



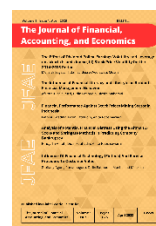
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Liquidity Management Risks and Financial Performance of Tier-1 Savings and Credit Cooperatives (SACCOS) in Kenya

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ARTICLE INFO	ABSTRACT
Article History: Submitted: 25 November 2025 Reviewed: 1 December 2025 Revision : 12 December 2025 Accepted : 3 January 2026 Available online: 31 January 2026	This study empirically investigates the effect of financial structure variables—specifically, the cash to deposit ratio, deposits to total assets ratio, and loan to deposit ratio—on the financial performance of Savings and Credit Cooperative Organizations (SACCOS) in Kenya. The research utilized an explanatory design and implemented a quantitative panel data methodology including 30 SACCOS over a period of ten years. Data were examined utilizing Random-Effects Generalized Least Squares (GLS) regression, with model selection directed by the Hausman specification test. The regression analysis indicated that the three financial structure indicators had favorable and statistically significant effect on financial performance, as assessed by return on assets (ROA). Higher cash to deposit ratios improved the liquidity and solvency of SACCOS; increased deposit-to-asset ratios bolstered financial stability and resource mobilization; and effective loan-to-deposit ratios promoted credit intermediation and income generation. These findings highlight the significance of liquidity management, maximizing deposit mobilization, and fortifying lending techniques to improve SACCO sustainability. Policymakers and SACCO management are urged to closely observe these structural indicators while enacting reforms intended to enhance operational scale and modernize outdated institutions.

INTRODUCTION

A company's financial performance effectively indicates its overall health, competitiveness, efficiency, cost-effectiveness, and productivity (Mauki, Jeckoniah & Massawe, 2023). The financial stability of a corporation is a crucial determinant of its capacity for growth and long-term viability. Financially successful Savings and Credit Cooperative Societies (SACCOS) exhibit elevated profitability, superior portfolio quality, enhanced operational efficiency, and a more robust

competitive advantage (Quayes, 2015). Furthermore, when SACCOS achieve financial success, they can fulfill their objectives of maximizing revenues, reducing dependency rates, attaining a competitive advantage, and fostering entrepreneurship. All of these factors contribute to the growth of a nation's economy (Bassem, 2012; Otieno et al., 2016). SACCOs can improve the lives of its members by increasing financial resources and reducing poverty levels through successful financial management.

SACCOs significantly enhance the lives of community members by ensuring universal access to financial resources. The cooperative plays a crucial role in generating employment and income for its members, hence alleviating poverty (Dana, 2010). Saccos play a crucial role in Kenya's economy. They account for forty-five percent of the nation's gross domestic product, and approximately twenty percent of the population is affiliated (Kirimi, Simiyu & Murithi, 2017).

An examination of DT-SACCOS's financial performance in Kenya reveals a concerning tendency. In 2021, the aggregate non-remittance owed by various employer organizations was reported to reach 3.40 billion. The outstanding debts remain substantial, adversely affecting the financial performance and stability of SACCOs. SACCO membership is a crucial method for monitoring performance and growth, as SACCOs exclusively engage in transactions with its members. The Return on Assets (ROA) for Saccos over the years is as follows: 2016 - 2.45%, 2017 - 2.69%, 2018 - 2.40%, 2019 - 2.60%, 2020 - 2.65%, and 2021 - 1.59%. The Non-Performing Loans (NPL) were 5.23% in 2016, 6.14% in 2017, 6.30% in 2018, 6.15% in 2019, 8.39% in 2020, and 8.86% in 2021. The membership in SACCOs increased by 3.03%, from 3.77 million in 2019 to 5.99 million in 2021 (SASRA, 2021). Nevertheless, a significant portion of the 1.18 million members was designated as inactive, indicating that they had not engaged in any transactions with their SACCOs for over six months. DT-SACCOS' total deposits decreased from 13.41% in 2020 to 9.92% in 2021. In 2021, the gross and net figures were 10% and 8.35%, respectively, in contrast to the growth rates of 13.16% and 12.60% recorded in 2020. The growth rate of net loans and advances for DT-SACCOs significantly declined in 2021. The primary reason for this is the significant increase in the provision for loan losses, which escalated from Kshs 24.19 billion in 2020 to Kshs 34.05 billion in 2021, reflecting a 40.77% rise (SASRA, 2021).

Current empirical research on liquidity management and financial performance has shown outcomes that are both varied and inconsistent. Certain research have identified a robust and advantageous correlation (Edem, 2017; Naceur & Omran, 2011). Certain research have identified a negative correlation (Marozva, 2015; Muriithi & Waweru, 2017), but others have reported no correlation (Salim & Bilal, 2016). Only a limited number of research have been conducted in Kenya, each with disparate results. Lukorito, Muturi, Nyang'au, and Nyamasege (2014) identified a robust and affirmative correlation, but Maaka (2013) discovered a tenuous and adverse correlation. In both developed and developing nations, corporate governance regulations have been established to enhance board decision-making, mitigate scandals and failures, and reduce managerial exploitation.

Despite SASRA's establishment to ensure SACCOs adhere to corporate governance standards and maintain financial stability, the sector continues to grapple with fraud, poor corporate governance, and mismanagement, which jeopardize the financial health and long-term viability of SACCOs (Musau, 2020). The existing literature does not address the impact of liquidity management on the financial performance of SACCOs. Despite the discussion of certain gaps in the preceding paragraphs, there are unresolved inquiries regarding the interrelations among the research variables in Kenya. Saving and credit cooperative societies are vital for economic development. This study aimed to address existing gaps.

This study seeks to address critical issues regarding liquidity risk and its impact on performance, considering the persistent liquidity challenges and the incongruent empirical data concerning the financial stability of SACCOs in Kenya. The study is directed by the following objectives: (i) to investigate the impact of the cash to deposit ratio on the financial performance of

SACCOs in Kenya; (ii) to examine the influence of the deposits to total assets ratio on financial performance; and (iii) to analyze the effect of the loan to deposit ratio on the financial performance of SACCOs.

The structure of this paper is designed to embody these objectives: Section 1 provides a summary of the study and elucidates the significance of examining liquidity risk in Tier-1 SACCOs. This section examines the literature pertinent to liquidity indicators and financial performance in cooperative businesses. Section 3 delineates the study techniques, encompassing the data sources and analytical models employed to examine the relationships between liquidity ratios and performance outcomes. Section 4 presents the empirical outcomes and discusses their implications concerning the established objectives. Ultimately, Section 5 presents conclusions and policy recommendations designed to assist SACCOs in Kenya in enhancing their financial management and achieving greater economic stability.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Theoretical review

As provided by Liquidity Preference Theory, liquidity risk as well as Tier-1 SACCOs' financial performance is directly intertwined because focusing on cash as well as near-cash holdings is required for short-term payment obligations. According to Keynes, his theory holds that investors value liquidity as well as will pay a premium (interest) for surrendering their funds (Kaberia, 2015). For SACCOs, it implies striking a balance between liquidity holdings as well as loan disbursements as well as deposit payables with a direct effect on profitability as well as sustainability. Liquidity Preference Theory holds that liquidity preference grows with uncertainty or with situations in which future interest rates as well as cash flows are uncertain (Osoro & Muturi, 2015).

This comes into sharp focus in SACCOs, especially where fluctuations in loan repayments, withdrawal bonanzas, or adjustments for regulations create exposure. Thus, SACCOs should take judicious liquidity management methods to address members' demands for withdrawal without compromising operational efficiency or disbursement of loans—factors affecting their financial success (Mulinge, 2016). Empirical research in Kenyan SACCOs, based on Liquidity Preference Theory, indicates that poor liquidity risk management exists alongside high non-performing loans, cash flow restrictions, as well as a declining return on assets (Njeru, 2016). This gives credence to the argument that SACCOs with superior liquidity management—having cash-to-deposit as well as loan-to-deposit ratios—achieve superior financial outcomes due to lower dependence on external borrowing as well as members' confidence in SACCOs (Kimutai, 2022).

Further, liquidity preference informs regulator intervention. Mwaura, Mukanzi, and Kimani (2025) argue that Tier-1 SACCOs' compliance with liquidity requirements set by SACCO Societies Regulatory Authority (SASRA) is a result of theoretical demands for keeping liquid buffers to absorb systemic shocks, therefore ensuring SACCOs' solvability as well as business prudence in cases of macroeconomic downturn. This investigation employs Liquidity Preference Theory, developing a conceptual model that shows significant liquidity indicators—cash to deposit, deposit to total assets, and loan to deposit—among crucial determinants of Tier-1 SACCOs' success in Kenya.

Cash to deposit ratio and financial performance

Sitienei and Thuita (2021) examined the effect of cash management—proxied by the cash-to-deposit ratio—on financial performance (ROA and ROE) of 56 deposit-taking SACCOs in Kenya over 2013–2017. Using audited financial data and regression analysis, they found that a one-unit increase in the cash ratio increased ROA by 0.332 and ROE by 0.505, both statistically significant ($p = .001$), underscoring that stronger liquidity buffers lead to improved profitability in SACCOs.

Kimutai and Keben (2018) analyzed liquidity risk drivers—cash-to-deposit ratio among them—and their impacts on financial performance in deposit-taking SACCOs in Uasin Gishu County in Kenya. Using panel data, they established that cash management practices significantly explained

ROA and that appropriate liquidity reserves are significant in ensuring SACCOs' sustainability and performance.

Njeru, Oganda, Mogwambo, and Otieno (2020) considered liquidity risk management in the format of cash holdings to deposits in Kenyan deposit-taking banks' (including SACCOs) financial health using SASRA's secondary data. Liquidity policy in the research came out to enhance financial stability and profitability where high cash-to-deposit values are complemented with higher return on asset.

Olagunju, David, and Samuel (2012) analyzed liquidity management parameters, including cash reserve ratios (like cash-to-deposit), and profitability of Nigerian deposit money banks. By using regression analysis with a multi-year data sample, they found significant and strong positive correlations between return on assets and cash reserve ratios and demonstrated that liquidity strategies directly affect financial performance

Olagunju and Isiaka (2021) explored the economic significance of minimum cash reserve requirements (proxy for cash-to-deposit ratio) to profitability of Nigerian deposit money banks from 1988 to 2018. Through the econometric estimation, they established that higher reserves were negatively related to return on asset so that high liquidity requirements could reduce volatility in profits, and thus supporting the need for balanced liquidity management. Therefore, based on the literature discussed, we hypothesize the following:

H1. Cash to deposit ratio has a significant effect on financial performance

Deposits to total assets ratio and financial performance

A growing body of empirical literature supports the assertion that the deposits-to-total-assets ratio serves as a critical determinant of financial performance in deposit-taking institutions, especially SACCOs and microfinance entities. Muturi, Mwangi, and Ombuki (2015) conducted a study on deposit-taking microfinance institutions in Kenya and found a statistically significant positive relationship between the deposit-to-asset ratio and financial sustainability. Their analysis, which covered the period 2011–2015, indicated that higher deposit levels relative to total assets were associated with enhanced financial performance, reinforcing the importance of strong deposit mobilization.

Further supporting this relationship, a comparative analysis by the Western Bank Research Group (as cited in core.ac.uk) found that the total deposit-to-total assets ratio was positively and significantly associated with bank profitability. The study emphasized that efficient mobilization of deposits contributes to effective asset deployment and improved returns on equity and assets. These findings were echoed in a recent study by Kifworo, Kiveu, and Njuguna (2023), who examined the capital structure of Kenyan SACCOs and reported a strong correlation between high deposit-to-asset ratios and institutional stability. Their study confirmed that such ratios enhance liquidity buffers and reduce the need for external borrowing, thereby improving overall financial performance.

However, not all findings point in the same direction. Fundi and Wamugo (2023) found that deposit risk—measured using the deposits-to-total-assets ratio—had a significant negative effect on the financial performance of SACCOs in Nairobi County. This suggests that while a strong deposit base is generally favorable, poorly managed deposits or aggressive deposit expansion without proportional asset growth may lead to inefficiencies or financial stress. Thus, while most studies confirm the positive effect of the deposit-to-asset ratio on financial performance, these findings also underscore the need for effective liquidity and risk management strategies. Therefore, based on the literature discussed, we hypothesize the following:

H2. Deposit to total assets ratio has a significant effect on financial performance

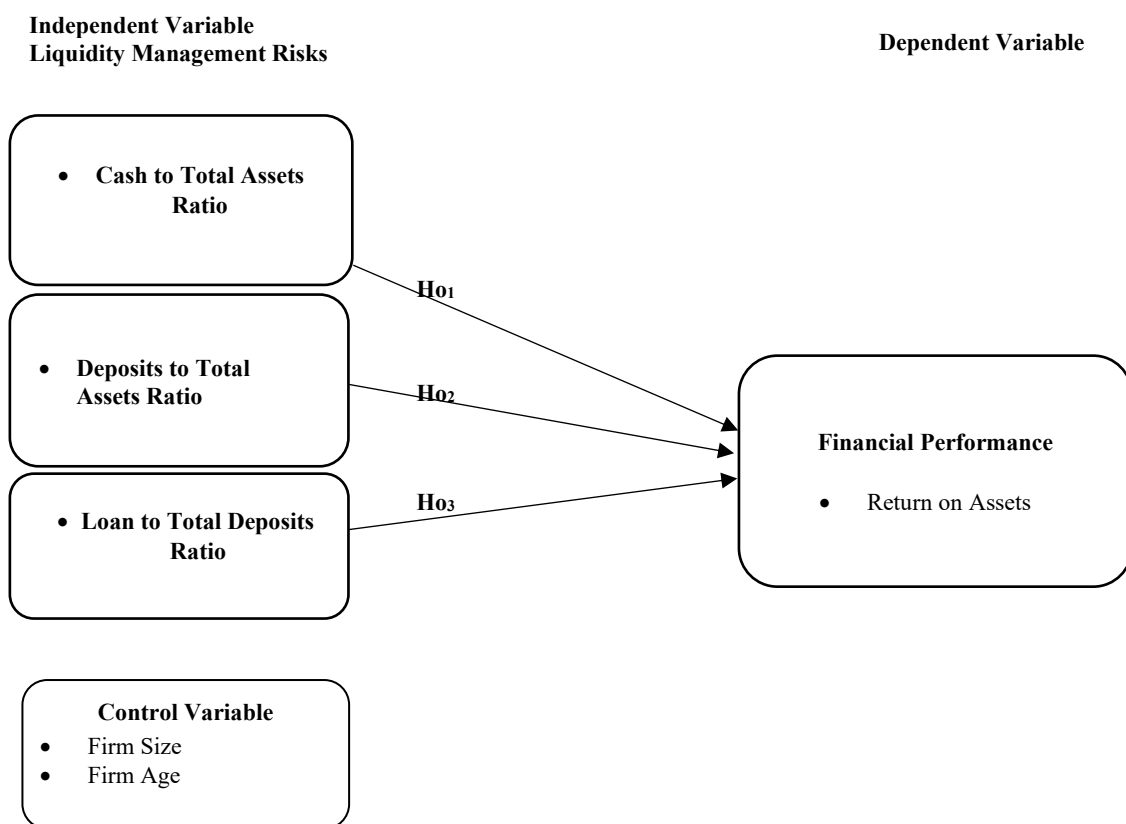
Loan to deposit ratio and financial performance

Karadayi (2023) examined the effect of the loan-to-deposit ratio on the return on assets (ROA) using data from 31 Turkish banks. Utilizing multiple regression analysis, the study revealed that a higher LDR significantly and positively influenced ROA. This suggests that effective deployment of

deposits into loans can enhance asset profitability, provided lending practices are prudently managed. The study also included other factors such as non-performing loans and operational expenses, reaffirming LDR as a central determinant of profitability.

Sari and Fauzan (2025) examined the effect of various financial indicators, namely loan-to-deposit ratio (LDR), non-performing loans (NPL), and capital adequacy ratio (CAR), towards Indonesian banks' profitability for the timeframe of 2021 to 2023. Their findings also supported that of Karadayi that there was significant and positive correlation of LDR with ROA. They established that appropriate lending functions with sufficient supporting deposit holdings would directly enhance banking performance.

Setiawan, Mulyadi, and Nupus (2021) conducted a panel comparison of state and international banks in Indonesia from 2003 to 2007. Their comparison found that LDR drastically enhanced the profits of state banks but failed to bring the same influence in international institutions, where bank size proved to play a more important role. This research shows that results of LDR are setting-sensitive and that ownership in institutions can influence financial outcomes.



Source, Researcher (2023)

Figure 1: Conceptual framework

Anggari and Dana (2020) examined the capital adequacy, deposit funding, and bank size in determining Indonesian banks' profitability in 2016-2018. Loan deposit ratio made a statistically modest but significant contribution to ROA in contrast to previous studies' outcome. They established that the advantage of possessing a high LDR may not justify the risk if not thoroughly controlled due to institutional issues or structure concerns.

Nugraha, Yahya, Nariswari, Salsabila, and Octaviantika (2021) extended this analysis by simultaneously evaluating the influence of LDR, NPL, and board diversity on ROA for Indonesian banks. Their findings indicated that LDR had a significant positive impact on profitability, reaffirming the argument that optimal loan deployment supported by a strong deposit base can drive bank performance, provided credit risks are kept in check. Therefore, based on the literature discussed, we hypothesize the following:

H3. Loan to deposit ratio has a significant effect on financial performance

RESEARCH METHODOLOGY

Sample size and data

The target population for this study comprised all forty-four (44) registered Tier-1 Deposit-Taking (DT) Savings and Credit Cooperative Organizations (SACCOs) in Kenya, as regulated by the Sacco Societies Regulatory Authority (SASRA). These SACCOs were selected because they accept deposits and are subject to rigorous corporate governance and regulatory requirements designed to safeguard member savings. However, based on the inclusion and exclusion criteria, only thirty (30) SACCOs qualified for the analysis. The inclusion criteria required that SACCOs must have been operational from 2013 to 2022—a period during which significant regulatory reforms, including SASRA's corporate governance framework and global Basel III financial reforms, were implemented. SACCOs under financial distress or placed under receivership were excluded from the study. The study relied on secondary data extracted from annual reports and audited financial statements of the selected Tier-1 DT SACCOs over the ten-year period from 2013 to 2022. These data sources included SASRA supervisory reports as well as financial documents published on individual SACCO websites. The period under review was crucial due to the enforcement of a comprehensive regulatory framework by SASRA, covering areas such as governance, capital adequacy, asset-liability management, liquidity, credit risk, deposit protection, and operational resilience. A structured data collection schedule was developed to guide the extraction process. Secondary data were chosen for their objectivity and reliability and for offering detailed insights into the problem under investigation (Ghuri & Gronhaug, 2005; Sekaran & Bougie, 2019; Vartanian, 2010)

Measurement of variables

This section addresses the measurement of the research variables. Financial performance is the dependent variable, while liquidity management risk is measured through three independent variables: cash to total assets, deposit to total assets, and loan to deposit ratio. The study further includes control variables such as firm size and firm age to account for organizational heterogeneity. Financial performance is operationalized using the return on assets (ROA), representing a firm's efficiency in utilizing assets to generate net income. Liquidity risk indicators are expressed as ratios to total assets or total deposits, reflecting the SACCOs' financial structure and risk management efficiency. Firm size is measured by the natural logarithm of total assets, while firm age is determined by the logarithmic difference between the current year and the year of incorporation. Comprehensive definitions and measurements of all research variables are provided in Table 1.

A concise summary of 300 observations elucidates the operational mechanisms of SACCOs and their revenue generation methods. The Average Return on Assets (ROA) is 0.085, indicating that institutions generate approximately 8.5 cents for each shilling of assets held. The interval between -0.0928 to 0.1946 indicates that certain SACCOs are generating substantial profits, whereas others are incurring losses. The mean of 2.13 and minimal variability (SD = 0.030) indicate that the SACCOs exhibit comparable sizes. The mean age of a firm is 3.54 years, accompanied by a standard deviation of 0.413. This indicates a disparity in the age of institutions, ranging from newly established entities to those with a longer history.

Table 1: Measurement of variables

Type of Variable	Measures	Operationalization	Scale
Dependent Variable			
Financial Performance	ROA	Net Income/Total Assets	Ratio
Independent Variables			
Cash to Total Assets	Liquidity management risk	$\frac{\text{cash}}{\text{Total Assets}}$	Ratio
Deposit to Total Assets	Liquidity management risk	$\frac{\text{Deposit}}{\text{Total Assets}}$	Ratio
Loan to Deposit	Liquidity management risk	$\frac{\text{Loan}}{\text{Total Deposit}}$	Ratio
Control Variable			
Firm Size	the natural log of the total firm's assets	the natural log of the total firm's assets	Ratio
Firm Age	number of years the entity has survived since its incorporation	current year's log minus the incorporation year	Ratio

Source, Researcher (2023)

Model specification

The following regression equations were adopted to test the proposed hypotheses:

Model 1. Testing the effect of control variables on the financial performance.

$$FP = \beta_0 + \beta_1 FA_{it} + \beta_2 FS_{it} + \varepsilon_{it} \dots \dots \dots (1)$$

Model 2. Testing the effect of independent variable on financial performance.

$$FP = \beta_0 + \beta_1 FA_{it} + \beta_2 FS_{it} + \beta_3 CTA_{it} + \beta_4 DTA_{it} + \beta_5 LTD_{it} + \varepsilon_{it} \dots \dots \dots (2)$$

Where:

Y : Financial Performance

CTA₁ : C ash to Total Assets

DTA₂ : Deposits to Total Assets

LTD₃ : Loan to Total Deposits
 β_0 : Constant
 $\beta_1 - \beta_4$: Regression coefficients
 e : Error term

Data analysis and presentation

Descriptive Statistics

The Cash to Deposit Ratio, with a mean of 0.180 and a substantial standard deviation of 0.449, indicates significant variability in the liquidity management of SACCOs; some maintain minimal reserves while others possess considerable cash buffers. The mean deposit to total asset ratio is 0.699 (SD = 0.093). This indicates that the majority of SACCOs utilize member deposits to finance their operations; however, the variation suggests they also acquire funds from diverse sources. The Loan to Deposit Ratio is 1.022, indicating that the majority of SACCOs are utilizing nearly all of their deposits for lending purposes. The extensive range (0.0142 to 2.164) and moderate standard deviation (0.409) indicate significant variability in lending aggressiveness among various banks. These statistics provide a comprehensive overview of SACCOs' financial performance, scale, maturity, and liquidity policies. This information is crucial for assessing the health and sustainability of an organization to thrive in the increasingly complex microfinance industry.

Table 2: Descriptive statistics results

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	300	.0854393	.0541897	-.0927583	.1945744
FS	300	2.132187	.0301937	2.00488	2.202584
FA	300	3.536933	.4130771	1.94591	4.110874
CDT	300	.1800776	.4488775	.0013831	3.817433
DTA	300	.6994369	.0930805	.3226366	.8931597
LTD	300	1.021957	.4087071	.0142291	2.164

Source, Researcher (2023)

Diagnostic tests

The statistical diagnostic tests indicate that the prerequisites for precise panel regression modeling were satisfied. Initially, unit root tests such as Levin-Lin-Chu, Harris-Tzavalis, and Breitung all had p-values below 0.05. This indicates that the panel data is steady and free from unit root issues, hence preventing erroneous regression outcomes (Pesaran, 2015; Baltagi, 2008). The Shapiro-Wilk normality test yielded a p-value of 0.8053, beyond 0.05. This indicates that the residuals follow a normal distribution, a crucial prerequisite for accurate inferences in linear models (Thu, 2019).

The Variance Inflation Factor (VIF) was employed to assess multicollinearity, yielding findings between 1.17 and 1.45, much below the threshold of 10. This indicates that the predictors exhibit no significant issues with multicollinearity (Youssef et al., 2023). The Wooldridge test for autocorrelation yielded a p-value of 0.1273, indicating the absence of first-order autocorrelation. This is crucial for obtaining an impartial estimation of the coefficients (Garba et al., 2013). The Breusch-Pagan/Cook-Weisberg test yielded a non-significant result ($p = 0.809$), indicating that the assumption of homoscedasticity was upheld, consistent with the findings of Ohaegbulem & Iheaka (2024). The Ramsey RESET test ($p = 0.7916$) indicated that the model is appropriately described,

signifying the inclusion of all pertinent variables and functional forms. The test findings indicate that the econometric model utilized to examine the relationship between financial performance and its variables is both robust and dependable.

Table 3: Diagnostic test results

Test	Statistic/Value	Interpretation
Unit Root (Levin-Lin-Chu)	$p < 0.05$ (All Variables)	Panel data is stationary (no unit root)
Unit Root (Harris-Tzavalis)	$p < 0.05$ (All Variables)	Panel data is stationary (no unit root)
Unit Root (Breitung)	$p < 0.05$ (All Variables)	Panel data is stationary (no unit root)
Normality (Shapiro-Wilk)	$p = 0.8053$ (Skewness)	Residuals are normally distributed
Multicollinearity (VIF Range)	1.17 - 1.45	No multicollinearity present
Autocorrelation (Wooldridge)	$F(1,29) = 2.465$, $p = 0.1273$	No first-order autocorrelation
Heteroskedasticity (Breusch-Pagan)	$\text{Chi}^2(1) = 0.13$, $p = 0.809$	Homoscedasticity assumption not violated
Specification Error (Ramsey RESET)	$F(3,293) = 0.35$, $p = 0.7916$	Model is correctly specified

Source, Researcher (2025)

Correlation analysis

The aim of correlation analysis is to understand the nature and magnitude of the link between study variables. Table 4.8 presents the pairwise correlation coefficients for the study's variables. The Pearson pairwise correlation results indicate a positive and statistically significant link between the cash to deposit ratio ($r = 0.4569$; $p < 0.05$), loan to total deposit ratio ($r = 0.4022$; $p < 0.05$), business size ($r = 0.3956$; $p < 0.05$), and return on assets. The correlation between firm age ($r = -0.1887$; $p < 0.05$) and return on assets is negative and statistically significant.

Table 4: Correlation results

	ROA	CDT	DTA	LTD	FA	FS
ROA	1.0000					
CDT	0.4569*	1.0000				
DTA	0.1035	0.1004	1.0000			
LTD	0.4022*	0.3937*	-0.1439*	1.0000		
FA	-0.1887*	-0.0388	0.2877*	-0.3035*	1.0000	
FS	0.3956*	0.2369*	0.0323	0.1506*	0.2279*	1.0000

Source: Researcher 2023

Regression results

To determine whether financial structure variables significantly influence the financial performance of Savings and Credit Cooperative Organizations (SACCOs) in Kenya, a Random-Effects Generalized Least Squares (GLS) regression analysis was used. The Ordinary Least Squares (OLS) approach was considered inappropriate because it assumes the absence of variation in individual-specific or time-specific error components, which can result in underestimated standard errors and inflated t-statistics. Therefore, the choice between fixed-effects and random-effects models was guided by the Hausman specification test. The Hausman test favored the use of a random-effects

model under the assumption that individual effects are uncorrelated with the explanatory variables. Table IV presents the results of the regression, highlighting the direct effects of the independent variables—cash to deposit ratio (CTA1), deposits to total assets (DTA2), and loan to deposit ratio (LTD3)—on financial performance measured by return on assets (ROA). In Model 1, we also control for firm age (FA) and firm size (FS). The results show that all explanatory and control variables are statistically significant: CTA1 ($\beta = 0.154$, $p < 0.05$), DTA2 ($\beta = 0.146$, $p < 0.05$), LTD3 ($\beta = 0.032$, $p < 0.05$), FA ($\beta = -0.044$, $p < 0.05$), and FS ($\beta = 0.499$, $p < 0.05$).

This study assessed three possibilities. The first hypothesis (HO1) examined the significant effect of the cash to deposit ratio (CTA1) on the financial performance of SACCOs in Kenya. The findings reveal a positive and statistically significant coefficient ($\beta = 0.154$, $p < 0.05$), suggesting that SACCOs with high liquidity levels generally demonstrate greater financial success. This substantiates the rejection of HO1. The reasoning is that increased cash reserves enhance SACCOs' ability to meet short-term obligations, maintain solvency, and invest in lucrative short-term opportunities. This discovery corresponds with the research of Saddique and Mahmood, who contend that an ideal cash ratio bolsters business performance by reducing reliance on external financing and enhancing financial flexibility.

The second hypothesis (HO2) similarly examined the significant effect of deposits to total assets (DTA2) on financial performance. A statistically significant positive coefficient ($\beta = 0.146$, $p < 0.05$) results in the rejection of HO2. SACCOs with higher deposit proportions in their total assets exhibit substantial financial stability and are inclined to attain superior returns. Deposits serve as an economical and dependable funding source, allowing SACCOs to improve credit offerings, develop investment portfolios, and attain enhanced asset returns. This result supports Mwangi's (2016) conclusion that a strong deposit base significantly enhances the profitability of financial institutions.

The third hypothesis (HO3) investigated the loan to deposit ratio (LTD3) and its impact on financial performance. The regression reveals a significant association ($\beta = 0.032$, $p < 0.05$), resulting in the rejection of HO3. SACCOs that effectively transform deposits into income-producing loans are poised to attain remarkable financial returns. Effective loan allocation exhibits significant intermediary proficiency, comprehensive credit evaluation, and strong risk management techniques. This discovery corroborates Abidoye's (2019) findings, which demonstrated that credit performance directly affects financial outcomes when lending is conducted judiciously and pragmatically.

firm age (FA) and firm size (FS) are crucial factors in return on assets (ROA). The size of an organization exhibits a significant and beneficial relationship with financial performance ($\beta = 0.499$, $p < 0.05$). This study corroborates the theories that large SACCOs gain from economies of scale, improved operational efficiency, and varied income sources, leading to greater financial performance. Large SACCOs generally demonstrate improved reputation, greater financial resources, and more effective personnel, all of which contribute to heightened profitability (Mwangi, 2016).

In contrast, firm age demonstrates a negative relationship with ROA ($\beta = -0.044$, $p < 0.05$). As a result, older SACCOs are susceptible to reduced financial efficiency over time due to rigid architecture, obsolete operating systems, or waning innovation. The adverse correlation corresponds with the results of Anyam et al. (2024), which suggest that aging institutions are susceptible to performance difficulties due to outdated and rigid organizational frameworks. The regression model exhibited statistical significance, as indicated by a Wald chi-square of 197.40 ($p < 0.000$) and an R-squared value of 0.4064, signifying that about 40.64% of the variability in SACCOs' financial performance is explained by the model. The research indicates that demographic attributes and financial frameworks significantly affect financial performance in Kenya's SACCO industry.

Table 5: Regression results

Random-effects GLS regression	Number of obs =	300				
Group variable: ID	Number of groups =	30				
R-sq: within = 0.4064	Obs per group: min =	10				
between = 0.3587	avg =	10.0				
overall = 0.3823	max =	10				
	Wald chi2(5) =	197.40				
corr(u_i, X) = 0 (assumed)	Prob > chi2 =	0.0000				
ROA	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
FS	.4992985	.0933837	5.35	0.000	.3162698	.6823272
FA	-.0441306	.0120776	3.65	0.000	.0678022	-.020459
CDT	.1537982	.0306795	5.01	0.000	.0936675	.2139289
DTA	.1464457	.0293016	5.00	0.000	.0890156	.2038759
LTD	.0319026	.0074505	4.28	0.000	.0172999	.0465053
_cons	-1.048089	.1830446	5.73	0.000	-1.40685	.6893286
sigma_u	.02872308					
sigma_e	.03130846					
Rho	.45701265	(fraction of variance due to u_i)				

Source: Researcher 2023**CONCLUSIONS AND RECOMMENDATIONS**

The research used appropriate panel-data estimation methods to investigate financial data from 30 SACCOs in Kenya, resulting in 300 firm-year observations. It used secondary data as well as the random-effects Generalized Least Squares (GLS) regression model with control variables for firm size and firm age. This model was prioritized over Ordinary Least Squares (OLS) as well as fixed effects due to its proper treatment of both time-invariant as well as time-varying SACCOs' unobserved heterogeneity. The study examined the effects of three main financial structure indicators—cash to deposit ratio (CTA1), deposits to total assets (DTA2), as well as loan to deposit ratio (LTD3)—on financial performance determined using return on assets (ROA). The empirical finding was that all three of the financial structure indicators displayed significant as well as positive

effects on ROA. The control variables displayed mixed effects: firm size displayed a significant association with a positive correlation in relation to ROA, but firm age displayed a significant negative association.

The findings highlight the imperative function of internal fiscal administration methods in enhancing SACCOs' performance. Larger cash to deposit proportions were related to better SACCOs' performance, establishing that buffers of liquidity are a crucial prerequisite for operational flexibility as well as protection from a fiscal point of view. Deposits as a proportion of total assets, a measure of SACCOs' fiscal base, revealed a significant positive correlation with ROA, demonstrating that a broad depositor base magnifies profitability. Further, efficient utilization of credit, as measured from the proportion of loan to deposit, was found to directly influence SACCOs' performance, further verifying that utilization of credit is a fundamental function of SACCOs that bears on fiscal outcomes. Findings support previous research outcomes in analogous fiscal environments, verifying that internal efficacy of resource appropriation as well as fiscal configuration is a cornerstone of sustainable SACCOs' performance.

The research indicates that policymakers, SACCO regulators, and managers in Kenya should prioritize main recommendations for improving SACCO performance as well as guaranteeing long-term sustainability. SACCOs should be able to manage liquidity more effectively with a view to having adequate cash reserves. High liquidity helps in giving a sense of financial strength and short-term solvability; however, high reserves can decrease earning potential. Cash management policies should strive for finding a balance point between liquidity as well as investing. SACCOs should take a keen interest in strategies for expanding as well as diversifying their deposit base. Deposits are SACCOs' core of their financial structure; therefore, mobilizing member contributions using creative savings products as well as outreach can boost institutional capital as well as allow for higher returns.

Third, efficiency and quality of loan disbursement procedures must be improved. Since the Loan-to-deposit ratio of banks is having a favorable impact on bank performance, SACCOs must institute sound credit appraisal procedures, robust risk assessment procedures, as well as regular surveillance of borrowers. Loan books must be actively administered for optimum returns with a minimum risk of default. Moreover, diversification of loan products must be done to be able to address the diversified sectors of the economy, as members' everchanging credit requirements dictate.

Additionally, size of institutions and growth significantly influence financial performance. Expansion policies for SACCOs like digitization, further geographical expansion, and integration with national financial infrastructure can be a booster of improved performance. Because there is a negative relationship between age of firms and ROA, older SACCOs should subject themselves to more frequent operations reviews and organizational restructuring in order to prevent stagnation as well as further improve competitiveness.

Overall, implementation of relevant internal financial policies as well as strategic reforms for SACCOs can be a strong boost to financial performance. Prudential regulators, such as SACCO Societies Regulatory Authority (SASRA), should offer technical assistance as well as supervision that promotes innovation, risk mitigation, as well as prudent financial management. Alignment of improved liquidity policies, deposit mobilization efforts, as well as enhancements to credit outcomes with institutional capability building will enable SACCOs in Kenya to strengthen their role as integral pillars of grassroots-based financial inclusion as well as national economic development.

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