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Capital Structure and Firm Efficiency of Deposit Taking Saccos in Kenya

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Abstract

The stability and resilience of SACCOs' performance stood out both during and after the coronavirus epidemic. However, the average variable returns to scale regarding the ratio of members' deposits to loans issued by SACCOs is inefficient, with a ratio of less than one. This inefficiency impacts revenues and, in turn, the interest paid on members' deposits.. This study sort to investigate the effect of capital structure on the firm efficiency of deposit taking saccos in Kenya and was anchored on financial intermediation Theory, economic efficiency theory and capital structure theories. The study adopted a positivist paradigm and causal research design and target population of all 176 saccos as at 2021.A data review guide was used to extract secondary quantitative data from the saccos published financial reports from year 2015 to 2021. Stata version 13 was employed to run descriptive and inferential statistics after computing efficiency scores using data envelopment analysis model and results presented in graphs and tables. The study findings indicate that saccos efficiency has an increasing growth trend though not optimal with variable return to scale contributing the highest levels in efficiency relative to scale efficiency while capital structure does not significantly affect level of efficiency. The study recommends that the deposit-taking savings and credit management board strategize and implement a rebate payment policy, comply with regulations on external borrowing, and improve strategies for collecting deposits. Additionally, the study suggests further research to determine if specific elements of capital structure significantly influence the efficiency of deposit-taking savings and credit societies.

Keywords: *Saccos, efficiency, Capital Structure, SASRA*

1.1 Background of the study

Globally, Credit unions have an inefficient financial performance with varying efficiency scores depending on how large scaled or the institutional technological investment advancement (KPMG Financial Mutual Report,2018). In Britain, the introduction of prudential rulebook in year 2016 with mandatory electronic reporting has led to an increase of credit unions inefficiency in submitting data for publication (Bank of England Credit Union Statistical Reports, 2018).

Brazilian credit unions display a higher level of efficiency but low differentiation between credit unions in financial efficiency with a none consistent efficient trend throughout the financial period (Manuela, 2019). In Africa, credit unions total savings and shares have accumulated to US dollars 21.54 billion (WOCCU Statistic reports, 2021). In addition the report note s that savings has accumulated to Us dollars 17.091 billion. Total loans portfolio Us dollars 14.05 million while total assets accumulated is worth Us dollars 22.831 billion. The total retained reserves have reached approximately US dollars 1.098 billion, stemming from a membership of 9,754 in the continent's credit union countries. However, Africa's most significant area of risk lies in technology, where it is ranked at 100% compared to the global average rate of 53%. Credit unions in the African continent prioritize regulatory strategies at 40%, in contrast to the global prioritization and ranking of 51% (WOCCU Statistic reports, 2021).

Kenyan government aims to ensure that the sector is fundamentally easy to access, efficient, stable and the customer is adequately protected through regulations set by SACCO authority (SASRA supervisory report, 2013).However, Kenyan SACCOs industry has been performing inefficiently with efficiency score of below one (Paulo & Gikuri, 2015; Kalundu, 2019) with SACCO industry`s size and cost efficiency ratio of 0.8095 where large SACCOs registered higher efficiency scores than small SACCOs (Karan & Shanshankja, 2013; Onguka, 2012).Kenyan DTS with higher membership, loans advances and high turnovers are rated with more efficient scores (Ochola, 2016). Reviewed research studies focusing on factors that influence efficiency levels have highlighted the significant impact of DTS efficiency in reducing overhead costs relative to total income, as noted by Benito, Hassan, Bartkus, and James (2013). Nevertheless, activities in SACCOs are funded from members' contribution which is in form of share capital, member deposits and interest income from other DTS investment projects (Kalundu, 2019). Objectively, poor and inadequate institutional capital in financing SACCOs projects has inhibited growth of SACCOs wealth sufficiently (Olando, 2012). Generally, the capital structure of DTS is characterized by members' equity, which is determined by the total contributions to members' share capital, and the SACCOs' external borrowing from other financial institutions, as noted by Karan and Shanshankja (2013). Objectively, capital expenditure affect efficiency levels in DTS (Mirie, 2014) while the ideal capital structure mix is a big challenge in Kenyan DTS (Ogweyi, 2014).

Financial intermediaries` capital structure is defined as the balancing mix between debts levels and owners' equity (Ogweyi, 2014). Capital structure mix in firms promotes ideal levels of required liquidity for profitable firm`s operations (Akoto et al., 2013) to avoid possible negative impacts of firms` illiquidity (Koech, 2013).Firms have a hierarchical financing having preference of financing projects from retained earnings, debts and a highbrid of convertible loans and issuing of shares respectively according to Myres and Mailuf (1984) pecking order theory. Modigliani and Miller (1978) model on relevance of debt to a firm capital structure emphasis on the importance of firms' debts which enhance tax shield benefits in the firm financial performance. The financial option determines the going concern of a firm (Ahmed, 2017) while unsustainable debts compel shareholders to auction their firms' investment (Delloitte & Touche Audit Report, 2016). However, Kenyan firms generally adjusts slowly to targeted capital structure and therefore raises operation costs and subsequently affecting their efficiency levels (Mohammed & Tendai, 2013).

Previous studies have extensively used members' share capital contributions and external debts as proxies for capital structure. In addition to these two parameters, this study will incorporate

retained earnings, which the Modigliani and Miller theory (1978) emphasizes as a crucial factor in influencing the balance of a firm's capital structure mix by affecting debt levels.

1.2 Statement of the problem

Comparison on study findings differs on statistical significance of capital structure on efficiency. Capital structure has been studied in relation to its impact on financial performance but there is insufficient literature on its effect on DTS efficiency (Mirie, 2014). Empirical study's findings converge on importance of proper capital mix but fails to indicate the magnitude of the effect of the capital structure on their financial efficiency. For instant, study findings by Koech (2011) concludes that listed firms fund their activities through equity and debts while Armed (2017) study findings concluded that debt levels determine firm`s going concern.

However, various reviewed studies do not indicate the magnitude of the effect of the capital structure on efficiency. In addition, Kenyan firms have a slower speed of adjustment to targeted capital structure which eludes to higher operation costs and reduced profits margins (Mohammed & Tendai,2013). This contradicts study conclusions that in maximization of shareholder's wealth, financial leverage plays a critical role (Ting et. Al.,2017).

2.1 Capital Structure Theories

Theories on capital structure trace their origins back to the foundational work by Modigliani and Miller in 1958. Their groundbreaking paper assumed a market operating efficiently without the encumbrances of bankruptcy costs, agency costs, and with uniformly available information to all market participants. The authors contended that a firm's dividend policies and capital structure had no impact on its value. Subsequent developments and empirical evidence challenged this initial proposition, highlighting that the cost of debt capital indeed influences firm value. A notable refinement came in 1977, when Modigliani and Miller acknowledged the benefit of debt through tax shields, thereby underscoring the significance of a firm's debt component in its capital structure to its overall value.

Kraus and litzenberger on tradeoff theory (1973) reemphasized this preposition on the relevance of debt by theorizing that the firm should always balance on the distress cost visa-viz the benefit accruing on debt financing to prevent firms from being declared bankrupt. According to tradeoff theory by Kraus and litzenberger (1973), for the firm to achieve ideal capital structure mix and benefit from the tax deductibility, the firm must strike a balance between financial costs arising from interest payable on that debt and tax deductible (tax shield). Pecking order theory by Myers and Mailuf (1984) added to the discussion of capital structure mix and theorized on the firm hierarchical financing options. The proponents theorized that firm have a preference in funding their projects and their operations by prioritizing sources of from less costly source to the most expensive from retained earnings, to debts and lastly financing through a hybrid convertible loans and eventual issuing equities (Myers & Mailuf, 1984).

In this study the MM theory(1977) underscore the importance of debt financing(external borrowing) in SACCO financing model besides own members sources of fund (contribution in deposits, registration fees among others).The external sources of fund will improve liquidity to enable the DTS meets its obligation timely since studies indicates a big challenge in Kenyan DTS on ability to finance their projects from own resources only (Mutinda,2018 & Olando, 2012).Trade

off theory (1973) under pins the need for the deposits (internal sources) and external borrowing balancing mix of funds by emphasizing on members contributing deposits which accrue less costs (levies) but are major contributors in funding DTS projects visa viz sourcing funds externally. This will ensure that DTS projects don't stall since due to illiquidity arising from inadequate institutional capital(Ogweyi.et al., 2014).This will ensure the SACCO sector enjoys rapid growth in its transactions and performance generally (Mutinda, 2018).

2.2 Empirical review

Sangali (2013) study on comparative analysis of the financial performance of saving and credit cooperatives societies in Kisarawe district, Tanzania. The study gathered secondary data from 2008 to 2011 and surveyed all eight SACCOs in Kasangwe, which included three employee-based and five community-based rural SACCOs. Financial performance was assessed using proxies such as capital, SACCO size, liquidity, operating expenses, and loan-to-member ratios. The findings concluded that employee-based SACCOs are more effective at exploiting economies of scale compared to community-based SACCOs, despite having smaller working capital than their community-based counterparts. The contextual gap existed with this study locale being in Kenya and not a comparative analysis where the researcher investigated firm characteristic effect on DTS efficiency in Kenya by employing descriptive research design. In order to enhance generalization of the study results based on data collected validity and reliability researcher extracted data from all active with the study period.

Nyankomo and Aziakpono (2015) assessed the technical and scale efficiency on a population of 103 SACCOs in Tanzania. The study employed DEA model to generate efficiency scores using secondary data. The findings of the study revealed that the efficiency of SACCOs is significantly lower than that of entities with a relationship between efficiency and size, which is nonlinear. Efficiency scores were calculated using input parameters such as total cost, capital (represented by the total size of fixed assets), and total deposits, while the total loan portfolio and total revenue were considered as outputs in the analysis of Return on Assets (ROA). Contextually, the current study locale was in Kenya and not in Tanzania and conceptualized efficiency score as a ratio of gross loans divided by total deposits.

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2.3 Conceptual frame work

Conceptual framework is a diagrammatical representation of researcher`s conceptualized relationship between capital structure (independent variable).

Independent variable **Dependent Variable**

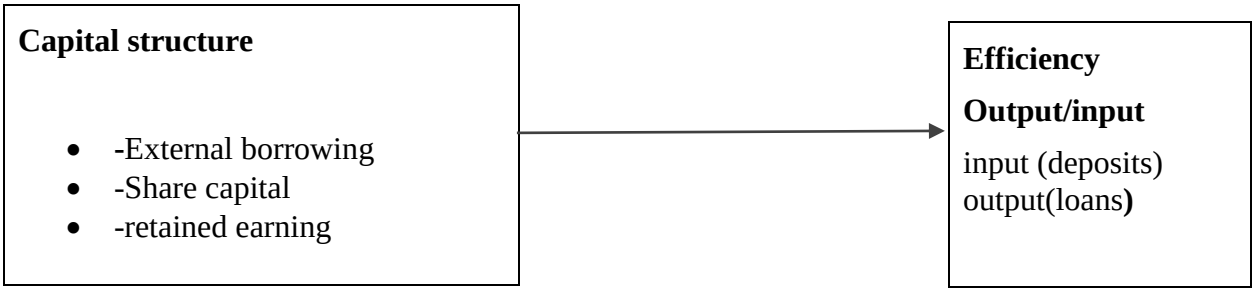

Figure 1: Conceptual Framework

Source: Author (2023)

3.0 Research Design

The research study employed causal research design to enable the researcher to assess objectively the nature and effect of the relationship between independent, mediating moderating and dependent variables (Mirie, 2014). The study obtained specific attributes from DTS audited financial reports, enhancing the reliability of research inferences for broader application. It covered a longitudinal period from 2015 to 2021, focusing on DTS that were operational during this timeframe. The research was conducted in Kenya. The analysis of the study was designed to ensure a good fit of the data for hypothesis testing, and it upheld the validity, reliability, and generalizability of the findings. The study utilized the ratio level for measurement.

The population which consists elements making the subjects from where representative sample was drawn to inform the study findings (Saunders et al.,2009) was all 176 active DTS in Kenya as at 31 December 2021(SASRA Supervisory Report, 2021).The period under consideration (2015-2021) was one year after the SASRA Act (2014) came into force after being enacted by the Kenyan government in 2008 (SASRA Act, 2008; SASRA Regulations, 2010). The study aimed to test the null hypothesis, H_{01}: Capital structure does not have significant effect on firm efficiency in deposit taking saving and credit cooperative societies in Kenya. A document review guide was used in this study to extract secondary quantitative data from published audited financial reports of DTS in Kenya from year 2015 to 2021. This study run a step wise analysis by first computing efficiency scores using Data envelopment analysis and running a Tobit regression in the second stage.

$EFF_{it} = \beta 0 + \beta 1 CSit + \ldots. \varepsilon_{it}$

where EFF_{it} = is efficiency of firm i at time,t ; CS_{it} Capital structure of DTS i at time,t and ε_{it} – Random error term at time t

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4.0 Results and Discussions

This section presents results on descriptive and inferential analysis

4.1 Descriptive Analysis

Table 1 summarizes year 2015 to 2021 technical efficiency scores measured in CRS (constant return to scale), VRSTE (variable return to scale) and scale efficiency. DTS is said to operate under CRS if the desired results increases or decreases proportionately to increase and decrease of the input and output of the production model. DTS are said to be operating at variable return to scale if an increase of input does not proportionately reflect increase in its output. DTS `s loans issued are a multiple of members deposits (Mutinda,2018) thus gross loans do not match proportionately to deposits accumulated. Based on this assumption, the study adopted VRSTE but summarized all the scores on yearly basis as discussed below to have a better understanding of DTS` efficiency generally.

DTS had a mean of 0.931 on VRSTE and 0.913 on CRS indicating that DTS are optimally efficient. Objectively, DTS are expected to reduce usage of deposits(inputs) by 6.9% but retain same level of loans issuance or increase gross loan (output) by 6.9% using the same level of deposits in order to operate efficiently. The variable return to scale had an increasing tend from 0.928 in 2015 to 0.929 in 2017 and 0.932 and 0.935 in 2020 and 2021 respectively. This shows that as the DTS grew in deposits collections over the years, their efficiency in issuance of loans improved which corroborate with findings by Biwott and Muturi (2018). This indicates that the loans advanced grew at a higher level than the members deposit received by the Saccos. The growth may be well explained by increase in supervision by government through Saccos regulatory authority which was assented into and started implementation in year 2014 (SASRA Supervisory report,2016 ; Ting et al.,2017).

Constant return to scale (CRS) over the period had a constant trend of 0.911 from year 2015 to 2019 to a slight increase in 2021.Generally, the CRS maintained at an average of 0.911 over the period of the study indicating that the DTS ratio of gross loans and deposits received was at constant ratio and were inefficient over the study period at 0.089%. Similarly, the scale efficiency grew at constant rate at 0.913 from year 2015 to 2020 with a slight increase to 0.912 in year 2021.This constant efficiency scores indicate that the changes in DTS size did not have significant change over the period. At an average, the scale efficiency was 0.913 indicating that the DTS were inefficient with 0.087%. Generally, the findings indicate that the inefficiency in the sector majorly results from variable return to scale (deposits from members and loans issuance) and CRS (constant return to scale) (Kimutai ,2019) but not from scale, that is the size of the DTS. Subsequently, the study employed variable return scale in its subsequent analysis.

In the second stage, firm characteristics are regressed with efficiency scores computed using DEA model which suffers from inherent dependency problem (Farrel,1957;Charnes Cooper& Rhodes,1978) which violates assumption of within sample independency in linear regression analysis (Morwab& Muturi,2019).Before regressing, the study cured dependency problem by running bootstraps (Efron, 1979) using Stata software on variable return to scale and generated biased corrected efficiency scores on resampled estimates as summarized on Table 1

Table 1: Bias Corrected Efficiency Scores

Year	VRS	BiasCorrectedVRS
2015	0.928	0.923
2016	0.929	0.924
2017	0.929	0.925
2018	0.93	0.926
2019	0.932	0.926
2020	0.932	0.926
2021	0.935	0.929
Mean	0.931	0.926

Source: Author (2023)

Table 2 depicts a lower average mean computed on bias corrected score in comparison to mean VRS (variable return to scale) computed efficiency scores. This can be attributed to sampling bias when generating efficiency scores using DEA model hence the study adopted the bias corrected efficiency scores in the second stage to carry out regression analysis.

Table 2: Descriptive Analysis

	N	Minimum	Maximum	Mean	Std Deviation
Bias Corrected_Eff Capital	1157	.84	1.00	0.9256	0.02765
Capital Structure	1157	1078885.753	2952176919	186255147.2	357615750.0

Source: Author (2023)

The Table 2 indicate that the mean bias corrected efficiency was 0.9256 and standard deviation of 0.02765 with a maximum score of 1.0 and minimum of 0.84 efficiency score. This indicates that the efficiency scores are censored between zero to a maximum of one and that DTS are inefficient in issuance of loans and optimization of members contributed deposits. DTS` mean of 0.9256 indicates that for optimal efficiency, DTS are inefficient in loans issuance with about 7.44% using same level of deposits contributed. The minimum and maximum capital structure was Ksh. 1.0788 and 2.952 billion with a mean capital structure of 186.255 million and standard deviation of 357.6575 million. The mean capital structure was 186.255 million with a standard deviation of 357.6million with a minimum and maximum of 1.079m and 2.95 billion respectively which indicate that DTS sets aside funds for capital expenditure and provisional amounts varies from one DTS to another. The varying capital expenditures allocation can be explained by SASRA categorization of saccos into large, medium and small tiers based on their asset size levels

(Kalundu,2019) and limitation on how much a DTS can spend on capital expenditures (Sasra Act,2008) hence DTS ability to allocate funds on capital expenditures variability.

4.2 Inferential Statistics

This section presents the inferential statistics for the study.

Table 3: Tobit Regression

Variable	Coefficient	Std.Err	P-Value
Capital Structure	0.0119748	0.008893	0.178
LR Chi Square (4) 102.43			
Prob > Chi Square 0.0000			

Source: Author (2023)

The table 3 indicates that the likely hood chi square ratio is 101.43 with four degrees of freedom with a probability chi square of 0.000 which is less than the critical value of 0.05. This interprets that the tobit model fits well with the efficiency variable as dependent and independent variables. The study tested the null hypothesis that capital structure has no significant effect on efficiency. The findings with coefficient of 0.0119745 and p-value 0.178 indicates a statistical insignificant relationship between capital structure and efficiency. Subsequently, the study failed to reject the null hypothesis that capital structure in DTS has no statistical significance effect on relationship between capital structure and efficiency and concluded that capital structure does not affect DTS` efficiency. This preposition contradict findings carried in the past by Nyankomo and Aziakpono (2015).

Table 4: Marginal Effects after Tobit

Variable	**dy/dx**	**Std.Error**	**P-Value**
Capital Structure	0.0119748	0.008893	0.178
Cons	0.9252289		

Source: Author (2023)

Table 4 indicates that the coefficient of capital structure of DTS has a positive 0.0119748 and a p-value of 0.178 which is higher than significant value of 0.05. This P-value indicates that the capital structure of DTS does not significantly affect efficiency and that the relationship between capital structure and efficiency is statistically insignificant. The positive coefficient interprets that the more monies DTS set aside, the more the DTS are efficient liquid to carry out activities promptly and investments promptly.

5.0 Conclusion

The study concludes that the relationship between capital structure and efficiency is weak, positive, and insignificant. Additionally, the study finds that an increase in capital structure, such as heightened external borrowing from other financial institutions, leads to an increase in interest payable expenses. This diminishes the funds available for loan issuance, despite the growth in yearly deposits, resulting in reduced efficiency levels in DTS. Furthermore, an increase in reserves as a precautionary measure in case of DTS liquidation, alongside the growth in deposit levels, reduces the availability of funds for loan disbursement, thereby leading to decreased efficiency levels in DTS.

6.0 Recommendation

The study recommends that the boards of management of Deposit-Taking Saccos (DTS) should concentrate on maintaining an optimal capital structure that carefully balances the potential future risks of liquidation with the immediate needs of their members. Specifically, it suggests that the annual retained earnings should be kept at a moderate level to ensure the payment of rebates to members based on the interest earned from loans issued. Additionally, it advises that the management boards of DTS should develop and implement a rebate payment policy and comply with existing regulations regarding external borrowing. Adhering to these recommendations will help establish an ideal capital structure that supports the primary functions of savings and credit without undermining them. Implementing such strategies is also likely to be perceived positively by members, enhancing their trust and goodwill, which in turn will encourage their continued engagement with the products offered by DTS.

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