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Financing Decision Practices, Size of Savings and Credit Cooperative Organization (SACCO) and Financial Sustainability of Deposit-Taking Savings and Credit Co-operative Societies in Kenya

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Abstract: Savings and Credit Cooperative Organizations (SACCOs) play a pivotal role in promoting financial inclusion, reducing poverty, and supporting social welfare especially in rural and underserved areas. However, 21% of DT-SACCOs do not operate with prudent financing decisions exposing themselves to financial stress and economic shocks. Even among the SACCOs that met compliance requirements, a drop in the capital adequacy ratio from 16.4% in year 2022 to 16.1% in year 2023 signaled alarming financial strain posing a threat to the existing SACCOs. Alarmingly, 35% of DT-SACCOs have ceased operations attributable to improper financing decisions with three delicensed in January 2025, raising significant concerns over their long-term financial health. Thus, the current study aimed to assess the moderating effect of SACCO size on the relationship between financing decision practices and the financial sustainability of Deposit-Taking Savings and Credit Cooperative Organizations (DT-SACCOs) in Kenya. Anchored on the pecking order theory, the research adopted a positivist paradigm and a cross-sectional survey design. A total of 176 finance managers representing 176 licensed DT-SACCOs constituted the study population. Data were collected by structured questionnaires with a 98% response rate as a sample of 122 respondents was selected by Yamane's formula. Results from a binary logistic regression indicated that introducing the moderator led to a slight increase in the Nagelkerke R^2, while the inclusion of the interaction terms further strengthened the relationship between predictor variables and financial sustainability. The findings confirmed that SACCO size had a statistically significant moderating effect on this relationship. This study recommends integrating scenario-based stress testing into financing decisions to assess their long-term impact on different funding structures, so as to facilitate their confrontation of different economic conditions.

Keywords: Non-withdrawable deposits; Withdrawable deposits; External funding; Total assets; Financial self-sufficiency; Financial sustainability; Scenario-based

JEL Classification: A00; B00; C00; D00

1. Introduction

Financial sustainability is critical to the existence of financial institutions, particularly cooperative societies such as Deposit-Taking Savings and Credit Cooperatives (DT-SACCOs). It reflects the fundamental ability of an institution to maintain financial health in the long run while fulfilling operational obligations and service commitments to members (International Cooperative Alliance, 2023). The sustainability of SACCOs depends largely on sound financing decisions and a stable capital structure that could absorb financial shocks and support growth.

More global SACCOs are experiencing financial fragility, which is largely caused by inadequate capital buffers and over-reliance on volatile sources of funding (Bett & Kanyanya, 2024). The collapse of major financial

institutions such as Lehman Brothers in 2008 and more recently Silicon Valley Bank, Credit Suisse and First Republic Bank in 2023, showed that financial systems, regardless of their sizes, could possibly succumb to poor capital decisions and high leverage (Ozili, 2024), hence the importance of robust financial structures and proactive regulations. Although SACCOs operate on a different scale, they still have to face similar capital challenges as those robust financial institutions, especially due to their dependence on withdrawable deposits, non-withdrawable deposits and external borrowing to finance operations and investment. According to World Council of Credit Unions (WOCCU) in year 2023, approximately 15.1% of global SACCOs collapsed due to weak capital positions and insufficient competence to withstand financial pressure.

In Africa, SACCOs play an essential role in advancing financial inclusion, alleviating poverty and promoting social welfare for millions. As at year 2023, over 41 million people on the continent accessed financial services through SACCOs, with financial inclusion rates reaching 81.6% and 58% in Togo and Rwanda, respectively (African Union, 2024; World Council of Credit Unions, 2023). Despite these achievements, most of African SACCOs remain financially vulnerable due to limited institutional capacity, constrained access to long-term financing, and under-capitalization. The problem of financial sustainability is evident in SACCO mortality rates of 62% in Tanzania, 33% in Guinea-Bissau, and 7% in Burkina Faso (World Council of Credit Unions, 2022). According to the African Confederation of Cooperative Savings and Credit Associations (ACCOSCA) in year 2022, over 45% of SACCOs in countries such as Kenya, Uganda and Ghana rely heavily on volatile external funding and short-term borrowings; these expose them high financial risks and liquidity crises. Weak capital planning and overdependence on withdrawable deposits have further limited their ability to build stable capital buffers for long-term growth (World Council of Credit Unions, 2023). Additionally, limited expertise in financial risk assessment and poor diversification of income sources have hindered prudent financing decisions. The effect of SACCO size on financing decisions is proved to be an important area for research, as larger SACCOs tend to have stronger bargaining power, greater access to stable funding and better risk management capacity when compared to smaller SACCOs, which are often obstructed by structural and financial constraints (Gachenga et al., 2023). To address these challenges, regional bodies like the African Development Bank (African Guarantee Fund, 2023) recommend the adoption of robust capital structure strategies, including scenario-based financial modeling and the integration of alternative, and low-cost funding mechanisms.

When requested to comply with regulatory capital adequacy requirements, DT-SACCOs in Kenya are under pressure as they have to maintain competitiveness and build trust among members at the same time. Regulatory efforts such as the SACCO Societies Regulatory Authority (2008) and SACCO Societies Regulatory Authority (2010), mandate minimum capital thresholds capped at Kenyan shillings (Ksh) 10 million in core capital and specific ratios for core capital to total assets (10%), core capital to total deposits (10%), and institutional capital to total assets (8%) (SACCO Societies Regulatory Authority, 2024). Nevertheless, financial reports show persistent non-compliance. As of year 2023, 32 DT-SACCOs fell below the core capital-to-assets ratio threshold with 12 operating below 5%, indicating severe financial distress (SACCO Societies Regulatory Authority, 2024). Even large SACCOs like Mwalimu National reported a decline in capital adequacy from 10.17% in year 2022 to 7.7% in year 2023, further emphasizing sectoral vulnerability.

The challenges are tackled by SACCOs in an attempt to diversify their membership base for economies of scale and improve capital inflows (International Cooperative Alliance, 2017; Maina et al., 2020). The issues of capital structure persist, particularly in the absence of a deposit guarantee mechanism, which leaves members exposed in the event of institutional failure. While regulatory bodies have made strides in strengthening oversight, about 35% of SACCOs in Kenya still face closure risk due to capital inadequacy and suboptimal financial decision-making (SACCO Societies Regulatory Authority, 2024).

1.1 Statement of the Problem

Despite the governmental investment in the Sacco Societies Regulatory Authority (SASRA) to improve SACCOs stability, capital conundrum has left 21% of DT-SACCOs exposed to financial constraints and economic vulnerabilities (SACCO Societies Regulatory Authority, 2024). Recent assessments by SASRA have revealed that an average of four SACCOs are declared financially unsound yearly, with three SACCOs delicensed in January 2025, limiting their ability to fulfill essential functions and posing systemic risks to the sector. Furthermore, 35% of DT-SACCOs have ceased operations, leading to the withdrawal of 58,000 members and a diminished capacity to invest in growth or provide affordable financial services (SACCO Societies Regulatory Authority, 2024). These trends underscore the urgent need for solutions to stabilize the sector and mitigate potential insolvencies that could ripple through the co-operative financial ecosystem, hence threatening broader financial stability. Despite the governmental effort to bolster regulatory oversight, the growing trend of license revocations highlights gaps in achieving sector-wide stability (Maina & Jagongo, 2022). Without timely intervention, the cooperative sub-sector faces potential collapse, jeopardizing its contribution to the economy and undermining progress toward sustainable development goals and Vision 2030 objectives. These challenges underscore the importance of this study in identifying solutions to reverse the current trajectory and ensure a resilient, and sustainable SACCO sub-sector

capable of driving national savings and financing investment (Financial Stability Board, 2023).

Results of the correlation between the financing decisions and financial sustainability in SACCOs are found in existing studies. For instance, in Imelda & Himelda (2021)'s study on microfinance institutions in Indonesia, they found that effective financing decisions, particularly in balancing debt and equity, positively influenced institutional sustainability. Kasasbeh (2021) examined small and medium-sized enterprises in Jordan and reported that while internal financing supported operational stability, reliance on external funding exposed firms to financial risks and instability. Further, Aboagye-Otchere & Boateng (2023) reinforced the fact that poor financing decisions such as over-dependence on member deposits without diversification, limited the long-term financial resilience of co-operatives in Ghana. Karuntimi (2022) observed that most of SACCOs in Kenya lacked structured financing strategies and resulted in inconsistent growth and cash flow challenges. According to Maina & Jagongo (2022), a mix of prudent borrowing, investment planning, and reinvestment of surpluses could positively impact the financial sustainability of DT-SACCOs in Kenya.

These findings highlight the need for further investigation into the financing decision practices specific to the SACCO sector in Kenya, given its unique cooperative model and regulatory environment. In this connection, this study addresses the gap by examining the impact of financing decisions on the financial sustainability of DT-SACCOs in Kenya. The goal is to generate context-specific evidence and offer recommendations that SACCOs could adopt to improve their financial health and resilience, so that they could continue to serve their members effectively and contribute to broader financial inclusion objectives.

2. Literature Review

The pecking order theory, first proposed by Donaldson (1961) and refined by Myers & Majluf (1984), posits that firms use internal funds for financing and resort to debt before issuing equity. This preference for investment stems from the inclination to avoid signaling to investors that the firm is overvalued as this could negatively affect investors' confidence. The theory is based on the idea of information asymmetry, in which managers possess superior knowledge of the firm's value when compared to outside investors (Myers, 1984).

Criticism of the theory comes from various scholars. Cheruiyot & Njogo (2021) highlighted that factors like taxes and transaction costs could affect financing decisions, with debt being more favorable due to its tax-deductibility. Kinyua (2023) argued that firms usually considered various factors, such as market conditions and strategic goals, beyond information asymmetry Guizani (2020) criticized that the theory presented a static view of capital structure, instead of accounting for the dynamic nature of financial decisions in changing economic conditions. Additionally, Mwaniki et al. (2018) pointed out the theory neglected market timing as firms would issue equity when stock prices are high. Despite these criticisms, the theory remains useful, particularly for SACCOs and cooperatives, in prioritizing internal funding and promoting financial sustainability.

In the context of SACCOs, the applicability of the pecking order theory is shaped by their unique capital structure, which is primarily composed of withdrawable deposits, non-withdrawable deposits, non-withdrawable shares, and capital and external borrowing. Unlike traditional firms, SACCOs face liquidity fluctuations driven by member savings and withdrawals as this would render internal funds unstable. Capital limitations and cooperative principles have prompted SACCOs to adopt strategies consistent with this theory, such as prioritizing internal sources of funds before resorting to debt. Withdrawable deposits provide operational liquidity, yet their high volatility caused by members' random withdrawal of funds could generate liquidity risks. To mitigate this, SACCOs prefer to rely on non-withdrawable deposits, such as member shares or long-term deposits to offer a stable funding base. External borrowing is considered a last resort due to its cost implications and potential risks to members' trust.

Since members generally opt for internal funds over external borrowing, SACCOs would prioritize strategies that support this preference. These include promoting member savings to boost internal capital, offering competitive loan products and maintaining transparency in financial communication. Based on the pecking order framework, SACCOs establish a financing hierarchy by first utilizing internal reserves and non-withdrawable deposits, then managing liquidity through withdrawable deposits and finally turning to external credit facilities only when necessary. This approach aligns with cooperative principles and promotes long-term financial sustainability by protecting member savings and maintaining operational continuity. Well-structured financing strategies, grounded in this hierarchy, enable SACCOs to expand services and invest in essential infrastructure like digital platforms to enhance efficiency and service delivery while minimizing reliance on costly external debt.

The objective of this study was to conduct a review empirically. Imelda & Himelda (2021) conducted a study on financing decisions as a mediating variable between capital structure and firm performance in Indonesia. The study, underpinned by the signaling theory, employed the total-debt ratio as a measure of capital structure. Secondary data from 42 commercial banks over a three-year period were analyzed using EViews 10 software. Multiple linear regression analysis revealed a significant relationship between capital structure and firm performance. However, the inclusion of financing decisions as a mediating variable weakened the relationship. The study suggests firms should improve their financial planning processes to ensure that financing decisions

could cater for long-term goals and operational needs. It further recommends firms to strategically align their financing decisions with their overall capital structure to enhance performance.

Kasasbeh (2021) carried out a study on the impact of financing decision ratios on the accounting-based performance of listed companies in Jordan. The study employed total debt to assets, long-term debt to total assets and short-term debt to total assets as predictors, while return on equity and return on assets were used to measure firm performance. The Generalized Method of Moments (GMM) was employed to assess the impact with multiple linear regression to determine the strength of the relationship. The findings recommended that firms should optimize their debt-to-equity ratios to balance financial leverage with operational efficiency. The study further emphasized the importance of enhancing financial transparency and conducting regular performance reviews to ensure alignment with strategic objectives. Besides, continuous monitoring of market conditions was advised to support informed financing decisions.

Aboagye-Otchere & Boateng (2023) did a study on financing decisions, ownership type and performance of listed non-financial companies in Ghana, using hierarchical regression steps to assess the direct effects, interaction terms and moderating influence of ownership. The study was grounded in multiple theoretical frameworks, including Modigliani and Miller theory, trade-off theory, pecking order theory, and agency theory. A quantitative approach was adopted with the use of SPSS to analyze the secondary data of 22 companies from the Osiris database, covering a 12-year period from year 2010 to 2021. The hierarchical regression model showed a positive adjusted R^2 with the interaction of the moderator, hence indicating that financing decisions were influenced by ownership size. The study concluded that ownership plays a key role in financial decision-making and recommended the use of internal financing to enhance return.

Karuntimi (2022) investigated the effect of financing strategies on the performance of real estate firms in Kenya, offering valuable insights into the different financing approaches influencing firm performance. The study focused on private equity, joint ventures, mortgage finance, and retained earnings as key financing strategies, with firm size included as a moderating variable. The research was grounded in the resource dependence theory, lien theory of mortgage, and pecking order theory. The study adopted a positivist philosophy, alongside a descriptive research design. Econometric model analysis revealed a significant relationship between financing strategies and firm performance. The findings illustrated that the relationship weakened when firm size was introduced as a moderator.

Maina & Jagongo (2022) conducted research on the effect of capital structure on the performance of small-tiered DT- SACCOs. Their study measured capital structure using equity, debt, and liquidity as key indicators. It was anchored on the agency theory, market timing theory, trade-off theory, and pecking order theory to provide a robust conceptual framework for examining the relationships between variables. A systematic review research design was adopted with the use of secondary data sources. The study concluded that further research is necessary due to existing contextual, conceptual, and population gaps as well as findings from previous studies. The study recommended SACCOs to develop a comprehensive debt management strategy to ensure the effective servicing of debt obligations. Additionally, the study advised SACCOs to establish a clear capital structure policy outlining their approach to acquiring and managing capital in a sustainable manner.

2.1 Conceptual Framework

The conceptual framework illustrated in Figure 1 presents the hypothesized nexus between financing decision practices and the financial sustainability of deposit-taking SACCOs. Financing decision practices, measured through non-withdrawable deposits, withdrawable deposits and external funding, form the independent variables. These financing sources are expected to significantly shape the financial sustainability of SACCOs, which in this study is captured through financial self-sufficiency as the dependent variable. In addition, the framework introduces SACCO size, measured by total assets, as a moderating variable that may either strengthen or weaken the influence of financing decisions on sustainability. The framework is anchored on the Pecking Order Theory, which assumes that institutions prefer internal financing before resorting to external sources, thereby guiding SACCOs in structuring their financing hierarchy. This nexus highlights how financing choices, moderated by institutional size, determine the ability of DT-SACCOs to achieve sustainable growth and long-term stability.

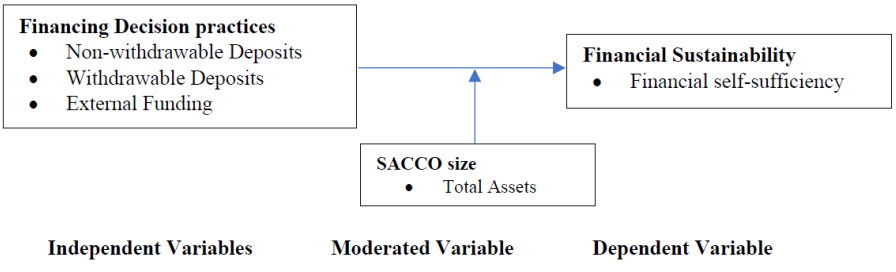

Figure 1. Conceptual framework

3. Research Methodology

The study adopted a cross-sectional survey design within a positivism philosophical paradigm. The sample size of 122 respondents was determined by Yamane's formula. A two-stage sampling technique was employed; first, cluster SACCOs based on their original membership bonds and followed by simple random sampling to select the final sample. Data were then collected using structured questionnaires with a 98% response rate. The reliability test affirmed the suitability of the data collection tools with a Cronbach's alpha value of 847. Factor analysis showed that the data were suitable and appropriate for further analysis with regression. A hierarchical binary logistic regression model was used based on the following regression equations to assess the potential moderating effect; while Eq. (1) assessed the direct nexus between predictor variables and the response variable, i.e., financial sustainability, Eqs. (2) and (3) explored the moderation and interaction effects:

$$Logit\ [p] = ln\frac{p}{1-p} = \beta_0 + \beta_1 NWD + \beta_2 WD + \beta_3 EF \quad (1)$$

$$Logit\ [p] = \beta_0 + \beta_1 NWD + \beta_2 WD + \beta_3 EF + \beta_4 SS \quad (2)$$

$$Logit\ [p] = \beta_0 + \beta_1 NWD + \beta_2 WD + \beta_3 EF + \beta_4 SS + \beta_5 NWD*SS + \beta_6 WD*SS + \beta_7 EF*SS \quad (3)$$

where, $Logit\ [p] =$ represents the natural logarithm of the odds that a SACCO will be financially sustainable, β_0 is the intercept, β_1, β_2, β_3, β_4, β_5, β_6, β_7 is the coefficient, NWD is the non-withdrawable deposits, WD is the Withdrawable deposits, EF is the External funding, and SS = SACCO Size (moderating variable). Nagelkerke R^2 change evaluated the strength of the moderating effect of SACCO size.

4. Results and Discussions

4.1 Financial Sustainability Descriptive Statistics

To evaluate the financial sustainability of DT-SACCOs, the study applied the natural logarithm of the odds of a SACCO being financially sustainable. Financial sustainability was categorized as 1 and financial unsustainability as 0. As illustrated in Table 1, the analysis revealed that 96 out of 120 DT-SACCOs (80%) were financially self-sustainable whereas 24 (20%) were financially self-unsustainable.

Table 1. Financial sustainability

Classification	Number of DT-SACCOs	Percentage (%)
Financially self-sustainable	96	80%
Financially self-unsustainable	24	20%
Total	120	100%

4.2 Financing Decision Practices Descriptive Results

Financing decision practices were assessed by non-withdrawable deposits, withdrawable deposits, and external funding. Respondents rated their levels of agreement with various financing decision practices using a five-point Likert scale, where 1 represented "strongly disagree" and 5 represented "strongly agree". Descriptive statistics presented in Table 2 reveal that non-withdrawable deposits were primarily allocated to long-term investment and this construct yielded the highest average score of 4.05. The integration of external funding into SACCO operations received positive response, as its effective use in enhancing sustainability obtained a mean rating of 3.88. This was further supported by strong fund management and repayment practices, which scored a mean of 3.87. Competitive interest rates on withdrawable deposits, aiming at attracting members, were also rated favorably with a mean of 3.80. However, areas such as forecasting withdrawal patterns received lower confidence, with a mean score of 3.31. The implementation of effective deposit retention strategies was also moderately rated at M = 3.37. Alignment of external funding strategies with long-term financial sustainability goals received a mean of 3.17, while the perceived impact of external funding on the overall financial health was rated the lowest, at M = 3.12.

Table 2 provides a snapshot of financing decision practices among DT-SACCOs. The analysis revealed that 81 percent of respondents agreed that non-withdrawable deposits were primarily invested in long-term projects. The findings are in line with Imelda & Himelda (2021), who established that non-withdrawable deposits provided SACCOs with a stable and dependable funding base. This was further supported by Aboagye-Otchere & Boateng (2023), who found that non-withdrawable deposits contributed regularly by members did not only improve liquidity but also ensured a consistent flow of capital for lending and other financial operations. Similarly, Maina & Jagongo (2022) observed that relying on non-withdrawable deposits reduced the need for external borrowing,

which was often costly and exposed SACCOs to financial risks, thereby enhancing long-term sustainability.

Table 2. Average (*M*) and standard deviations (*SD*) of financing decision practices

Statements	Mean (*M*)	Standard Deviations (*SD*)
Non-withdrawable deposits are invested in long-term projects	4.05	0.773
SACCO has put in place effective measures to manage liquidity risks related to withdrawable deposits	3.72	0.924
SACCO monitors withdrawal patterns accurately to maintain adequate liquidity	3.31	1.153
SACCO has implemented effective strategies to retain deposits	3.37	1.175
SACCO has competitive interest rates on withdrawable deposits to attract members	3.80	0.802
External funding is effectively utilized to enhance sustainability	3.88	0.996
SACCO has strong management practices in place for the utilization and repayment of external funds	3.87	0.836
External funding has a positive impact on the overall financial health of SACCO	3.12	1.166
External funding strategies of SACCO align with its long-term financial sustainability goals	3.17	0.878

Further analysis on sample adequacy test was carried out to confirm whether data collected was appropriate for factor analysis. A test for multicollinearity was first carried out and revealed a correlation matrix determinant of 0.004, which was more than identity matrix 0.00001, hence stipulating the absence of multicollinearity between variables. This led to further testing of whether factor analysis is appropriate in a factor analysis. Kaiser Mayer Olkin and Bartlett test were considered. The computed value for the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.752. This was found to be an acceptable measure in agreement with Saunders et al. (2009). On the other hand, Bartlett's test of sphericity was conducted to determine whether the correlation matrix was an identity matrix. The test results were highly significant, with a chi-square value of 71.588, 36 degrees of freedom and a *p*-value of 0.000 ($p < 0.05$). Therefore, the null hypothesis was rejected, thus revealing that the correlation matrix was not an identity matrix. Factor analysis was further considered appropriate for the data set in the study. The study further conducted principal component analysis to compress the observed data into fewer factors. This process ensured that the extracted factors captured the underlying structure of the data to enhance the accuracy with which the variables represented the intended constructs. The measurements could become more accurate and reflected the theoretical constructs being studied. Therefore, PCA and varimax rotation were considered feasible to reduce the dimensionality of the data by grouping variables that shared common variance. As shown in Table 3 below, the twelve components employed are highly loaded to only three factors. The three components have an eigen values > 1.0 and were therefore retained for further analysis.

With reference to Table 3, three factors, i.e., non-withdrawable deposits, withdrawable deposits, and external funding were retained after conducting the principal component analysis and varimax rotation (orthogonal rotation) as they had eigen values greater than one with a total variance of 78.469% for the observed variables. The extracted was further used in binary logistic regression model.

Table 3. Principal component analysis for financing decision practices

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	4.231	47.015	47.015	4.231	47.015	47.015	3.758	41.756	41.756
2	1.819	20.208	67.223	1.819	20.208	67.223	1.869	20.770	62.526
3	1.012	11.246	78.469	1.012	11.246	78.469	1.435	15.943	78.469
4	0.570	6.338	84.807						
5	0.499	5.539	90.346						
6	0.274	3.040	93.387						
7	0.266	2.955	96.342						
8	0.175	1.941	98.282						
9	0.155	1.718	100.000						

4.3 Hierarchical Regression Analysis for Financing Decision Practices

The hierarchical regression model was employed to examine the moderating effect of SACCO size on the relationship between financing decision practices and the financial sustainability of DT-SACCOs in Kenya. The primary objective was to establish whether SACCO size significantly moderated this relationship. The strength of the moderating effect was assessed using the Nagelkerke R^2 statistic. In addition, the analysis investigated the

direct influence of the predictor variables including non-withdrawable deposits, withdrawable deposits, and external borrowing on the response variable, i.e., financial sustainability, as summarized in Table 4.

Table 4. Hierarchical regression results

Predictors	Model 1			Model 2			Model 3		
	Beta[a]	Wald	P	Beta[a]	Wald	P	Beta[a]	Wald	P
(Constant)	1.696	0.688	0.407	0.389	0.014	0.907	9.556	0.685	0.685
NWD	1.388	6.609	0.010	1.382	6.576	0.010	4.829	0.543	0.461
WD	−0.566	2.493	0.114	−0.562	2.466	0.116	−1.510	0.117	0.732
EF	−0.841	5.842	0.016	−0.828	5.650	0.017	−5.947	1.670	0.196
SS				0.141	0.244	0.621	−0.850	0.107	0.743
NWD*SS							−0.391	0.291	0.590
WD*SS							0.104	0.044	0.833
EF*SS							0.570	1.254	0.263
Nagelkerke R^2		0.130			0.133			0.149	

Hierarchical regression Model 1 revealed a positive relationship between non-withdrawable deposits, external funding and the financial sustainability of DT-SACCOs, with statistically significant *p*-values of 0.010 and 0.016, respectively. These results were reinforced by Wald statistics (Wald = 6.609 and 5.842), both exceeding the critical value of 1.96, thereby underscoring the significant contribution of these two predictors in enhancing the financial sustainability of SACCOs. The findings aligned with previous studies by Wanyonyi et al. (2024), who established a statistically significant association between share capital and financial performance of savings and credit co-operatives. However, these findings contrast with those of Ngui & Jagongo (2017), who reported an inverse relationship between non-withdrawable deposits and SACCO's performance.

Moreover, the analysis revealed that withdrawable deposits had an inverse relationship with financial sustainability, with a *p*-value of 0.114, indicating a statistically insignificant effect. This result was consistent with Daniel & David (2024), who observed that high withdrawal levels in banking institutions often triggered financial distress. It also aligned with Odero & Ogilo (2024), who reported that withdrawable deposits heightened liquidity risks as sudden withdrawals could leave SACCOs without sufficient cash to meet obligations or issue loans, thereby exposing them to financial instability. The findings also supported Kyenze (2023), who noted that poor liquidity management associated with withdrawable deposits led to operational inefficiencies and financial losses, hence weakening the financial strength, members' trust, and long-term sustainability of SACCOs. In addition, Bornfas & Githira (2022) emphasized that, unlike non-withdrawable deposits which provided a stable capital base, withdrawable deposits were inherently volatile and might compel SACCOs to hold excess liquidity, thus limiting investment in income-generating assets and undermining their financial structures. The model produced the following equation:

$$Logit\ [p] = ln\ [p/(1-p)] = 1.696 + 1.388\ NWD - 0.566\ WD - 0.841\ EF \quad (4)$$

The empirical results further revealed that non-withdrawable deposits had a positive effect on financial sustainability (β = 1.388), indicating that an increase in these deposits significantly enhanced the likelihood of a SACCO to maintain long-term financial stability. Conversely, withdrawable deposits (β = −0.566) and external funding (β = −0.841) exhibited negative associations with sustainability; as a result, greater dependence on these sources diminished the prospects for sustained stability. These results implied that SACCOs relying more on stable and long-term member deposits were better positioned to achieve and maintain financial sustainability than those dependent on volatile funding streams. The finding was consistent with SACCO Societies Regulatory Authority (2024), which observed that larger SACCOs were generally better equipped to absorb the risks associated with withdrawable deposits and external borrowing, whereas smaller SACCOs benefitted more from expanding their bases of non-withdrawable deposits.

In Model 2, the study assessed the moderating effect of SACCO size on the relationship between non-withdrawable deposits, withdrawable deposits, external funding and financial sustainability. The results showed that non-withdrawable deposits and external funding had statistically significant *p*-values of 0.010 and 0.017, respectively, indicating a positive association with financial sustainability. These results were reinforced by Wald statistics of 6.576 and 5.650, both exceeding the critical value of 1.96, and confirmed the significance of these predictors. Conversely, the analysis revealed that withdrawable deposits and SACCO size had negative relationships with financial sustainability, with *p*-values of 0.116 and 0.621, respectively, hence suggesting their limited contribution to explaining sustainability in DT-SACCOs. The model produced the following equation:

$$Logit\ [p] = ln\frac{p}{1-p} = 0.389 + 1.382\ \text{NWD} - 0.562\ \text{WD} - 0.828\ \text{EF} + 0.141\ \text{SS} \quad (5)$$

The binary model revealed that non-withdrawable deposits had a positive effect on financial sustainability (β = 1.382), so increasing such deposits enhanced the likelihood of SACCOs to remain financially stable. Conversely, withdrawable deposits (β = −0.562) and external funding (β = −0.828) exhibited negative effects, implying that heavy reliance on these sources might undermine the long-term stability of a SACCO. The results found that SACCO size (β = 0.141) demonstrated a positive influence, suggesting that larger SACCOs were better positioned to withstand financial pressures due to economies of scale and greater access to resources. These findings aligned with Bett & Kanyanya (2024), who observed that larger SACCOs were more adept at managing the risks posed by volatile funding sources while smaller SACCOs tended to benefit more from strengthening their bases of stable and non-withdrawable deposits.

In Model 3, the study examined the interaction effects of SACCO size and found that non-withdrawable deposits, withdrawable deposits, external funding, and financial sustainability have an inverse nexus with *p*-values of 0.461, 0.732, 0.196, 0.743, 0.590, 0.833, and 0.263. The binary logistic model generated the following equation:

$$Logit\ [p] = 9.566 + 4.829\ \text{NWD} - 1.510\ \text{WD} - 5.947\ \text{EF} - 0.850\ \text{SS} - 0.391\ \text{NWD*SS} + 0.104\ \text{WD*SS} + 0.570\ \text{EF*SS} \quad (6)$$

The binary model further revealed that, after incorporating interaction terms, the effect of funding sources on financial sustainability varied with SACCO size. Non-withdrawable deposits exhibited a strong positive main effect (β = 4.829), indicating that increasing such deposits enhanced financial sustainability, particularly when SACCO size was at its baseline. In contrast, withdrawable deposits (β = −1.510) and external funding (β = −5.947) displayed negative main effects, suggesting that heavy dependence on these sources might undermine sustainability. The interaction results indicated that as SACCO size increased, the positive impact of non-withdrawable deposits slightly diminished (β = −0.391), while the negative impacts of withdrawable deposits and external funding were moderated and became less pronounced (β = 0.104 and β = 0.570, respectively). These findings implied that smaller SACCOs gained more from expanding stable and non-withdrawable deposits whereas larger SACCOs were better positioned to manage the risks associated with more volatile funding sources.

To assess the moderating effect of SACCO size on the relationship between financing decision practices and financial sustainability, a hierarchical regression analysis was conducted across three models. In Model 1, non-withdrawable deposits, withdrawable deposits, and external funding accounted for 13% of the variation in the financial sustainability of DT-SACCOs. Model 2 introduced SACCO size as a moderating variable, resulting in a slight increase in the Nagelkerke R^2 to 13.3%, indicating that SACCO size marginally strengthened this relationship. When interaction effects were incorporated into Model 3, the Nagelkerke R^2 further increased to 14.9%, reinforcing the conclusion that SACCO size enhanced the link between financing decision practices and financial sustainability. These findings were consistent with Otwoko et al. (2021), who found that SACCO size significantly influenced financing decisions and the overall performance. This was further supported by Gachenga et al. (2025), who discovered that larger SACCOs typically benefitted from greater access to capital, a diversified membership base, and economies of scale as these resources enabled them to make more strategic and informed financing decisions. On the other hand, smaller SACCOs often faced constraints such as limited resources, higher operational costs, and a more concentrated membership base; in this light, making financing decisions became more difficult and potentially less sustainable in the long term.

5. Conclusions and Recommendations

The study concluded that SACCO size moderated the relationship between financing decision practices and financial sustainability even though the interaction effects were statistically insignificant. The findings indicate that non-withdrawable deposits positively influence the sustainability of smaller SACCOs while withdrawable deposits and external funding have a negative impact, despite the fact that larger SACCOs are better positioned to manage the associated risks. This suggests that both small and large SACCOs require differentiated financing strategies, supported by robust risk management frameworks, to enhance financial sustainability in dynamic economic environments. The hierarchical regression model further reveals that SACCO size strengthens the nexus between financing decision practices and financial sustainability. Based on the findings, the study recommends that a scenario-based stress testing approach be integrated into financing decisions to assess the long-term impact of different funding structures on financial sustainability under varying economic conditions. For small SACCOs**,** stress testing could help identify vulnerabilities associated with over-reliance on withdrawable deposits and external funding, thus enabling them to develop strategies, such as building reserves from surplus income or adopting member-centric financing models to enhance stability. For large SACCOs, stress testing could guide the diversification of funding sources and improve risk management practices by leveraging their stronger capital base and broader revenue streams.

This study is useful in providing advice to regulators and policymakers to adopt Basel-aligned capital adequacy benchmarks and early warning systems**,** as these could ensure both small and large SACCOs maintain an optimal balance between financial growth and sustainability while minimizing systemic risks. The study further recommends small-size SACCOs to prioritize the building of stronger capital buffers through enhanced savings mobilization and cost-effective financial management practices. In the short term, smaller SACCOs should set clear savings growth targets, such as increasing member deposits by 10 to 15% within the next year, implementing regular financial literacy sessions for members, and conducting periodic reviews to reduce unnecessary operational costs. In the long term, they should pursue strategic collaborations and partnerships with other SACCOs or financial institutions to share resources, adopt cost-saving technologies and explore mergers or alliances that could improve economies of scale and reduce financial risks. Larger SACCOs should leverage their abilities to access diverse financing sources including external funding, to optimize capital structures. Moreover, they should focus on balancing internal and external funding while investing in growth opportunities like technology, innovation, and market expansion.

Data Availability

The data used to support the research findings are available from the corresponding author upon request.

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Conflicts of Interest

The authors declare no conflict of interest.

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