%	47.1%	14.3%	5.7%	0%	4.19	0.753
Product diversification improves surplus	41.4%	44.3%	4.3%	10%	0%	4.26	0.741
Members can be able to access loans through mobile phones	14.3%	48.6%	20%	10%	0%	3.86	0.954

Service innovation has improved customers loyalty	24.3%	34.3%	24.3%	15.7%	1.4%	3.70	1.055
Membership has increased	31.4%	48.6%	10%	10%	0%	4.0	0.761
Loan book has increased over the years	32.8%	48.6%	11.4%	4.3%	2.9%	4.16	0.756

Table 4.18 presents' results for research and development where 86 percent of the respondents were of the view that product diversification improves liquidity. Further, the study revealed that market penetration has improved customer base as 80 percent of the respondents agreed that market penetration has improved customer base. The parameter is in line with the study findings that membership has been on the rise as 80 percent of the respondents agreed that membership size has increased. Furthermore, the study established that service and product innovation has led to improved customer loyalty as 72 percent of the respondents agreed that service innovation has improved customers loyalty. Moreover, product innovation has led to more deposits which has increased SACCOs fund for investments as evidenced by 75 percent of the respondents in agreement that product innovation improves total deposit. However, 58 percent of the respondents disagreed that number of branches has been on the downward spiral. Therefore, the study findings confirm that number of branches is on the rise.

Additionally, 60-70 percent of the respondents agreed that automated teller machines, agency banking, internet banking and mobile banking leads to customers' convenience, accessibility and increases products consumption. This has led to increase in loan portfolio consumption in the previous years as 65 percent of the respondents agreed that loan book has increased over the years and that members can be able to access loans through mobile phones. Thus, to improve growth,

SACCOs need to adopt inter-SACCO collaboration to improve members' services, financial base and lay a ground for members and SACCOs potential to grow. This might lead to SACCOs reducing the chances of merging and financial distress which has been experienced in the previous years. Furthermore, use of financial services will create agility which may enable SACCOs to compete with other financial institutions.

The findings were in support of the study carried by Mwai, (2021) on financial innovations and financial deepening who revealed that automated teller machines and mobile banking has improved customers convenience. This has seen SACCOs improve customers access thus, reducing the financially excluded from financial services and solving the problem of unsustainable administration cost experienced in the previous years. The study was also in line with Mwai, (2021) who established that SACCOs are struggling to introduce mobile banking due to high infrastructure and that SACCOs has established internet banking to improve customers' access to the financial services. However, the findings contradicted to the study carried out by Maina, Kiai & Kyalo, (2020) who established that SACCOs have fully adopted mobile banking. Conversely, their study found that mobile banking has reduced the number of the financially excluded thus reducing the marginalized groups from accessing financial services. Moreover, Maina, Kiai & Kyalo, (2020) supported the study as they revealed that, SACCOs have not fully adopted internet banking but has improved customer satisfaction and financial deepening to marginalized and the unbankables.

On the other hand, the study established that 76 percent of the respondents were of the view that product innovation has improved total deposit. This study supported the work of Maina, Ndwiga & Kinyariro, (2021) who established that SACCOs have improved their products to respond to the dynamic needs of members through incubation revolutionary market ideas. To improve products

consumption, SACCOs have opened their common bond to natural and institutional persons to improve withdrawable and non-withdrawable deposits. This has seen SACCOs warding-off inefficiencies while holding more investment vehicles thus improving members expected returns and surplus. Consequently, the study revealed that 80 percent of the respondents were of the view that membership has been on the rise.

4.11.1Sample Adequacy Test on Research and Development Decision

Sample adequacy test was carried out to confirm that the collected data was appropriate for factor analysis. Test for multicollinearity was first carried out. The calculated correlation matrix determinant was 0.044 which is more than the value of 0.00001 thus, indicating absence of multicollinearity between variables. Absence of multicollinearity is detected when the determinant of the correlation matrix has an identity matrix greater than 0.00001 (Field, 2000). The Kaiser-Meyer-Olkin and Bartlett's measure of sampling adequacy was used to determine whether factor analysis is appropriate for the study. The computed value for the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.841 while Bartlett's test of Sphericity was at approximated Chi-square of 200.003 and 66 degrees of freedom it was highly significant with a P value of 0.000 ($P=0.000<0.05$) as shown in table 4.19

Table 4.19 KMO and Bartlett's Test for Research and Development

KMO and Bartlett's Test of Research and Development		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.841
Bartlett's Test of Sphericity	Approx. Chi-Square	200.003
	df	66
	Sig.	.000

As shown in table 4.19 the computed value for the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.841. This was found to be an acceptable measure. Therefore, the analysis variables sum was 84.1 percent which is an indication that correlation patterns have no diffusion. Thus, the factor analysis of these data should result in dependable and distinguishable factors. The findings supports the proposed values by (DeVellis, 2016; Zahrabi, 2013 and Jollife, 2011) who purports that Kaiser-Meyer-Olkin Measure of Sampling Adequacy index should be greater than 0.5 and Bartlett's test of Sphericity P value to greater than 95 percent significance level.

The Bartlett's test of Sphericity results indicated that null hypothesis test; whether the correlation matrix was equal to identity matrix, was highly significant with a P value of 0.000 ($P=0.000<0.05$) at approximated Chi-square of 200.003 and 66 degrees of freedom. Therefore, the null hypothesis was rejected and the correlation matrix is not an identity matrix. Hence, factor analysis was further considered appropriate for the data set in the study. The P value was less than 0.05 at 95 percent level of confidence implying that factors employed were adequate and significant therefore the study rejected the null hypothesis. Thus, the factors are considered to be orthogonal or uncorrelated

factors (Field, 2013). The factor analysis was appropriate for the study since Bartlett's test of Sphericity was significant at 5 percent significance level.

4.11.2 Factor Analysis on Research and Development Decision

Factor analysis is used to compress massive factors so as to extract fewer factors with capability of elucidating the variances observed in a large number of factors (Field, 2013). Observed variances were reduced to fewer factors. Principal components method of extraction and varimax rotation was further carried out. All the components were found to be highly loaded on only four factors. Creating four factors solution for the test while ignoring the other factors that had a low loading. The eigen values were greater than 1.0 for the three factors extracted which explained 61.718 percent of the variance of lending decision as shown in table 4.20

Table 4.20 Principal Component Analysis for Research and Development

Principal component analysis Results for Research and Development Decision

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.024	33.537	33.537	4.024	33.537	33.537	3.257	27.141	27.141
2	1.302	10.850	44.387	1.302	10.850	44.387	1.662	13.851	40.992
3	1.051	8.758	53.145	1.051	8.758	53.145	1.440	12.002	52.994
4	1.029	8.573	61.718	1.029	8.573	61.718	1.047	8.723	61.718
5	.927	7.727	69.445						
6	.732	6.100	75.545						
7	.631	5.260	80.805						
8	.589	4.905	85.709						
9	.532	4.430	90.139						
10	.471	3.924	94.063						
11	.411	3.425	97.488						
12	.301	2.512	100.000						

Extraction Method: Principal Component Analysis.

As shown in table 4.20 four factors were retained after conducting the principal component analysis as they had an Eigen value greater than one and they accounted for total variance of 61.718 for observed variables. Constructs that are valid need to have a total variance of at least 60 percent for observed variables (DeVellis, 2016). The other two items were deleted since they loaded on the four factors with an Eigen value greater than one. Jollife, (2016) indicated that an eigen value of a component greater than one accounts for more variance and thus, are of more use in the study as compared to an eigen value which is lesser than one; which has no use. Thus, the components with eigen values greater than one, are usually considered or kept for further analysis. Hence, components 1, 2, 3 and 4 were retained.

Since the factors were orthogonal or uncorrelated in nature, an orthogonal rotation was sought. Orthogonal rotation is carried out to derive new factor loadings sets when the analysis factors are uncorrelated. The orthogonal rotation can either be equamax, quartimax, or varimax rotation. Varimax rotation is highly preferred in case there is an orthogonal rotation (Kaplan & Norton, 2015; Kline, 2011). Thus, in the principal component analysis, varimax rotation was conducted. The varimax rotation with Kaiser Normalization gave the correlations of the variables with each of the extracted factors. Factor loadings with an absolute value greater than 0.4 were extracted and were sorted according to size. Each of the variables were highly loaded in one variable unlike the other variable as shown in table 4.21

Table 4.21 Rotated Component Matrix for Research and Development

Rotated Component Matrix[a]

Constructs	Component			
	1	2	3	4
1	.701			
4	.777			
6	.565			
7	.654			
8	.754			
9	.630			
2		.600		
5		.636		
3			.693	
11			.848	
12			.154	
10				.844

After varimax rotation is conducted, any rotated factor loadings greater than or equal to ±0.4 of a component is considered appropriate in a study (Jollife, 2011). The factor loading for all the four components were greater than 0.4 leading to their retention and later interpretation and naming. Interpretation entailed identification of variables that were loading to a certain component highly and assessing what the variables shared in common. This supports the study carried out by Nderitu, (2018) on determinants of growth in wealth of investment groups in Kenya who retained all variables with a factor loading of higher than 0.4. Nevertheless, Nyenze, (2017) used a factor loading cut off point of 0.6 in their study on moderating effect of personality traits on the relationship between institutions responsiveness and competitiveness of public universities in Kenya.

On the other hand, the retained component was allocated a name that explains its content. The naming was guided by the theoretical and conceptual framework of the study. The factors are usually rotated with the aim of attaining a simple structure guided by reviewed literature (Reddy & Kulshrestha, 2019; Field, 2013). From table 4.21 the four components were extracted and renamed market expansion, innovativeness, product diversification and technology. The variables were further used in the multiple linear regression.

4.12 Human Capital Decision and Liquidity of Farmers Deposit Taking SACCOs

The fourth objective of the study was to determine the effect of human capital decision on liquidity of farmers Deposit Taking Saving and Credit Co-operative Societies. Human capital decision was assessed through staff competence and incentives parameters. The study posed questions based on these measures of human capital decision in farmers Deposit Taking Saving and Credit Co-operative Societies. Respondents were required to indicate their level of agreement on various

human capital. The scale was from 5 to 1 where 5 was strongly agree (SA), 4 was agree (A), 3 was neutral (N), 2 was disagree (D) and 1 was strongly disagree (SD).

Table 4.22 shows the agreement level in percentages, mean and standard deviation statistics. The results revealed, parameter that had the highest score was on SACCOs considers academic qualifications during recruitment with a mean of 4.4 and standard deviation of 0.742, the SACCO offers training opportunities to staff has a mean of 4.21 and standard deviation of 0.781, the SACCO motivates employees through monetary and non-monetary incentives has a mean of 4.10 and standard deviation of 0.806, the SACCO has put in place career development programs to improve employees capacity has a mean of 4.21 and standard deviation of 0.775, rewards are performance based has a mean of 3.70 and standard deviation of 0.982, education and training improves efficiency in workplace has a mean of 3.75 and standard deviation of 0.925, the staff rotation improves staff skills has a mean of 3.67 and standard deviation of 0.875, seniors delegate some duties to staff to prepare them for management positions has a mean of 3.75 and standard deviation of 1.112, employees are provided with insurance schemes has a mean of 3.81 and standard deviation of 0.873, employees are provided with medical schemes has a mean of 3.93 and standard deviation of 0.942, the SACCO contributes towards staff pension schemes has a mean of 3.80 and standard deviation of 0.870 and the SACCO provides staff with mortgage loans and investment loans has a mean of 4.03 and standard deviation of 0.782.

Table 4.22: Mean and Standard Deviation Statistics for Human Capital Decision

Statements	SA	A	N	D	SD	**Mean**	**Std Deviation**
The SACCO offers training opportunities to staff	24.3%	58.6%	17.1%	0%	0%	4.21	0.781
The SACCO considers academic qualifications during recruitment	35.8%	47.1%	7.1%	4.3%	2.9%	4.40	0.742
The SACCO motivates employees through monetary and non-monetary incentives	24.4%	47.1%	22.8%	5.7%	0%	4.10	0.806
The SACCO has put in place career development programs to improve employees capacity	21.4%	60%	5.7%	12.9%	0%	4.21	0.775
Rewards are performance based	18.5%	51.4%	12.9%	12.9%	4.3%	3.70	0.982
Education and training improves efficiency in workplace	24.3%	45.7%	12.9%	17.1%	0%	3.75	0.925
The staff rotation improves staff skills	10.1%	51.4%	11.4%	27.1%	0%	3.67	0.875

Seniors delegate some duties to staff to prepare them for management positions	4.2%	35.7%	32.9%	12.9%	14.3%	3.57	1.112
Employees are provided with insurance schemes	17.1%	54.3%	18.6%	2.9%	7.1%	3.81	0.873
Employees are provided with medical schemes	22.9%	55.7%	10%	11.4%	0%	3.93	0.942
The SACCO contributes towards staff pension schemes	20%	55.7%	12.9%	10%	1.4%	3.80	0.870
The SACCO provides staff with mortgage loans, investment loans etc	37.2%	27.1%	18.6%	11.4%	5.7%	4.03	0.782

The results from table 4.22 indicates that academic qualifications are considered when recruiting employees as 87 percent of the respondents were of the view that SACCOs considers academic qualifications during recruitment. Additionally, 82 percent of the respondents revealed that SACCOs offer on job training opportunities to tailor fit education and they have put in place career development programs to improve employees' capacity and efficiency. To improve efficiency and productivity, SACCOs has put in place incentives both monetary and non-monetary as reflected in table 4.10 above where 78 percent of the respondents indicated that SACCOs motivates employees through monetary and non-monetary incentives to ensure that staff feel motivated at workplace. Furthermore, 70 percent of the respondents were of the view that employees feel motivated through mortgage and investment loans whereas, 60-68 percent respondents are of the

view that employees feel motivated through insurance and medical schemes. However, 60 percent of the respondents disagreed that seniors delegate duties to employees to prepare them for managerial positions.

The results supported the study carried by Munjuri, (2018) who found that commercial banks and insurance companies considers academic qualifications during recruitment. Munjuri, (2018) further found that offering training opportunities to staff improves firms' productivity. Training is offered to tailor fit education leading to efficiency, innovativeness and creativity which improves firms' agility creating a competitive edge. Similarly, the study was in line with that of Mbore, (2021) who revealed that employees feel motivated through monetary incentives in comparison to non-monetary incentives like insurance, staff pension, mortgage loans, investment loans and medical schemes. However, according to Sagwa & Kembu, (2021) employees feel the impact of non-monetary incentive such as insurance and medical schemes upon emergency situations. Consequently, on parameter that seniors delegate duties to staff to prepare them for managerial positions had an inverse relationship on the study carried out by Kiswili, (2021) who found that seniors of the organizations don't delegate duties but ensure that there is staff rotation to improve skills and that SACCO has put in place career development programs to improve employee's capacity. Additionally, the study was in line with study carried out by Miriti, (2021) who revealed that rewarding is done on performance.

4.12.1 Sample Adequacy Test on Human Capital Decision

Sample adequacy test was carried out to confirm that the collected data was appropriate for factor analysis. Test for multicollinearity was first carried out. The calculated correlation matrix determinant was 0.025 which is more than the value of 0.00001 thus, indicating absence of

multicollinearity between variables. Absence of multicollinearity is detected when the determinant of the correlation matrix has an identity matrix greater than 0.00001 (Field, 2000). The Kaiser-Meyer-Olkin and Bartlett's measure of sampling adequacy was used to determine whether factor analysis is appropriate for the study. The computed value for the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.764 while Bartlett's test of Sphericity was at approximated Chi-square of 237.087 and 66 degrees of freedom it was highly significant with a P value of 0.000 (P=0.000<0.05) as shown in table 4.23

Table 4.23 KMO and Bartlett's Test for Human Capital

KMO and Bartlett's Test of Human Capital		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.764
Bartlett's Test of Sphericity	Approx. Chi-Square	237.087
	df	66
	Sig.	.000

As shown in table 4.23 the computed value for the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.764. This was found to be an acceptable measure. Therefore, the analysis variables sum was 76.4 percent which is an indication that correlation patterns have no diffusion. Thus, the factor analysis of these data should result in dependable and distinguishable factors. The findings supports the proposed measures by (DeVellis, 2016 and Zahrabi, 2013) who purports that Kaiser-Meyer-Olkin Measure of Sampling Adequacy index should be greater than 0.5.

The Bartlett's test of Sphericity results indicated that null hypothesis test; whether the correlation matrix was equal to identity matrix, was highly significant with a P value of 0.000 (P=0.000<0.05) at approximated Chi-square of 237.087 and 66 degrees of freedom. Therefore, the null hypothesis was rejected and the correlation matrix is not an identity matrix. Hence, factor analysis was further

considered appropriate for the data set in the study. The P value was less than 0.05 at 95 percent level of confidence implying that factors employed were adequate and significant therefore the study rejected the null hypothesis. Thus, the factors are considered to be orthogonal or uncorrelated factors (Field, 2013). The factor analysis was appropriate for the study since Bartlett's test of Sphericity was significant at 5 percent significance level.

4.12.2 Factor Analysis on Human Capital Decision

Factor analysis is used to compress massive factors so as to extract fewer factors with capability of elucidating the variances observed in a large number of factors (Field, 2013). Observed variances were reduced to fewer factors. Principal components method of extraction and varimax rotation was further carried out. All the components were found to be highly loaded on only three factors. Creating three factors solution for the test while ignoring the other factors that had a low loading. The Eigen values were greater than 1.0 for the three factors extracted which explained 57.058 percent of the variance of lending decision as shown in table 4.24

Table 4.24 Principal Component Analysis for Human Capital Decision

Principal component analysis Results for Human Capital Decision

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.102	34.186	34.186	4.102	34.186	34.186	3.070	25.581	25.581
2	1.633	13.605	47.791	1.633	13.605	47.791	2.267	18.890	44.471
3	1.112	9.267	57.058	1.112	9.267	57.058	1.510	12.587	57.058
4	.938	7.818	64.876						
5	.841	7.005	71.882						
6	.700	5.835	77.716						
7	.659	5.493	83.210						
8	.567	4.723	87.932						
9	.457	3.811	91.743						
10	.382	3.180	94.922						
11	.315	2.626	97.548						
12	.294	2.452	100.000						

Extraction Method: Principal Component Analysis.

As shown in table 4.24 three factors were retained after conducting the principal component analysis as they had an Eigen value greater than one and they accounted for total variance of 57.058 for observed variables. The other two items were deleted since they loaded on the three factors with an Eigen value greater than one. Zikmund, Babin, Barr & Griffin, (2010) indicated that an eigen value of a component greater than one accounts for more variance and thus, are of more use in the study as compared to an eigen value which is lesser than one; which has no use. Thus, the components with eigen values greater than one, are usually considered or kept for further analysis. Hence, components 1, 2 and 3 were retained.

Since the factors were orthogonal or uncorrelated in nature, an orthogonal rotation was sought. Orthogonal rotation is carried out to derive new factor loadings sets when the analysis factors are

uncorrelated. The orthogonal rotation can either be equamax, quartimax, or varimax rotation. Varimax rotation is highly preferred in case there is an orthogonal rotation (DeVellis, 2016). Thus, in the principle component analysis, varimax rotation was conducted. The varimax rotation with Kaiser Normalization gave the correlations of the variables with each of the extracted factors. Factor loadings with an absolute value greater than 0.4 were extracted and were sorted according to size. Each of the variables were highly loaded in one variable unlike the other variable as shown in table 4.25

After varimax rotation is conducted, any rotated factor loadings greater than or equal to ±0.4 of a component is considered appropriate in a study (Field, 2013). The factor loading for all the three components were greater than 0.4 leading to their retention and later interpretation and naming. Interpretation entailed identification of variables that were loading to a certain component highly and assessing what the variables shared in common. This supports the study carried out by Mbore, (2021) on management control system, training model and institutional performance of technical training institutions in Kenya who retained all variables with a factor loading of higher than 0.4. Nevertheless, Fwamba, (2017) used a factor loading cut off point of 0.5 in their study on influence of financial management practice on financial performance of sugar manufacturing companies in Kenya.

Table 4.25 Rotated Component Matrix[a]

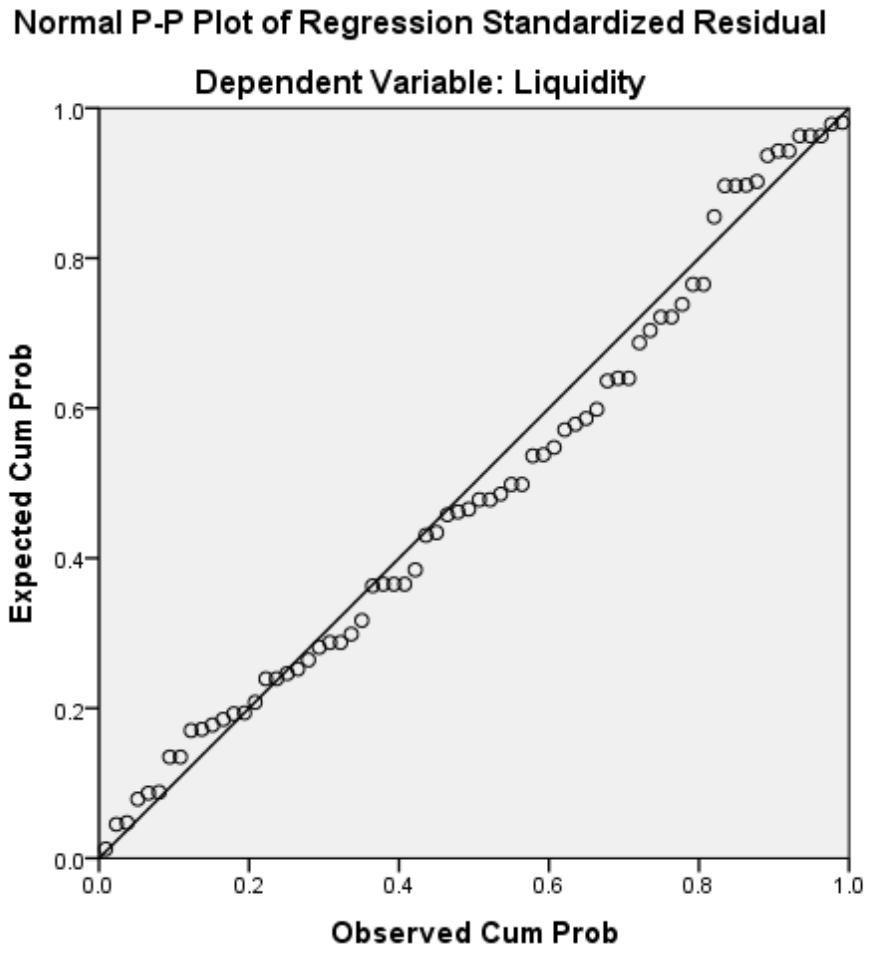
Constructs	Component		
	1	2	3
1	.701		
2	.779		
4	.756		
5	.490		
7	.695		
10	.648		
7		.617	
8		.442	
9		.836	
10		.604	
11			.728
12			.861

On the other hand, the retained component was allocated a name that explains its content. The naming was guided by the theoretical and conceptual framework of the study. The factors are usually rotated with the aim of attaining a simple structure guided by reviewed literature (Reddy & Kulshrestha, 2019; Field, 2013). From table 4.25 the extracted components were renamed staff competence, incentives and staff qualification. The variables were further used in the multiple linear regression.

4.13 Normality Test

The study conducted normality test to determine whether data was normally distributed. The study considered normal probability plot due to the advantage of revealing whether data deviates from the diagonal line thus violating the set normality assumption. Based on the findings, the study found that the data was normally distributed along the diagonal line thus proving that data employed in the study was normally distributed as shown in the figure below

Figure 4.1 P-P Plot



4.14 Multicollinearity Test

The study employed multicollinearity test to determine presence of correlation between predictors. (Gakuu, 2018; Gikonyo, 2013; Daoud, 2017) employed variance inflation factor and tolerance to determine collinearity. According to (Gikonyo, 2013; Daoud, 2017) variance inflation factor values between one and five proves low correlation, value between five and ten predictors are moderately correlated and above ten predictors are highly correlated and requires correction. Studies carried by (Kimathi, 2018; Meme, 2017; Gweyi 2018; Irungu, 2019) employed tolerance to determine collinearity and as per the studies tolerance value near one implies no correlation between predictors and values near zero imply highly correlation between variables.

Table 4.26 Multicollinearity

Model	Collinearity Statistics	
	Tolerance	VIF
Lending decision	.806	1.241
Financial investment decision	.829	1.206
Research and development	.939	1.064
Human capital decision	.779	1.283

The study established that lending decision had a VIF value of 1.241; financial investment decision had VIF value of 1.206; research and development had a VIF value of 1.064 whereas human capital decision had a VIF value of 1.283. Thus, predictors employed in the study are not correlated. Additionally, tolerance test was also conducted to determine collinearity. The study found that

lending decision had a tolerance value of 0.806; financial investment decision had tolerance value of 0.829; research and development had a tolerance value of 0.939 whereas human capital decision had a tolerance value of 0.779. According to the findings in table above the predictors employed in the study are not correlated therefore were employed to determine the nexus between investment decision and liquidity.

4.15 Auto-correlation Test

The study conducted auto correlation test to determine error term. According to Gezu, (2014); Meme, (2017) error term in one predictor should not be correlated to another predictor in the study. Thus, Durbin Watson was employed to determine error term correlation in the study. According to the study carried out by Meme, (2017) value greater than 2.0 signals absence of autocorrelation and vice versa. The study found that, calculated Durbin Watson value was 2.069 which is greater than the recommended value 2.0.

4.16 Inferential Statistics

In determining the influence between predictors and dependent variable, the study conducted both simple and multiple linear regression models analysis. Simple linear regressions helped the study explain significance between variables by considering research hypothesis. Thus the study, was guided by the following research hypothesis: there is no relationship between lending decision and liquidity of farmers-based Deposit Taking SACCOs, there is no relationship between financial investment decision and liquidity of farmers-based Deposit Taking SACCOs, research and development decision does not have significant effect on liquidity of farmers-based Deposit Taking SACCOs, there is no relationship between human capital decision and liquidity of farmers-

based Deposit Taking SACCOs and there is no moderating effect of SACCO size on the relationship between investment decision and liquidity of farmers-based Deposit Taking SACCO

4.16. 1 Hypothesis Test results on Influence of Lending Decision on Liquidity

The study conducted a multiple linear regression to determine the influence of lending decision on liquidity of farmers-based deposit taking SACCOs. Based on the findings, the study established that lending decision had a strong positive correlation on liquidity as explained by Pearson correlation coefficient (R = 0.705). Moreover, the study revealed that lending decision explained 49.8 percent (R^2 = 0.498) of farmers-based deposit taking SACCOs liquidity. This means that there are other constructs other than short term investment and long-term investment that explain lending decision which the study never considered that contributes to 50.2 percent. The findings are supported by Nderitu, (2018) who found that there exists a strong positive correlation between lending and performance.

Table 4.26 Model Summary

Model Summary for Lending Decision

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.705[a]	.498	.475	.60341

Analysis of variance was conducted to determine significance of the model. The ANOVA analysis revealed that lending decision had a positive nexus on liquidity (P = 0.000). The study further found that calculated F (F = 21.799) was greater than critical F statistic indicating a positive significance. The findings are in line with Nyaga, (2014) who examined effect of lending on

financial performance of savings and credit co-operatives societies in Nairobi County and found that lending had a positive nexus on financial performance disagreeing with Nzayisenga (2017) who found that mobile loan have a negative nexus on financial performance of commercial banks. Thus, null hypothesis that, there is no relationship between lending decision and liquidity of farmers-based Deposit Taking SACCOs was rejected with (P value = 0.000, F = 21.799).

Table 4.27 Analysis of Variance

ANOVA for Lending Decision

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.812	3	7.937	21.799	.000[b]
	Residual	24.031	66	.364		
	Total	47.843	69			

a. Dependent Variable: VAR00013

b. Predictors: (Constant), VAR00004, VAR00003, VAR00002

Based on the findings in table 4.25 below, the study established a positive nexus between natural lending, institutional lending and group lending on liquidity of farmers-based deposit taking SACCOs with (P value = 0.007, 0.019 and 0.000). This was in line with calculated t-statistic (t = 2.802, 2.415 and 3.696) which was greater than critical t-statistic (t = 2.0) revealing a significant nexus between natural lending, institutional lending, group lending and liquidity. Consequently, the analysis generated a multiple linear regression equation as shown; Liquidity= 0.221NL + 0.176IL + 0.272GL + 0.6031. The study was in line with (Kipkorir, Namiinda and Njeje, 2015) who found that lending and financial performance had a significant nexus in Baringo SACCOs.

Table 4.28 Regression Coefficients

Coefficients for Lending Decision

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.458	.295		4.947	.000
	Natural Lending	.221	.079	.281	2.802	.007
	Institutional Lending	.176	.073	.235	2.415	.019
	Group Lending	.276	.075	.382	3.696	.000

a. Dependent Variable: Liquidity

4.16.2 Hypothesis Test results on Influence of Financial Investment Decision on Liquidity

In reference to table 4.26 financial investment decision had a strong positive correlation on SACCOs liquidity with (R = 0.627). The study further revealed that financial investment decision influences liquidity by 39.4 percent (R^2 = 0.394). Thus, other parameters not included in the study influences liquidity by 60.6 percent. Similar study was conducted by Hussein, (2017) who found that there exists a strong positive correlation between financial investment and financial performance of commercial banks in Kenya which was in line with the study.

Table 4.29 Model Summary

Model Summary for Financial Investment Decision

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.627[a]	.394	.356	.66804

Analysis of variance established that the model employed was significant with (P value = 0.000) and supported by F calculated (F = 10.551) revealing a significant nexus between financial investment decision and liquidity of farmers-based deposit taking SACCOs. This is in line with study conducted by (Ombima and Njiru, 2018; Kariuki, 2016; Mweresa and Muturi, 2018) who found a significant nexus between financial investment and performance in commercial banks. Thus, null hypothesis that, there is no relationship between lending decision and liquidity of farmers-based Deposit Taking SACCOs was rejected with (P value = 0.000, F = 10.551).

Table 4.30 Analysis of Variance

ANOVA for Financial Investment Decision

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	18.835	4	4.709	10.551	.000[b]
	Residual	29.008	65	.446		
	Total	47.843	69			

The study further conducted a multiple linear regression to determine the relationship between financial investments decision and liquidity. The analysis revealed a positive relationship between short term investment, medium term investment, long term investment and liquidity with (p value = 0.008, 0.029 and 0.001). This was supported by the calculated t value (t = 2.738, 2.230 and 3.561). However, the study found that other investments (investment in assets and unclassified assets) had an inverse relationship on SACCOs liquidity. The study findings were in line with study conducted by Hussein, (2017) who found a positive nexus between financial investment and financial performance of commercial banks in Kenya. Based on SPSS output the analysis translated into the following equation; Liquidity= 0.207STI – 0.027OI + 0.304LTI + 0.159MTI + 0.6680.

Table 4.31 Regression Coefficients

Coefficients for Financial Investment Decision

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.574	.402		3.911	.000
Short term investment	.207	.075	.284	2.738	.008
Other investment	-.027	.091	-.030	-.296	.768
Long term investment	.304	.085	.371	3.561	.001
Medium term investments	.159	.071	.229	2.230	.029

4.16.3 Hypothesis Test Results on Influence of Research and Development Decision on Liquidity

In reference to table 4.29, the study found that research and development influence liquidity of farmers-based deposit taking SACCOs by 44.4 percent ($R^2 = 0.444$). Thus, 55.6 percent of liquidity is explained by other factors not considered in the study. Consequently, the study found that research and development had a strong positive correlation on liquidity contradicting to study conducted by Macharia and Tirimba, (2018) who found that product innovation and financial performance has weak positive correlation in agreement with Munywoki, (2016) who found a strong positive correlation between innovation and financial performance in commercial banks.

Table 4.32 Model Summary

Model Summary for Research and Development Decision

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.667[a]	.444	.410	.63943

Table 4.30 below (ANOVA table) established that model was significant (P value = 0.000). This was in support of F calculated (F = 13.003) greater than F critical. This agrees to study conducted by Munywoki, (2016) who established that there exists a significant relationship between innovation and financial performance of commercial banks. Thus, null hypothesis that research and development decision does not have significant effect on liquidity of farmers-based Deposit Taking SACCOs was rejected with (P value = 0.000, F = 13.003).

Table 4.33 Analysis of Variance

ANOVA Table for Research and Development Decision

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.266	4	5.316	13.003	.000[b]
	Residual	26.577	65	.409		
	Total	47.843	69			

To determine significance between research and development decision and liquidity, the study employed a multiple linear regression. The analysis by help of SPSS established beta coefficient of 0.217, 0.217, 0.215, -0.031 and generated the following function; Liquidity = 0.217PD + 0.217 I + 0.215ME – 0.031T + 0.6394 as shown in table 4.31below. Furthermore, the study revealed that product diversification, innovativeness and market expansion had a significant nexus on liquidity

with (P value = 0.021, 0.019 and 0.005) and calculated t value (t = 2.363, 2.408 and 2.895). Thus, the findings revealed that product diversification, innovativeness and market expansion have a positive relationship on liquidity. Consequently, the study found an inverse nexus between technology and liquidity in farmers-based deposit taking SACCOs.

Table 4.34 Regression Coefficients

Coefficients table for Research and Development Decision

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.548	.506		3.063	.003
	Product diversification	.217	.092	.253	2.363	.021
	Innovativeness	.217	.090	.264	2.408	.019
	Market expansion	.215	.074	.322	2.895	.005
	Technology	-.031	.103	-.028	-.305	.761

4.16.4 Hypothesis Test Results on Influence of Human Capital Decision on Liquidity

The table below present a model summary with Pearson correlation coefficient (R = 0.576) and coefficient of determination (R^2 = 0.332). The model revealed that human capital has a strong positive linear correlation on liquidity. Moreover, the study established that 33.2 percent of SACCOs liquidity is explained by the predictor human capital. Thus, 66.8 percent of SACCOs liquidity are explained by other factors not considered by this study.

Table 4.35 Model Summary

Model Summary Table for Human Capital Decision

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.576[a]	.332	.301	.69608

Table 4.33 below established that the model employed was statistically significant with (P value = 0.000) implying a positive nexus between human capital and liquidity of farmers-based deposit taking SACCOs. This was in line with F calculated (F = 11.914) which was greater than F critical. Thus, null hypothesis that, there exists a negative relationship between human capital decision and liquidity of farmers-based Deposit Taking SACCOs was rejected with (P value = 0.000, F = 10.914).

Table 4.36 Analysis of Variance

ANOVA Table for Human Capital Decision

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.864	3	5.288	10.914	.000[b]
	Residual	31.979	66	.485		
	Total	47.843	69			

The coefficient table below established that experience, staff competence and staff qualification had a significant value of (P value = 0.021, 0.048 and 0.027) revealing a significant nexus between experience, staff competence, staff qualification and SACCOs liquidity. This was in support of calculated t-statistics (t value = 2.360, 2.011 and 2.266) greater than critical t value. The study was in support of Munjuri, (2013) who revealed that, there exists a positive relationship between staff competence, staff qualification and performance in commercial banks and insurance companies.

Conversely, SPSS generated beta coefficients of 0.214, 0.151, 0.188 and generated the following multiple linear regression equation; Liquidity= 0.214E + 0.151SC + 0.188SQ + 0.6961.

Table 4.37 Regression Coefficients

Coefficients Table for Human Capital Decision

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.848	.342		5.397	.000
	Experience	.214	.091	.285	2.360	.021
	Staff competence	.151	.075	.218	2.011	.048
	Staff qualification	.188	.083	.259	2.266	.027

4.16.5 Moderating Effect of SACCO size on the Relationship Between Investment Decision and Liquidity

Table 4.35 below represent results of hierarchical regression models employed to establish the moderating effect of SACCO size on the relationship between investment decision and liquidity of farmers-based deposit taking SACCOs. Consequently, the analysis helped to test hypothesis that, there is no moderating effect of SACCO size on the relationship between investment decision and liquidity of farmers-based Deposit Taking SACCO. Thus, the study employed the following hierarchical regression equations as shown below;

$Y=\beta_0 + \beta_1 LD + \beta_2 FID + \beta_3 RDD + \beta_4 HCD + \varepsilon$……...*Equation 1*

$Y= \beta_0 + \beta_1 LD + \beta_2 FID + \beta_3 RDD + \beta_4 HCD + \beta_5 SZ + \varepsilon$…… *Equation 2*

$Y= \beta_0 + \beta_1 LD + \beta_2 FID + \beta_3 RDD + \beta_4 HCD + \beta_5 SZ + \beta_6 LD*SZ + \beta_7 FID*SZ + \beta_8 RDD*SZ + \beta_9 HCD*SZ + \varepsilon$……*Equation 3*

Where;

Y = liquidity (Dependent Variable),

β_0 is the intercept or Constant, β_1, β_2, β_3, β_4, β_5, β_6, β_7, β_8, β_9 are coefficients

LD, FID, RDD, HCD are the predictor variables (lending decision, financial investment decision, research and development decision and human capital decision)

SZ = SACCO size (moderating variable)

LD*SZ = lending decision * SACCO size

FID*SZ = financial investment decision * SACCO size

RDD*SZ = research and development decision * SACCO size

HCD*SZ = human capital decision * SACCO size

ε = Error Term

R change and R squared were employed to determine strength of moderating effect of SACCO size on study predictors (lending decision, financial investment decision, research and development decision and human capital decision) on liquidity of farmers-based deposit taking SACCOs. The hierarchical model summary revealed that in model one; investment decision had a strong positive correlation of 0.773 > 0.5 and revealed that investment decision explains 59.7 percent of SACCOs liquidity meaning that there are other predictors unexplained by the study that influences liquidity by 40.3 percent. This is supported by Morwabe and Muturi, (2019) who found that investment decision had a strong positive correlation on financial performance of deposit taking savings and credit co-operatives in Nairobi County

Model two established that R square increased from 59.7 percent to 62 percent. Thus, SACCO size moderated the relationship as proved by an increase of 2.3 percent implying that it strengthened the relationship between investment decision and liquidity of farmers-based deposit taking

SACCOs. On the other hand, significance F change increased by 0.05 whereas Pearson correlation (R) improved from 0.773 to 0.788 reflecting that, SACCO size improved correlation between predictor variables and the dependent variable.

The third model established that R square had a significant change of 3.5 percent (R^2 = 0.655-0.620). This is supported by study conducted by (Gweyi, 2018) who found that interaction term SACCO size strengthens the relationship between financial risk and performance of deposit taking SACCOs in Kenya. The study was also supported by (Maina, Kiai and Kyalo, 2020) who found that SACCO size strengthens the relationship between credit management practices and financial sustainability of deposit taking SACCOs in Kenya.

Table 4.38 Moderated Model Summary

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.773[a]	.597	.572	.54477	.597	24.052	4	65	.000
2	.788[b]	.620	.591	.53269	.024	3.981	1	64	.050
3	.809[c]	.655	.603	.52467	.034	1.493	4	60	.216

a. Predictors: (Constant), Human Capital, Research & Development, Financial Investment, Lending
b. Predictors: (Constant), Human Capital, Research & Development, Financial Investment, Lending, SACCO Size
c. Predictors: (Constant), Human Capital, Research & Development, Financial Investment, Lending, SACCO Size, RDD*SZ, RDD*SZ, FSD*SZ, LD*SZ
d. Dependent Variable: Liquidity

The ANOVA results revealed that before and after introducing moderator (SACCO size) the three models had significant values of (P values = 0.000). On the other hand, F calculated for model one (F = 24.052 > 2.51); model two (20.920 > 2.51) and model three (12.644 > 2.51) implying that, there exists a significance nexus between investment decision and liquidity of farmers-based deposit taking SACCOs in Kenya. This was opined by study carried out by (Maina, Kiai and Kyalo, 2020; Gweyi, 2018) who found that the moderator strengthened the study model. Thus, null hypothesis that, there is no moderating effect of SACCO size on the relationship between investment decision and liquidity of farmers-based Deposit Taking SACCOs was rejected with (P value = 0.000, F = 24.052 for model one, F = 20.920 for model two, F = 12.644 for model three).

Table 4.39 Analysis of Variance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.552	4	7.138	24.052	.000[b]
	Residual	19.290	65	.297		
	Total	47.843	69			
2	Regression	29.682	5	5.936	20.920	.000[c]
	Residual	18.161	64	.284		
	Total	47.843	69			
3	Regression	31.326	9	3.481	12.644	.000[d]
	Residual	16.517	60	.275		
	Total	47.843	69			

a. Dependent Variable: Liquidity

b. Predictors: (Constant), Human Capital, Research & Development, Financial Investment, Lending

c. Predictors: (Constant), Human Capital, Research & Development, Financial Investment, Lending, SACCO Size

d. Predictors: (Constant), Human Capital, Research and Development, Financial Investment, Lending, SACCO Size, RDD*SZ, RDD*SZ, FSD*SZ, LD*SZ

Table 4.40 presents hierarchical model coefficients as generated by SPSS. Model one revealed that predictors employed on liquidity had P-values of 0.000, 0.004, 0.014 and 0.005 which were less than 0.05 indicating a significant relationship on liquidity. On the other hand, predictors employed in the study had calculated t values greater than t critical values. Pearson correlation coefficients had positive values of (0.341, 0.195, 0.142 and 0.205) revealing a direct nexus between lending, financial investment, research and development, human capital and liquidity. The four predictors employed generated the following multiple linear regression equation as per the SPSS; Liquidity = 0.341LD + 0.195FID + 0.142RDD + 0.205HCD + 0.5448

In model two, researcher introduced SACCO size to moderate investment decision on liquidity. The four variables employed generated the following equation as per SPSS; Liquidity = 0.761LD + 0.229FID + 0.561RDD + 0.241HCD – 0.405SZ + 0.5327. To establish significance of predictors on liquidity, the study found that lending decision, financial investment decision, research and development decision, human capital and moderator (SACCO size) had significant values (with P values of 0.001, 0.001, 0.007, 0.001, 0.05) thus influencing liquidity of deposit taking SACCOs. Finding were in support of calculated t values of (3.415, 3.470, 2.801, 3.384 critical t statistic 2.0)

In model three the study introduced interaction term (SACCO size) to determine the moderating effect on investment decision and liquidity. SPSS generated, equation; liquidity = 1.248LD + 0.317 FID -0.105 RDD + 0.294 HCD + 0.095 SZ – 0.139 LD*SZ - 0.035 FID*SZ + 0.057 RDD*SZ – 0.021 HCD*SZ + 0.5247. Consequently, the study revealed that lending decision had a significant relationship on liquidity (with p value 0.000) whereas other predictors indicated an inverse relationship on liquidity (with p values of 0.111, 0.596, 0.149, 0.787, 0.064, 0.064, 0.537, 0.258 and 0.729). Thus, introducing interaction term (SACCO size) weakens the relationship between investment decision and liquidity of deposit taking SACCOs in Kenya.

Table 4.40 Regression Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.635	.326		1.949	.056
	Lending	.341	.074	.403	4.594	.000
	Financial Investment	.195	.065	.259	2.990	.004
	Research & Development	.142	.056	.204	2.516	.014
	Human Capital	.205	.070	.260	2.913	.005
2	(Constant)	.228	.379		.602	.549
	Lending	.761	.223	.901	3.415	.001
	Financial Investment	.229	.066	.304	3.470	.001
	Research & Development	.156	.056	.224	2.801	.007
	Human Capital	.241	.071	.305	3.384	.001
	SACCO Size	-.405	.203	-.559	-1.995	.050
3	(Constant)	-.953	.918		-1.038	.303
	Lending	1.248	.319	1.477	3.914	.000
	Financial Investment	.317	.196	.420	1.616	.111
	Research & Development	-.105	.197	-.152	-.534	.596
	Human Capital	.294	.201	.372	1.461	.149
	SACCO Size	.095	.348	.131	.272	.787
	LD*SZ	-.139	.074	-1.217	-1.885	.064
	FSD*SZ	-.035	.057	-.258	-.621	.537
	RDD*SZ	.057	.050	.432	1.143	.258
	HCD*SZ	-.021	.059	-.144	-.348	.729

a. Dependent Variable: Liquidity

CHAPTER FIVE

SUMMARY, CONCLUSSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter expounds summary of study findings, conclusions and recommendations of the analysis on the relationship between investment decision and liquidity of farmers-based Deposit Taking SACCOs. Summary and conclusions of the findings were guided and organized as per the study objectives; to determine the effect of lending decision on liquidity of farmers-based Deposit Taking SACCOs; to determine whether financial investment decision affects liquidity of farmers-based Deposit Taking SACCOs; to establish whether research and development decision affect liquidity of farmers-based Deposit Taking SACCOs; to establish the effect of human capital decision on liquidity of farmers-based Deposit Taking SACCOs and to evaluate whether SACCO size have a moderating effect on investment decision and liquidity of farmers-based Deposit Taking SACCOs

5.2 Summary of Key Findings

The summary of the key findings was as presented below.

5.2.1 Influence of Lending Decision on Liquidity of Farmers-based Deposit Taking SACCOs

The first objective was to determine the effect of lending decision on liquidity of farmers-based Deposit Taking SACCOs. Before analysis, reliability and validity test were carried out. Reliability revealed a cronbach coefficient alpha of 0.788 revealing that items employed served the intended purpose. On the other hand, orthogonal and varimax rotation in factor analysis revealed that three components had eigenvalues greater than one which were retained and used in regression analysis. The created components were renamed natural lending, institutional lending and group lending

which were used further in inferential statistics. Inferential statistics revealed that there exists a positive nexus between lending decision and farmers-based DT-SACCOs liquidity. The study further revealed that the created components (natural lending, institutional lending and group lending) were statistically significant on liquidity. The findings were in line with Kamba, Lyria, Wachira and Maina, (2016) who revealed a significant nexus between short term loan and financial sustainability in Imenti North micro-finance. However, the findings were different from that of Nzayisenga (2017) who found that mobile lending and financial performance of commercial banks have an inverse relationship.

5.2.2 Influence of Financial Investment Decision on Liquidity of Farmers-based Deposit Taking SACCOs

The second objective intended to determine whether financial investment decision affects liquidity of farmers-based Deposit Taking SACCOs. Reliability test was first conducted to determine adequacy of study construct towards measuring the effect and found that items employed were adequate. Further analysis was conducted to condense study items into factors where Principal component analysis and orthogonal rotation were employed. The analysis revealed that the four components were highly loaded and had eigenvalues greater than one which were extracted and renamed short term investment, medium term investment, long term investment and other investments which were further used in regression analysis. The analysis revealed that there exists a positive nexus between financial investment decision and liquidity of farmers-based Deposit Taking SACCOs. The study further revealed that; there exists a significant nexus between short term investment, medium term investment, long-term investment and liquidity of farmers-based Deposit Taking SACCOs. However, the findings contradicted with study carried out by Hussein, (2017) who established an inverse nexus between investment in government securities, corporate

bonds and financial performance. Conversely, the study supports findings of Morwabe and Muturi, (2019) who established a positive nexus between short term investment, medium term investment, long term investments and SACCOs performance. This was also in line with Njiiri, (2015) who revealed a significant nexus between real estate, government securities, certificate of deposits, stocks, corporate bonds and financial performance of insurance companies in Kenya. However, investment classified as other investment had an inverse relationship on liquidity of farmers-based Deposit Taking SACCOs with p value greater than 0.05 at 95 percent level of confidence.

5.2.3 Influence of Research and Development Decision on Liquidity of Farmers-based Deposit Taking SACCOs

The third objective examined the nexus between research and development decision on liquidity of farmers-based Deposit Taking SACCOs. Kaiser Mayer Olkin attested that items employed were adequate for factor analysis whereas Bartlett test of sphericity established that; items employed were significant thus appropriate for factor reduction. Consequently, principal component analysis established that four components were highly loaded and had eigenvalues greater than one. Thus, the four components were extracted and renamed market expansion, innovativeness, product diversification and technology which were further used in inferential statistics. The analysis revealed that research and development had a significant value implying that there exists a significant nexus between research and development decision and liquidity of farmers-based Deposit Taking SACCOs. Consequently, the regression model revealed that; product diversification, innovativeness and market expansion has a positive nexus on farmers based Deposit Taking SACCOs liquidity. However, the analysis established an inverse nexus between technology and liquidity of farmers-based Deposit Taking SACCOs. The findings were in support of Kiptum, (2016); Munywoki, (2016) who established a positive nexus product innovation,

marketing innovation product development, market expansion, product diversification, market penetration and financial performance.

5.2.4 Influence of Human Capital Decision on Liquidity of Farmers-based Deposit Taking SACCOs

The fourth objective intended to examine the nexus between human capital decision and liquidity of farmers-based Deposit Taking SACCOs. The analysis revealed a cronchbach alpha value of 0.813 implying that items employed served the intended purpose. Kaiser Mayer Olkin further established a KMO value of 0.764 meaning that; items employed were adequate for factor reduction. Moreover, principal component analysis revealed that three components had eigenvalues greater than one which were retained. The extracted components were renamed staff competence, incentives and staff qualification and were further used in inferential statistics. The inferential statistics established that human capital decision has a significant nexus on farmers-based Deposit Taking SACCOs liquidity. The study further revealed that; there exists a significant nexus between staff employees, staff competence, staff qualification and liquidity of farmers-based Deposit Taking SACCOs. The findings support work by Munjuri, Obonyo and Ogutu, (2015) who revealed a positive nexus between level of education, tenure, recruitment process and firms' performance which agreed with Omolo, (2017).

5.2.5 Moderating Effect of SACCO Size on the Relationship Between Investment Decision on Liquidity of Farmers-based Deposit Taking SACCOs

To examine the moderating effect of SACCO size, hierarchical regression model was employed where R squared change determined whether SACCO size strengthens, weakens or antagonizes the nexus. The study established that SACCO size strengthens the nexus between investment

decision and liquidity of farmers-based Deposit Taking SACCOs. This is in line with Gweyi, (2018); Maina, Kiai and Kyalo, (2020) who established that SACCO size strengthens relationship between credit management and financial risk on financial performance and financial sustainability of Deposit Taking SACCOs in Kenya.

5.3 Conclusions

The first objective was to determine whether there exists an association between lending decisions and liquidity of farmers-based deposit taking SACCOs. Therefore, the model revealed that lending decisions had a positive nexus on farmers-based Deposit Taking SACCOs liquidity. Additionally, the study concludes that natural lending, institutional lending and group lending have a significant nexus on farmers-based Deposit Taking SACCOs liquidity. Thus, the study concludes that improvement of lending decisions improves SACCOs liquidity.

The second objective was to assess whether financial investment decision affects liquidity of farmers-based Deposit Taking SACCOs. Based on the findings, the study concludes that there exists a significant nexus between financial investment decision and farmers-based Deposit Taking SACCOs liquidity. Additionally, the study concludes that short term investment, medium term investment and long-term investments have a statistically significant effect on farmers-based Deposit Taking SACCOs liquidity. However, investments classified as other investment has insignificant nexus on farmers-based Deposit Taking SACCOs liquidity. The study further concluded that an increase in short term investment, medium term investment and long-term investments improves SACCOs liquidity. Moreover, SACCOs should be discouraged from

investing in unclassified investment as the investment seems to affect negatively the pooled assets expected returns

The third objective examined the nexus between research and development decision on liquidity of farmers-based Deposit Taking SACCOs. Based on the findings, the study concludes that research and development decision have a significant nexus on farmers-based Deposit Taking SACCOs liquidity. The study further concludes that product diversification, innovativeness and market expansion have a positive nexus on liquidity. Thus, a unit increase in research and development improves SACCOs liquidity.

The fourth objective sought to examine the nexus between human capital decision and liquidity of farmers-based Deposit Taking SACCOs. The analysis revealed a significant association between human capital decision and liquidity of farmers-based Deposit Taking SACCOs. Moreover, the study established that experience, competency and qualifications held by staff have a positive nexus on SACCOs liquidity. Thus, the study concluded that; SACCOs need to consider qualifications held by staff when recruiting and that they should also consider education and training to tailor fit education so as to improve staff competency. Additionally, SACCOs need to come up with retention strategies to enhance staff competence which will lead to SACCOs having a competitive edge thus improving liquidity and on the same time ensure customer satisfaction.

The fifth objective examined the moderating effect of SACCO size on the relationship between investment decision and liquidity of farmers-based Deposit Taking SACCOs. From the findings of hierarchical regression model the study concludes that SACCO size strengthened the nexus

between investment decision and SACCOs liquidity. Therefore, SACCOs management should ensure that there is enough funds both withdrawable and non-withdrawable deposits so as to improve on pooled investments.

5.4 Recommendations

The SACCOs should desist from investments classified as other assets as they are deceitful activities which affect liquidity and at the same time expose members' funds at risk of being lost. This was supported by study findings that investment in other assets had an inverse nexus on liquidity meaning that an increase in one unit of other assets leads to a decrease in liquidity. SACCOs to invest more in government securities as they are risk free assets which will improve liquidity thus reduce contingent illiquidity and window borrowing. When recruiting the SACCOs should pay greater emphasis on candidates who are more experienced on the job whether within their own organization or from external applicants.

The next most important parameter turned out to be staff qualifications. It therefore follows that applicants with higher qualifications should be more preferred when selecting potential candidates to fill a position. The two above were followed in order of staff competence. However, it should be noted that staff competency is more detectable when employees have already been hired for the job. Therefore, SACCOs should tailor fit their education and training programs towards filling the deficiencies identified when assessing the training needs.

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APPENDICES

Appendix I: Introduction Letter

GACHENGA JOHN NDUNGU,
CO-OPERATIVE UNIVERSITY OF KENYA,
DEPARTMENT OF CO-OPERATIVES AND COMMUNITY DEVELOPMENT,
P.O BOX 1957-60200,
NAIROBI.
10TH JUNE 2021
Dear Sir/Madam

RE: LETTER OF INTRODUCTION

I am post-graduate student at Co-operative University of Kenya undertaking Masters degree in Co-operative management. I am conducting a study on:

THE RELATIONSHIP BETWEEN INVESTMENT DECISIONS AND LIQUIDITY OF FARMERS BASED DEPOSIT TAKING SAVINGS AND CREDIT CO-OPERATIVES IN KENYA

I would therefore like to collect some information on investment decision and liquidity. I kindly request you to assist in filling in the attached questionnaire.

Please give your honest answers to the questions. The information given will be kept strictly confidential.

Thanking you in advance.

Yours faithfully,

GACHENGA JOHN NDUNGU.

Appendix II: Questionnaire

SECTION A: GENERAL INFORMATION:

1. Name of the SACCO.....(optional)
2. Gender: Male () Female ( )
3. Age: under 21() 21-30 ( ) 30-40 ( ) 41-50 ( ) Above 50 ( )
4. Level of academic education: Primary ( ) Secondary education ( ) Undergraduate ( ) Masters () PHD ()
5. Length of service in a SACCO: Below 3 years ( ) 3-6 years ( ) 6-9 years ( ) 9-12 years ( ) Above 12 years ( )
6. Duration of office as financial manager: Below 3 years ( ) 3-6 years ( ) 6-9 years ( ) 9-12 years ( ) Over 12 years ( )
7. Age of the SACCO: 1-5 years ( ) 6-10 years ( ) 11-15years ( ) 16-20 years ( ) Above 20 years ( )
8. Majority of our members are between the age of; 18-25 ( ) 25-35 ( ) 35-45 ( ) 45-55 ( ) Above 55 years ( )
9. Number of branches: No branch ( ) 1-3 ( ) 4-6 ( ) 7-9 ( ) Above 10 ( )
10. Number of ATMs No ATM: ( ) 1-3 ( ) 4-6 ( ) 7-9 ( ) Above 10 ( )
11. Percentage of non-performing loan: 1-3% ( ) 3-6% ( ) 6-9% ( ) 9-12& ( ) 12-15% ( ) Above 15% ( )
12. Percentage of operating expenses on net profit: Below 5% ( ) 5-10% ( ) 10-15% ( ) 15-20 % ( ) More than 20 % ( )

13. SACCO pay dividend annually Disagree ( ) strongly disagree ( ) Not sure ( ) Agree ( ) Strongly agree ( )

SECTION B: LENDING DECISION

Kindly indicate the level of agreement in relation to the statements below relating to lending decision. SA= Strongly Agree A= Agree N= Not sure D=Disagree SD= Strongly Disagree

Statements	SA	A	N	D	SD
Investment in long terms loans is more preferred by the members					
Investment in short term loans is highly preferred by the members					
Medium term loans are more preferred by the members					
Lending to members is highly preferred					
Investment in lending to groups is highly preferred by the members					
Lending to members has high risk of default in comparison to groups					
Before lending the organization usually consider the credit history of the borrower					
Lending to groups is considered risky by members					
SACCO insures its loans towards loan defaulters					
Price fluctuation has affected members loans repayment					

Majority of borrowers are groups					
Majority of borrowers are above 50 years of age					

SECTION B: FINANCIAL INVESTMENT DECISION

Kindly indicate the level of agreement in relation to the statements below relating to financial investment decision. SA= Strongly Agree A= Agree N= Not sure D=Disagree SD= Strongly Disagree

Statements	**SA**	**A**	**N**	**D**	**SD**
Investment in treasury bills is highly preferred by the members					
Investments in companies' shares is mostly preferred by the members					
Our members rarely prefer fixed deposits					
Members always discourage undisclosed investments					
The members prefer to invest in financial markets					
The members usually advocate for investment in corporate bonds					
The members usually prefer to issue commercial papers to ensure liquidity					
Investment in treasury bonds is highly preferred by the members					
The SACCO prefer investing in real estates					

SACCOs rarely prefer holding balances with other SACCO societies					
Investment in lands is highly discouraged					

SECTION C: RESEARCH AND DEVELOPMENT DECISION

Kindly indicate the level of agreement in relation to the statements below concerning research and development decision. Kindly tick the most appropriate box. SA= Strongly Agree A= Agree N= Not sure D=Disagree SD= Strongly Disagree

Statements	**SA**	**A**		**D**	**SD**
Number of branches has reduced					
Use of ATMs has improved customers convenience					
The SACCO is struggling to introduce mobile banking					
The SACCO has established internet banking					
Agency banking improves customers access					
Product innovation improves total deposit					
Market penetration has improved customer base					
Product diversification improves surplus					

Members can be able to access loans through mobile phones					
Service innovation has improved customers loyalty					
Membership has increased					
Loan book has increased over the years					

SECTION D: HUMAN CAPITAL DECISION

Kindly indicate the level of agreement in relation to the statements below relating to human capital decision. Kindly tick the most appropriate box in relation to the extent you feel human capital can affect liquidity SA= Strongly Agree A= Agree N= Not sure D=Disagree SD= Strongly Disagree

Statements	SA	A	N	D	SD
The SACCO offers training opportunities to staff					
The SACCO considers academic qualifications during recruitment					
The SACCO motivates employees through monetary and non-monetary incentives					
The SACCO has put in place career development programs to improve employee's capacity					
Rewards are performance based					
Education and training improve efficiency in workplace					
The staff rotation improves staff skills					
Seniors delegate some duties to staff to prepare them for					

management positions					
Employees are provided with insurance schemes					
Employees are provided with medical schemes					
The SACCO contributes towards staff pension schemes					
The SACCO provides staff with mortgage loans, investment loans etc.					

Appendix III. Secondary Data Collection Sheet

Name of SACCO.....

	Amount in "000,000"				
Variables	0 – 400	400 – 800	800 – 1,200	1,200 – 1,600	1600 and
Total Assets					
Gross Loans					
Total deposits					

Appendix IV: Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 267332

Date of Issue: 06/September/2021

RESEARCH LICENSE

This is to Certify that Mr.. John Ndung'u Gachenga of The Co-operative University of Kenya, has been licensed to conduct research in Baringo, Bomet, Bungoma, Busia, Elgeyo-Marakwet, Embu, Garissa, Homabay, Isiolo, Kajiado, Kakamega, Kericho, Kiambu, Kilifi, Kirinyaga, Kisii, Kisumu, Kitui, Kwale, Laikipia, Lamu, Machakos, Makueni, Mandera, Marsabit, Meru, Migori, Mombasa, Muranga, Nairobi, Nakuru, Nandi, Narok, Nyamira, Nyandarua, Nyeri, Samburu, Siaya, Taita-Taveta, Tanariver, Tharaka-Nithi, Trasnzoia, Turkana, Uasin-Gishu, Vihiga, Wajir, Westpokot on the topic: RELATIONSHIP BETWEEN INVESTMENT DECISIONS AND LIQUIDITY OF FARMERS BASED DEPOSIT TAKING SAVINGS AND CREDIT CO-OPERATIVES IN KENYA for the period ending : 06/September/2022.

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Director General
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