



Liquidity Management and Financial Performance: Evidence from Kigoma Region Savings and Credit Cooperatives (SACCOS)

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ABSTRACT

This study empirically examines the liquidity management and financial performance evidence from Kigoma Savings and Credit Cooperatives (SACCOS). This research utilized the quantitative research design and panel data regression analysis. From a population of 36 licensed SACCOS operating in Kigoma Region, 20 institutions were purposively selected for analysis using data covering the period from 2010 to 2024. The secondary data was collected, and the fixed effects panel regression analysis was employed. The study reveals that net cash flow, investment in non-core business activities, and lending rate have a statistically significant positive effect on the financial performance of SACCOS in the Kigoma region.

On the other hand, non-performing loans (NPLs) have a statistically significant negative effect on financial performance, while capital adequacy does not significantly affect financial performance in Kigoma's SACCOS. The study recommends that SACCOS pay close attention to their cash flow, carefully undertake non-core investments, set lending rates appropriately, and manage credit risk effectively to minimize non-performing loans and improve financial performance. The current research makes a valuable and fresh contribution since it analyzes several variables concerning financial decision-making: net cash flow, non-core investments, non-performing loans, lending rates, and capital adequacy.

Keywords: Financial Performance, Liquidity Management, Savings, Credit, Cooperative Societies.

JEL Codes: G21, G32, C23, D22

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1. INTRODUCTION

Financial performance refers to the extent to which a financial institution effectively utilizes its resources to generate revenue, meet financial objectives, and deliver value to stakeholders. It is commonly assessed through metrics such as Return on Assets (ROA), Return on Equity (ROE), and net surplus ratios, which indicate profitability, operational efficiency, and capital utilization (Ait Jillali & Belkasseh, 2022; Tudose et al., 2022). For Savings and Credit Cooperative Societies (SACCOS), financial performance extends beyond profitability; it reflects their ability to sustain operations, serve member needs, and promote socioeconomic development. In cooperative finance, strong performance is often linked to prudent liquidity management, sound governance, and sustainable credit practices (Ochingo & Muturi, 2018).

Liquidity management, the capacity to meet short-term obligations without incurring losses, is a critical determinant of financial performance in both banking and non-banking institutions. Effective liquidity ensures uninterrupted operations and enhances stakeholder confidence (Culham, 2020; Shibutse et al., 2019). Empirical studies show that institutions with robust liquidity frameworks tend to experience fewer disruptions and achieve better financial outcomes (Githaka, 2017; Njue et al., 2020). In Sub-Saharan Africa, where cooperative financial models serve millions, the importance of liquidity is amplified. According to research conducted in Kenya and Nigeria, SACCOS and microfinance institutions with a sufficient amount of liquidity tend to exhibit higher levels of stability and growth capacity (Okoye et al., 2017; Otwoko & Maina, 2021).

However, liquidity management of SACCOS can face difficulties in developing nations due to such factors as limited access to capital markets, irregular savings behavior, weak internal controls, seasonal income sources, and engagement in non-core businesses without appropriate risk assessment tools (Otwoko & Maina, 2021; Shilimi, 2021). As a result, the institution can experience problems when planning its liquidity, thus being forced to take external debt on less favorable conditions, or refusing to lend its members, both actions negatively impacting its financial standing.

SACCOS in Tanzania play an important role in implementing the country's financial inclusion policy by catering to different population groups, including rural inhabitants (Lupia & Kagata, 2024; Ndiege et al., 2016; Nyangarika & Bundala, 2020). However, unlike banks, Tanzanian SACCOS do not have access to lender-of-last-resort support from the country's central bank, making them more susceptible to external liquidity challenges. For example, experiences of Ugandan SACCOS indicate that during times of crisis, commercial banks get assistance from the central bank. In contrast, SACCOS struggle to cope with withdrawals in times of crisis (Muheebwa, 2018). Thus, as a coping strategy, some Tanzanian SACCOS engage in non-core business activities or acquire credits from commercial banks, risking becoming more financially fragile if such decisions are made irresponsibly.

Although many studies have been devoted to liquidity management issues of SACCOS in recent decades, some crucial gaps have been identified, especially concerning their operations in Kigoma. The first gap is related to the use of a limited number of single determinants for assessing the problem (e.g., capital adequacy: Lekaaso et al., 2020; Okoye et al., 2017), ignoring the interconnection between such indicators as non-core business and

volatility of net cash flows. The second gap relates to the lack of information regarding how internally set lending rates, determined through the combination of such elements as the organization's governance policy, affordability of loans by its members, as well as regional competition, might contribute to the financial fragility of SACCOS operating in an agrarian economy (as in Kigoma), together with non-performing loans and/or poor non-core business results. The third gap involves the lack of evidence-based insights into effective regionally-oriented liquidity optimization techniques in SACCOS under such constraints as lending rates and capital adequacy, among others. The absence of localized, multidimensional evidence leaves policymakers and cooperative managers without context-sensitive insights for designing liquidity management strategies in Kigoma's SACCOS, a gap that this study directly addresses.

This study addresses that gap by examining the effects of liquidity-related variables on the financial performance of Kigoma SACCOS. The five variables of interest are: net cash flow, capital adequacy, investment in non-core businesses, non-performing loans, and lending rates. The following research questions guide the study:

1. What is the effect of net cash flow on the financial performance of SACCOS in the Kigoma region?
2. How does investment in non-core business activities influence profitability?
3. To what extent does capital adequacy affect financial performance outcomes?
4. What is the impact of non-performing loans on SACCOS performance?
5. How do lending rates affect financial outcomes in Kigoma region SACCOS?

By applying a panel data regression model to licensed SACCOS in the Kigoma region, this research offers an evidence-based, context-specific understanding of how liquidity management influences financial performance. Its contribution lies in filling a significant empirical gap, supporting improved liquidity governance, and informing policies that enhance the sustainability of the cooperative finance sector in the Kigoma region. Ultimately, the findings contribute to the broader literature on financial cooperatives in developing economies and support efforts toward inclusive financial development.

The structure of this paper is organized as follows: the second section includes a thorough literature review, the proposed relationships, and the relevant conceptual framework; section three details the methodological approach utilized in this study; part four presents the results and discussions. The concluding part encompasses the conclusions and implications gained from the study's findings.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1.Theoretical Review

The theoretical underpinning of this study is based on the Keynesian Theory of Money (KTM), the Neoclassical Theory of Investment, and the Market Power Theory (MPT). The theories are useful in understanding the relationship between the different liquidity management practices (net cash flow, investment in non-core activities, capital adequacy, non-performing loans, and lending rate) and their impact on the financial performance of the SACCOS in Kigoma region in an environment characterized by regulatory and financial constraints.

The Keynesian Theory of Money (KTM) argues that people hold cash for transactions, precautionary, and speculative purposes (Smithin, 2013). In case of SACCOS, transaction motive entails constant cash flows for giving out members' loans and withdrawal; the

precautionary motive relates to uncertainties in contributions from members, economic environment, and delayed loan repayments (since the SACCOS do not have access to credit lines as per the laws of Tanzania according to Bwana & Mwakujonga (2013); while the speculative motive involves the determination of the lending rates. Increased interest rates lead to increased non-performing loans (NPL), which lowers the inflow of funds, increasing the need for higher precautionary reserves. High liquidity without investments affects the financial performance (An et al., 2016; Cheung et al., 2023; Fecht et al., 2020). Consequently, KTM highlights the relationship between liquidity behavior, interest rate setting, and credit quality in influencing the financial performance of SACCOS.

In accordance with the Neoclassical Theory of Investment, a firm acts rationally, maximizes utility and profit depending on the marginal cost of capital and the expected returns, and operates in a perfectly efficient market (Crotty, 1992; Gould & Waud, 1973; Jorgenson & Stephenson, 1969; Panageas, 2005). In case of SACCOS, this theory analyzes how liquidity from savings and retained earnings affect either core or non-core investments. Improved liquidity management practices have been found to be positively associated with financial performance (Musiita et al., 2023). Additionally, internal liquidity, capital adequacy, and proper corporate governance are vital for sustainable operations (Kikai & Jagongo, 2024).

2.2. Empirical Review

2.2.1 Investment in Non-core Business and Financial Performance

Several studies show a strong link between investment in Non-core Business and firm performance. Non-core business investment, net cash flow, and capital adequacy have all been shown to affect performance, though results vary depending on context and the structure of non-core investments.

Ayantoyinbo & Odepidan (2018) established the positive influence that the outsourcing of non-core business activities had on firm performance. Therefore, it implies that SACCOS could reap more profits by investing in non-core activities if the right opportunities are identified. On the other hand, Ariemba et al. (2016), who investigated non-core investments among SACCOS in Kenya, noted that only particular types of non-core investments, specifically in R&D, were positively correlated with firm performance. Additionally, Romadhon & Mulyadi (2025) note that financial literacy is very crucial for any entrepreneur undertaking a non-core business investment. The same applies to SACCOS because without financial skills to analyze non-core investments, the likelihood of making profits will be limited. In other words, the quality of the investment will matter a lot and not necessarily its volume. Similarly, Kumara & Shetty (2025) studied urban cooperative banks in India that invested in property leasing and fintech partnerships. However, they found varied financial performances, which depended on the extent and efficiency of management in their operations. Through the application of the CAMEL analysis, they proved that inefficient management of resources and poor asset quality resulted in a decline in financial performance, but effective management of diversified investments enhanced liquidity. The above findings led to the following hypothesis being generated:

H1: Investment in non-core business activities has a significant effect on the financial performance of SACCOS.

2.2.2 Cash Flow and Financial Performance

Proper financial management of net cash flow is important in achieving financial performance in any organization, especially SACCOS, considering that such institutions are dependent on member contributions to survive and thrive. Previous studies in various sectors have shown diverse associations between net cash flow and financial performance. For instance, in the banking sector of the USA, there is a negative association between net cash flow and financial performance, while there is a positive association between free cash flow and financial performance (Rompotis, 2024). In the telecom sector of Saudi Arabia, there are significant effects of operational, investment, and financing cash flows on the financial performance of firms (Sabri & Abdulrahman, 2020). Operating cash flow margin, operating cash flow ratio, investing cash flow ratio, and net cash flow ratio are positively associated with financial performance in the Nigerian stock market (Etim et al., 2022). Furthermore, in the insurance sector of Nigeria, there is a significant association between the operating cash flow and financial performance. In contrast, financing cash flow has a positive effect on financial performance without significance (Ogbeide & Akanji, 2017).

Previous studies show a strong effect of cash flows on financial performance in the Nairobi Securities Exchange (Momanyi et al., 2017) and the insurance sector in Kenya (Mutumira, 2019). However, a challenge emerges due to the positive association of operating cash flow with financial performance in Nigerian banks, although there is a negative relationship between investing and financing cash flows and performance (Amah et al., 2016). Moreover, the hospitality and media sector of SMEs in Nigeria experiences technological advancement, which leads to effective cash flows (Nwanyanwu, 2015). Nonetheless, in the Nigerian gas and oil sector, the financing cash flow positively associates with financial performance, but the operating and investing cash flows negatively relate to performance (Nangih et al., 2020). In mutual funds in Kenya, there is an improvement in ROA, but not in ROE due to operating cash flow (Soet et al., 2018). In the Nigerian food and beverages industry, the operating and financing cash flows positively impact financial performance, but there is a negative impact of investing cash flows on financial performance (Nwakaego et al., 2015).

The Keynesian theory suggests that the precautionary motive and transactional motive of holding cash flows help understand net cash flow and financial performance. On this basis, SACCOS will need stability and good management of net cash flows in order to achieve financial performance because the organization does not have external sources of liquidity. The above discussion proves the hypothesis that net cash flow management leads to financial performance.

H2: Net cash flow positively influences the financial performance of SACCOS in the Kigoma region.

2.2.3 Capital Adequacy and Financial Performance

The concept of capital adequacy entails a cushion for companies such as banks and SACCOS to help them absorb any losses and stay solvent. Research indicates that capital adequacy is positively correlated with financial performance since, according to David & Osemwegie (2016); Okoye et al., (2017), capital adequacy has significant positive correlations with financial performance among Nigerian commercial banks, while Mutumira (2019) affirmed the same correlation among Kenyan insurance companies. On the other hand, Githaiga

(2015); Ngui & Jagongo (2017) established that capital adequacy has a positive impact on financial performance in SACCOS organizations in Kenya. Nonetheless, other researchers established that capital adequacy had insignificant correlation with financial performance as indicated by Lekaaso et al., (2020) with regards to SACCOS in Samburu County, Kenya, while Ndegwa (2017) revealed weak positive correlation with financial performance among Kenyan commercial banks. From the Market Power Theory, which argues that adequate capital leads to a barrier of entry in the market, the following hypothesis is established based on the study:

H3: Capital adequacy positively influences the financial performance of SACCOS in Kigoma region.

2.2.4 Non-Performing Loans (NPLs) and Financial Performance

Non-performing loans (NPLs) play a crucial role in determining the financial stability and profitability of financial institutions, including Savings and Credit Cooperative Societies (SACCOS). When NPLs are high, they can significantly diminish interest income, hinder liquidity, and necessitate increased provisions for bad debts, all of which can negatively impact profitability.

Research has explored how loan management practices and commercial bank loans influence the financial performance of SACCOS in Kenya. For instance, practices related to loan management, such as loan collection policies, credit risk measures, and the rates of loan default, have been shown to significantly impact the financial health of deposit-taking SACCOS (Bwoma et al., 2017). Specifically, the loan default rate has been found to positively and significantly affect the financial performance of SACCOS in Narok County, Kenya (Salaton et al., 2020). Additionally, NPLs have a notable positive effect on the financial performance of microfinance institutions in Kenya (Kitonyi et al., 2019).

In a study by Sadok & El Maknouzi (2025), it was observed that NPLs can hinder performance by reducing credit recovery rates and increasing the costs associated with credit monitoring. Interestingly, in the context of Moroccan banks, the adoption of fintech has helped stabilize NPL levels, thereby supporting financial performance (Sadok & El Maknouzi, 2025). Similarly, research on Indonesian micro, small, and medium enterprises (MSMEs) by Idris et al. (2025) emphasizes that prudent regulation and effective internal credit monitoring are essential in minimizing NPLs, which can otherwise erode returns and capital buffers. Their findings suggest that SACCOS with weaker credit assessment practices are likely to experience higher NPLs and lower profitability. Furthermore, Leony et al. (2024) found that effective internal customer screening and diligent credit follow-ups can significantly reduce NPLs in microfinance units, thus safeguarding financial performance (Leony et al., 2024).

H4: Non-performing loans have a significant negative effect on the financial performance of SACCOS.

2.2.5 Lending Rate and Financial Performance

The lending rate serves as both a pricing strategy and a risk compensation mechanism, influencing loan uptake, repayment ability, and institutional revenue. However, the relationship between lending rates and financial performance is complex; excessively high rates may deter borrowing or raise default risks, while rates that are too low might not adequately cover operational costs. Although direct studies focusing on SACCOS are limited, broader evidence indicates that the impact of lending rates on financial performance is influenced by factors such

as market competition, borrower quality, and cost structures. High lending rates, unless justified by risk, can lead to increased default rates and diminished long-term profitability (Durrani et al., 2022; Kariuki, 2023).

In a study by Afza et al., (2018), the effects of interest rates on the financial performance of Pakistani banks were investigated. The findings revealed that deposits held at other banks and interest rates negatively impacted profitability, while advances, loans, and investments had a positive influence. Dondi et al., (2023) concluded that lending interest rates have a significant adverse effect on the financial performance of commercial banks, suggesting that these banks should respond by raising their mortgage lending rates in line with increased mortgage provisions to enhance profitability and overall financial performance. Furthermore, rising lending rates can stimulate the growth of long-term mortgage loans, thereby improving the financial performance of commercial banks. Kipngetich & Makori (2024) noted that SACCOS interest rates are vital contributors to financial performance, with effective management strategies playing a key role in achieving profitability goals. Their study highlights the importance of aligning lending rates with the overall financial sustainability and efficiency of SACCOS operations.

H5: Lending rates have a significant impact on the financial performance of SACCOS.

2.3 Conceptual Framework

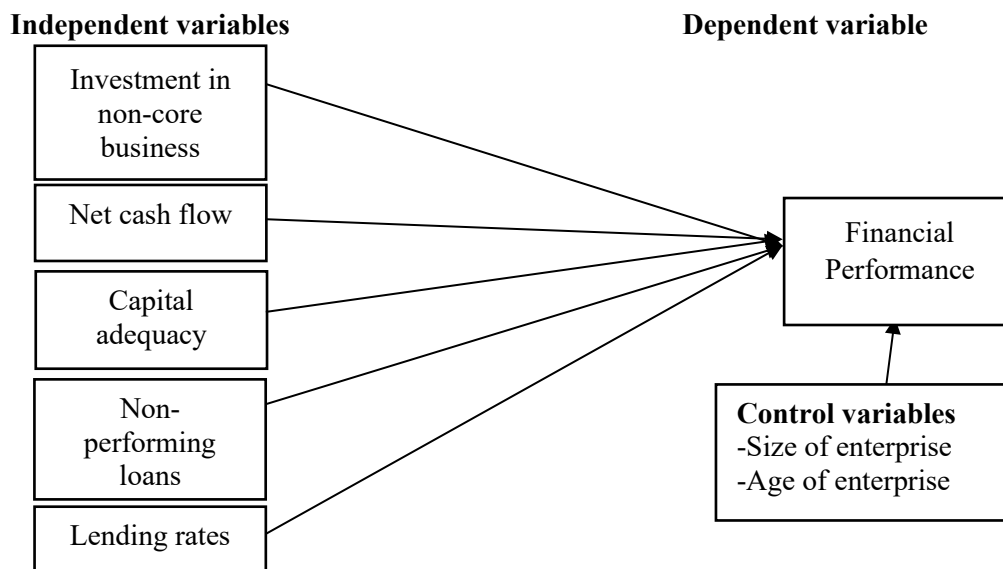


Figure 1. Research Framework

Source: Author (2026)

The objective of the present study is to analyze the impact of liquidity management on the financial performance of the savings and credit cooperative societies (SACCOS) in Kigoma region. Financial performance in the study is considered based on the financial indicators commonly used in literature, including profitability and financial sustainability. The variables are considered because they provide a reliable base for measuring the financial performance of SACCOS.

In addition, in order to improve the empirical model, the study includes various variables that have been identified in the literature as important factors influencing financial performance. The variables include cash flow that reflects the liquidity position, investments in non-core

business, non-performing loans, lending rates, and capital adequacy. These variables are obtained from the financial reports of some selected SACCOS. Moreover, control variables such as firm size and age are included to account for institutional differences that may influence financial performance.

From the literature review above, it is clear that the proposed model (Figure 1) shows that liquidity management variables affect the performance of SACCOSs financially. Nevertheless, there will be some differences in how such variables affect them depending on their financial nature and results.

3. METHODOLOGY

3.1 Model Specification

To investigate the Liquidity Management and Financial Performance of Kigoma region Savings and Credit Cooperatives (SACCOS), the following baseline regression analysis is used;

This multiple regression model for this research work is shown below:

$$FP\alpha = a + \mu_1 NCB\alpha + \mu_2 NCF\alpha + \mu_3 CA\alpha + \mu_4 NPL\alpha + \mu_5 LR\alpha + \mu_6 ES\alpha + \mu_7 EA\alpha + e\alpha \dots \dots \dots (1)$$

Where, FP represents the dependent variable Financial Performance, μ represents the regression coefficients, NCF represents explanatory variable Net Cash Flow, INCB represents explanatory variable investment in non-core business, CA symbolizes the explanatory variable capital adequacy, EA symbolizes the explanatory variable enterprise age, ES symbolizes the explanatory variable enterprise size, e represents the error term and α represents for the intercept.

3.2 Research Methods

In this study, we adopted a quantitative explanatory research design, which is particularly well-suited for examining the characteristics, behaviors, and patterns of a specific population over time. This approach allows researchers to systematically analyze existing phenomena without the need to manipulate any variables, making it ideal for working with secondary financial data spanning a defined period (Creswell & Creswell, 2023).

The study was conducted in Kigoma Region, focusing on Savings and Credit Cooperative Societies (SACCOS) registered with the Tanzania Cooperative Development Commission (TCDC). According to TCDC records, 36 licensed SACCOS were operating in the region at the time of the study. These institutions formed the target population (TCDC, 2023, 2024). To identify the appropriate sample, we utilized the TCDC database, which provides a comprehensive list of all licensed and reporting SACCOS across Tanzania.

3.3 Variables Measurement and analysis of objectives

Table 1 shows variables measurement, sources of data, analysis and analytical tools used in this study.

Table 1. Summary of measurement of variables, objectives and tools for Analysis

S/NO	Variable name	Measurement of data	Source of data	Analytical tool	Expected signs
01	Dependent (Financial Performance)	Net Income divide by Total Asset	Financial statements	Descriptive statistics	
02	Independent Variable (Net cash flow)	Natural log of the Total Net cash flow	Financial statements	Quantitative techniques and descriptive statistics	+
03	Independent Variable (Investment in non-core business)	(Net Income divide by investment cost) ratio	Financial statements	Quantitative techniques and descriptive statistics	+
04	Independent Variable (Capital adequacy)	Percent of each SACCOS' total assets in every year during the study period.	Financial statements	Quantitative techniques and descriptive statistics	+
05	Independent variable (Non-performing loan)	(NPL/ Total loans portfolio)	Financial statements	Quantitative techniques and descriptive statistics	-
06	Independent variable (Lending rate)	(Interest charged/Loan principal)	Financial statements	Quantitative techniques and descriptive statistics	+/-
07	Control Variable (Age of enterprise)	Time between the initial establishment of an enterprise and the current time (in years)	Financial statements	Quantitative techniques and descriptive statistics	+/-
08	Control variable (Size of enterprise)	Natural log of Total Assets	Financial statements	Quantitative techniques and descriptive statistics	+/-

Note: All financial ratios are expressed as decimals.

From this database, we employed a purposive sampling technique to select SACCOS that had complete and accessible annual financial data covering the years from 2010 to 2024. Twenty SACCOS were chosen based on specific criteria: the availability of consistent annual financial data, early licensing and regulatory compliance as verified by the TCDC, operational longevity of at least ten years, and a significant membership size coupled with active financial engagement. This non-probability sampling method was deemed suitable due to the challenges posed by missing or inconsistent data in many SACCOS. By focusing on a carefully selected

group, we enhanced the reliability of our data, allowing for a more meaningful analysis of financial performance trends over time. The study relied exclusively on secondary data, encompassing the period from 2010 to 2024, to provide a robust foundation for our findings and conclusions.

3.4 Control Variables

In this research, enterprise age and size serve as control variables when assessing the effect of liquidity management on financial performance within SACCOS. Enterprise size is operationalized using the natural logarithm of total assets (Vu Hung et al., 2021), and large firms generally outperform small firms because of economies of scale, but large-scale operations may lead to inefficiency (Berger & Mester, 1997). Enterprise age is defined by the number of years elapsed since obtaining the license with the Tanzania Cooperative Development Commission. Ageing firms gain from their experience, reputation, and effective systems (Shkeily & Abdullah, 2021), whereas young organizations have a greater ability to adapt. It is proven that enterprise age substantially affects organizational performance (Mallinguh et al., 2020; Rwakihembo et al., 2023).

4. RESULTS AND DISCUSSION

4.1 Summary Statistics and Correlation Matrix

Table 2 shows descriptive statistics of the variables considered in this study, based on 300 firm-year observations of SACCOS operating in the Kigoma Region of Tanzania. The results provide information about central tendencies and distribution characteristics of the financial and control variables.

Financial Performance (FP), measured by Return on Assets (ROA), has a mean of 3.17% and a standard deviation of 1.84%, ranging from -5.56% to 8.45%. These findings indicate that the firms have moderate profitability levels. Although most SACCOS maintain positive profits, some experience substantial losses, possibly due to credit risk or inefficiency.

Among the independent variables, Net Cash Flow (NCF) stands out with a mean of 14.12 (natural log) and a standard deviation of 4.08. Investment in non-core business (INCB) has a mean of 8.79%, ranging from -4.48% to 23.89%. Capital adequacy (CA) has a mean of 15.85% (0.1585) and a standard deviation of 4.34% (0.0434), ranging from 0.41% to 26.18%. Non-performing loans (NPLs) average 11.37%, with a standard deviation of 3.51% (0.0351), ranging from 6.58% to 35.56%. The high upper limit indicates that some SACCOS faced substantial credit risk problems during the study period, reflecting differences in credit appraisal policies and loan repayment capacity. The lending rate averages 11.35%, with a standard deviation of 2.14% (0.0214), ranging from 8% to 15%. This range is typical for SACCOS in Tanzania.

Control variables include firm size (natural log of total assets) with a mean of 14.00, ranging from 2 to 33, and firm age with a mean of 14.75 years, ranging from 7.88 to 23.02 years.

Overall, the descriptive statistics reveal considerable heterogeneity in financial structure, risk exposure, and operational maturity among Kigoma SACCOS, which justifies the inclusion of multiple explanatory and control variables in the empirical model.

Table 2. Summary Statistics

Variable	Obs	Mean	Std	Min	Max
Financial Performance	300	0.0317	0.0184	-0.0558	0.0845
Net Cash Flow	300	14.1245	4.0769	1.3268	25.3679
Investment in Non-Core Business	300	0.0879	0.0387	-0.0448	0.2389
Capital Adequacy	300	0.1585	0.0434	0.0041	0.2618
Non-Performing Loans	300	0.1137	0.0351	0.0658	0.3556
Lending rate	300	0.1135	0.0214	0.0800	0.1500
Size of the enterprise	300	14	5.8105	2	33
Age of the enterprise	300	14.7539	3.2641	7.8787	23.0217

Table 3. Pearson correlation matrix results

Variables	Financial Performance	Net Cash Flow	Investment in non-core business	Capital Adequacy	Non-Performing Loans	Lending rate	Firm age	Firm size
Financial Performance	1.0000							
Net Cash Flow	0.6570*	1.0000						
Investment in non-core business	0.5467*	0.3503*	1.0000					
Capital Adequacy	0.5536*	0.3972*	0.1994*	1.0000				
Non-Performing Loans	-0.5461*	-0.4122*	0.2152*	-0.3561*	1.0000			
Lending rate	0.7557*	0.4957*	0.4676*	0.5436*	0.3602*	1.0000		
Firm Age	-0.0836	0.2068*	0.0413	-0.0842	0.1377	0.2387*	1.0000	
Firm Size	-0.0082	-0.1391*	-0.2605*	-0.1343	0.3140*	0.1151	0.3395	1.0000
	0.9093	0.0524	0.0002	0.0612	0.0000	0.1091	*	0.0000

* Denotes that Correlation is significant at 0.05 level

The Pearson correlation analysis presented in Table 3 shows that financial performance is significantly associated with several factors. For example, there exists a robust positive correlation with net cash flow, lending rates, capital adequacy, and investments in non-core enterprises. This indicates that Savings and Credit Cooperatives (SACCOS) that uphold elevated liquidity, possess superior capital structures, and diversify their investment portfolios are likely to achieve enhanced financial outcomes. Among these determinants, lending rates emerge as the most salient, implying that the revenue derived from loans serves as a fundamental catalyst for profitability within this domain. The findings show that there is a statistically significant negative relationship between non-performing loans and financial performance. This implies that those SACCOS which have more cases of defaulters will register poor profits, thus making it imperative for such institutions to manage their risks effectively.

Conversely, certain characteristics of the enterprises, such as their age and size, demonstrate weak and statistically insignificant associations with financial performance. This implies that mere advancements in age or size do not necessarily yield improved financial performance in this particular context.

4.2. Diagnostic tests

To ensure the validity of the regression model, the study conducted diagnostic tests for stationarity, and multicollinearity.

Table 4. Hadri Lagrange multiplier (LM) test results for Unit root

Variable	Statistics	P-value
Financial Performance (lag 1)	12.2458	0.0620
Net Cash Flow (lag 1)	11.5886	0.0540
Investment in non-core business (lag 1)	7.9043	0.1540
Capital Adequacy (lag 1)	10.5532	0.2300
Non-Performing Loans (lag 1)	11.0214	0.0543
Lending rate (lag 1)	9.5371	0.0543
Firm Age (lag 1)	23.5467	0.0680
Firm Size (lag 1)	8.5678	0.4310

The Hadri Lagrange Multiplier (LM) test for unit roots was applied with one lag to account for any possible serial correlation in the panel series (Hadri, 2000). The null hypothesis of the Hadri test is that all panels are stationary. From Table 4, all p-values are greater than 0.05, with the lowest being 0.0540 (for Net Cash Flow and Non-Performing Loans). Therefore, we cannot reject the null hypothesis of stationarity.

This result indicates that all variables (financial performance, net cash flow, investment in non-core business, capital adequacy, non-performing loans, lending rate, firm age, and firm size) satisfied the stationarity requirement at the 5% significance level, although some variables exhibited p-values close to the threshold. Consequently, no differencing or other transformation is needed. The panel regression analysis can be conducted using the level form of the variables, making the results in Table 6 reliable and free from spurious correlation due to unit roots.

Table 5. Multicollinearity results

Variable	VIF	1/VIF
Net Cash Flow	3.35	0.2985
Lending rate	3.18	0.3144
Capital adequacy	2.62	0.3816
Non-Performing Loans	2.61	0.3831
Investment in non-core business	2.33	0.4291
Firm Age	2.05	0.4878
Firm Size	2.03	0.4926
Mean VIF	2.60	

Regarding multicollinearity, Table 5 shows that all Variance Inflation Factor (VIF) values are below the critical threshold of 10, with the highest VIF observed for the Net Cash Flow at 3.35. This confirms the absence of serious multicollinearity among independent variables.

Therefore, each explanatory variable contributes uniquely to the model, ensuring the reliability of the regression estimates.

4.3 Results and Discussion

This study performed the Hausman test to decide between fixed and random effect models. The Hausman test has the null hypothesis stating that “Accept the Random Effect (RE) when the p value is greater than 0.05”, and the alternative hypothesis is “accept Fixed Effect (FE) when the p value is less than 0.05” (Chmelarova, 2007). The result shows that the p-value was 0.000, which is less than 5%, so we reject the null hypothesis, which suggests accepting the Random effect if the p-value is greater than 0.05. Therefore, the best-fitting model in this study was a fixed-effect regression model.

The findings of this study in Table 6 reveal that net cash flow has a statistically significant and positive effect on the financial performance of SACCOS in the Kigoma region. This suggests that effective liquidity management, particularly in the form of operating cash flow, plays a critical role in driving profitability. The findings of this study align well with the theoretical foundations that guided its conceptual framework. Drawing on the Keynesian Theory of Money (KTM), the significance of net cash flow to financial performance supports the transactional and precautionary motives for holding cash. Keynes posited that institutions require liquidity to conduct daily operations and safeguard against uncertainty, especially relevant for SACCOS operating in economically volatile contexts like Kigoma. The positive relationship between net cash flow and profitability demonstrates that SACCOS that maintain strong liquidity positions are better able to disburse loans promptly, manage withdrawals, and exploit timely opportunities. These results are in line with the work of Momanyi et al. (2017), who found that cash flows positively influenced performance in firms listed on the Nairobi Securities Exchange.

Similarly, Amah et al. (2016) and Mutumira (2019) confirmed the positive linkage between operating cash flow and performance across banking and insurance sectors, respectively. However, other components of cash flow, such as financing and investing flows, showed inconsistent impacts, as observed by (Nangih et al., 2020; Nwakaego et al., 2015). A study by Rompotis (2024) indicated that net cash flow and cash flow from investing activities are negatively related to financial performance, while free cash flow is positively related. These contrasting findings underscore that while overall net cash flow is beneficial, its composition and management strategy are crucial for sustaining financial performance. Grounded in the Keynesian liquidity preference theory, which emphasizes precautionary and transactional motives, this result highlights the importance of stable cash reserves in enabling SACCOS to navigate economic uncertainty, disburse loans on time, and manage liquidity shocks.

Table 6. Regression results

Variables	Fixed effect Model	Random effect Model
Net Cash Flow	0.0132 (0.0083) **	0.0349 (0.0031) **
Investment in non-core business	0.0904 (0.037) **	0.1231 (0.024) **
Capital Adequacy	0.0548 (0.1727)	0.0612 (0.283)
Non-Performing Loans	-0.2825 (0.000) **	-0.1808 (0.058) *
Lending Rate	0.5857 (0.000) **	0.7054 (0.000) **
Enterprise Age	-0.0131 (0.000) **	-0.0309 (0.000) **
Enterprise Size	0.0046 (0.023) **	0.0052 (0.034) **
_cons	0.03957 (0.025) **	0.0037 (0.037) **
R2 within	0.6926	0.6843
R2 between	0.361	0.4446
R2 Overall	0.4904	0.5771
Hausman test	0.0000	0.0000
Number of Observations	300	300
Number of panel group	20	20
Prob > F , Prob > chi2	0.0000	0.0000

Note: The dependent variable for this regression result is Financial Performance

* ** *** denotes the significant level at 10%, 5%, and 1% respectively

The study shows that investment in non-core business activities plays a significant role in improving SACCOS' financial performance. This finding supports the Neoclassical Theory of Investment by Jorgenson, which asserts that more liquidity leads to diversified investments (Ariemba et al., 2016; Hussein, 2017). More diversified sources of revenue lead to improved resilience (Ayantoyinbo & Odepidan, 2018). However, success in diversified revenue is highly dependent on financial literacy and good governance (Kumara & Shetty 2025; Romadhon & Mulyadi, 2025).

Capital adequacy is surprisingly insignificant in determining the performance of Kigoma SACCOS, contrary to banking literature (David & Osemwegie, 2016; Okoye et al., 2017). Even cooperative-specific literature shows low levels of significance, implying that the effect of capital adequacy on performance depends on liquidity and asset management. This finding is consistent with Lekaaso et al., (2020), who also found that capital adequacy did not significantly influence the financial performance of SACCOS.

There is a statistically significant negative relationship between non-performing loans (NPLs) and the financial performance of SACCOS in Kigoma. This finding supports both the study hypothesis and conventional credit risk theory, which argue that rising loan defaults

reduce institutional profitability. The negative coefficient means that when NPLs increase, financial performance declines confirming that poor loan quality hurts the financial sustainability of cooperative financial institutions. A likely explanation is that higher NPLs lower interest income while raising loan loss provisions, recovery costs, and administrative expenses. As a result, SACCOS with a larger share of non-performing loans tend to be less profitable and operationally less efficient. This result aligns with earlier studies by Idris et al., (2025); Sadok & El Maknouzi (2025), which also found that deteriorating loan quality negatively affects financial performance. This finding highlights the importance of effective credit risk management in SACCOS. Strengthening credit appraisal processes, enhancing loan monitoring systems, and improving recovery mechanisms can help reduce defaults and protect profitability. Therefore, keeping non-performing loans low is essential for improving the long-term financial performance and sustainability of SACCOS.

The lending rate positively influences financial performance significantly. This supports the idea that interest income is the main source of revenue in SACCOS (Afza et al., 2018; Dondi et al., 2023; Kipngetich & Makori, 2024). The effect, however, needs to be managed carefully to prevent suppression of loan demands (Durrani et al., 2022; Kariuki, 2023).

5. CONCLUSION AND LIMITATIONS

5.1. Conclusion

This study looked at how liquidity management affects the financial performance of SACCOS in Kigoma Region. These factors included net cash flow, investment in non-core business, capital adequacy, non-performing loans, and lending rates. Based on panel data from 20 licensed SACCOS covering the 2010-2024 period, our results show that net cash flow, non-core business investment, and lending rates each have a statistically significant positive relationship with financial performance. By contrast, non-performing loans show a statistically significant negative relationship. Capital adequacy, on the other hand, has an insignificant impact on financial performance.

The results of this study indicate the significance of efficient liquidity management, proper investment decision-making, credit risk management practices, and good lending policies in the financial performance of SACCOS. As the results show, the negative impact of non-performing loans implies that deterioration in the quality of the portfolio of loans adversely affects profitability by leading to a reduction in income generated through interests and provision for bad debts. At the same time, higher capital adequacy has an insignificant impact on financial performance, which means that having a higher level of reserve assets will not result in good financial performance unless used efficiently.

For practitioners, there are several significant implications of the results obtained in this study. First, SACCOS should develop efficient cash flow management practices and maintain enough liquidity to support their operations and lending. Second, it would be reasonable to invest in non-core business activities after careful evaluation of potential returns. Third, lending rates should be adjusted depending on both profitability and affordability, and the debt servicing capacity of borrowers. Finally, it is important to develop efficient credit appraisal, loan monitoring, and recovery practices to minimize the number of non-performing loans.

This research adds to the literature on cooperative finance by offering a rare study that examines the liquidity management and financial performance of SACCOS using a panel data approach. The current study is unique because it captures various determinants of liquidity and

financial performance in one model, namely, net cash flow, non-core investments, lending rates, capital adequacy, and non-performing loans.

5.2. Limitations and Future Research

However, the current research has some drawbacks. Firstly, this research has concentrated only on the performance of SACCOS in the Kigoma region, which might reduce the generalization of the results in other parts of Tanzania. Secondly, since it was a quantitative study, it has ignored other variables, such as management quality, governance quality, member engagement, and corporate culture. Thirdly, the analysis was limited to the total net cash flow and did not consider the separate effects of the operating, investing, and financing cash flows.

Future researchers can focus on expanding the sample population to include SACCOS from various regions of the country. Researchers can also consider using qualitative variables, such as governance quality, financial literacy, leadership quality, and member trustworthiness. In addition, future researchers may conduct additional analyses on the impact of digital finance technologies and interventions, as well as the regulatory framework, on the relationship between liquidity management and financial performance. Moreover, future studies may analyze the impact of non-performing loans on the financial performance by looking at the delayed effect of the credit risks.

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