Financing Alternatives for SACCOS and their Impact on Financial Performance: Evidence from Tanzania

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Abstract
This paper examines the impact of capital structure on financial performance for Savings and Credit Cooperative Societies (SACCOS). The study uses panel data of 484 observations of SACCOS whose information was gathered by the Bank of Tanzania from 2008 to 2012. Using fixed effects approach, the findings indicate that increased use of members' savings and using larger proportion of resources for lending purposes lead to a better financial performance. Firm size is found to have a negative impact while debt usage does not guarantee good performance. The results are robust to alternative regression estimates. To the best of our knowledge, this is the first time a study is conducted on the impact of capital structure on financial performance of SACCOS. Previous studies concentrated on banking industry and other types of MFIs apart from SACCOS. This fact makes the findings of this research to be unique.

Keywords: Microfinance, Financial Sustainability, Capital Structure.

1. Introduction

Savings and Credit Co-operative Societies (SACCOS) are financial vehicles that are perceived to be more attractive to customers, hence deeply embedding themselves in the financial sectors of many countries (Munyiri, 2006). This has been argued to be contributed by the fact that they have solid bases of small saving accounts, which form a stable and relatively low-cost source of funding and low administrative costs, thus making them capable of advancing loans at interest rates lower than those charged by other financial providers. (Branch, 2005). Another important fact is that SACCOS have the ability to reach clients in areas that are distasteful to banks such as rural or poor areas, and they reach such areas with the core objective of ensuring members empowerment through mobilization of savings and disbursement of credit (Ofei, 2001).

Despite the fact that SACCOS are seen to bring financial redemption to low-income people, it has been argued that, for them to operate sustainably, savings mobilization should be backed by adequate institutional capital that ensures permanency, provide cushion to absorb losses and impairment of members' savings. This is important in ensuring the permanence and growth of the SACCOS (economic and financial viability) even in turbulent economic times (Evans, 2001;

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Gijselinckx and Devetere, 2007). The above argument suggests that SACCOS should look for other financing means rather than focusing on members' savings only. On this ground, this paper analyzes the financing alternatives and their impact on financial performance of SACCOS in Tanzania.

2. Brief Background of SACCOS in Tanzania

SACCOS are the most widespread form of financial intermediaries at the grass root in Tanzania, especially in rural areas, which make them the most predominant rural based MFIs. They are registered under the Cooperative Societies Act 2013, which requires a minimum of 20 members (URT, 2014), and are currently under the Ministry of Agriculture, Food Security and Cooperatives. Generally, there has been a progress in the development of SACCOS in the country although there have been some challenges as well. As we can see in Table 1 below, there was an abrupt and continuous growth of SACCOS in terms of number of SACCOS, members, shares and savings, and loans disbursed from 2006 to 2009. This was mainly caused by deliberate efforts of the 4th phase Government to promote the formation of SACCOS – through providing them with funds – so as to ensure inclusion of the poor and low income strata of the population in the formal financial system.

As at the end of 2009, among the existing SACCOS, 44% were located in urban areas while 56% were located in rural areas. Of the total members, 56% were male, 41% were female and 3% were groups. Although this was seen as a good progress, after 2009 there was a stagnation in the SACCOS growth, which was thereafter followed by decrease in the number of SACCOS as a result of deregistration and amalgamation in order to have sustainable SACCOS. A good example is the trend seen from year 2009 to 2010 (Mgoba, 2011). This happened because some of the SACCOS were formed in rush and without having proper roots, especially after the government announced to provide them with grant funds; therefore they collapsed just a short period of time after they were established.

Table 1: SACCOS' Performance in Tanzania

Item	2005	2006	2007	2008	2009	2010	2011
No. of SACCOS	1,875	2,028	4,445	4,780	5,332	5,168	5,314
No. of members	255,938	291,344	765,931	713,699	820,670	917,889	970,665
Shares and savings (Billion TZS)	44.56	52.65	113.33	134.00	181.60	236.80	399.00
Disbursed Loans (Billion TZS)	54.14	66.99	186.58	228.50	383.50	539.2	627.2

Source: Ministry of Agriculture, Food Security and Cooperatives (Annual Reports)
Note: These statistics might include some dormant SACCOS that were not yet deregistered during data collection and/or publication of the reports.

3. Literature Review

The following is a review of some empirical evidence on the impact of capital structure (funding options and mix) on financial performance for Microfinance Institutions (MFIs).

The research by Coleman (2007) came out with the findings that the highly leveraged MFIs in Ghana perform better by reaching out to more clients, enjoy economies of scale, and therefore are better able to deal with moral hazard and adverse selection, thus improving their ability to deal with risk. Similarly, the findings of the research conducted by Silva (2008), Kar (2012) and Lislevand (2012) are consistent with the findings of the study by Coleman (2007). Kar (2012) suggests that the increase in leverage raises profit-efficiency in MFIs while Lislevand (2012) suggests that the use of debt is beneficial to the MFIs as far as cost of funds is concerned. Contrary to the above authors; Hoque, Chishty and Halloway (2011) found that leverage decreases the relative level of outreach to the very poor, suggesting that MFIs can adopt a non-commercial approach to financing as an alternative to commercialization. In addition to that, the study by Tehulu (2013) revealed that leverage (measured by debt to equity ratio) has a negative and statistically significant impact on MFIs' financial performance.

Regarding MFIs' dependency on donors, Peter (2007) found a negative relationship between the financial performance of a MFI and the level of subsidies it receives each quarter i.e. the more the level of subsidy income rises, the more the respective MFI's financial performance falls. Similarly, Kereta (2007) found a negative relationship between dependency ratio (the ratio of donated equity to total capital) and financial performance. Furthermore, Sekabira (2013) suggests that grants and debt have a substantial damaging consequence on MFI performance, and capital structure is an essential aspect on MFIs' sustainability.

On the other hand, for the MFIs that collect savings, Iezza (2010) found that the collection of deposits from clients has positive influence on MFI's financial performance. In more or less the same manner, Kioko (2012) revealed that deposit to asset ratio is a statically significant determinant of MFI sustainability in Kenya; while for the non-deposit taking MFIs debt to equity ratio is a significant determinant of MFI sustainability. Another research from Kenya by Kiiru (2008), this time focusing on Deposit Taking Micro Finance institutions (DTMFIs) revealed that the increase in customer deposits and assets in DTMFIs would significantly improve financial performance of DTMFI while borrowing significantly decreases DTMFIs financial performance.

Focusing on share capital, Bogan (2012) revealed that share capital as a percent of assets is significant and negatively related to MFI's financial performance. Complementary to this, Kinde (2012) found that debt to equity ratio has a negative but statistically insignificant impact on financial sustainability, and there is a negative and statistically significant relationship between dependency ratio and financial sustainability at 1% level of significance. On the other hand, Ngo (2013) suggested that profitable and regulated MFIs that utilize considerably more commercial funds have higher level of sustainability, efficiency and outreach. Lastly, Mwizarubi, Singh and Mnzava (2015) revealed that deposit mobilization is the most crucial determinant of financial sustainability amongst other MFI capital structure variables, followed by shareholders equity, debt (commercial borrowing) and lastly going public.

Apart from the researches conducted in microfinance industry, there are findings from banking industry as well. For instance, Goyal (2013) revealed a positive relationship of short-term debt with banks' profitability in India while Taani (2013) found that bank performance, which is measured by net profit, return on capital employed and net interest margin has a significant and positive association with total debt; while total debt is found to be insignificant in determining return on equity in the banking industry of Jordan. Moreover, Mujahid et al (2014) found a positive relationship between leverage and performance of banking industry.

The research by Anarfo (2015) in Sub-Sahara Africa revealed a negative relationship between leverage and bank performance, and indicated that capital structure does not determine bank performance but rather it is performance that determines banks capital structure. In this study the performance variables used were return on asset (ROA), Return on equity (ROE) and net interest margin (NIM). Nikoo (2015), conducting the same study in Tehran Stock Exchange, found that debt-to-equity ratio has positive impact on bank performance.

The critical analysis of the above-discussed literatures show that there are mixed results on the impact of capital structure on financial performance. In addition to that, to the best knowledge of the researchers, the studies are concentrated on banking industry and other types of MFIs apart from SACCOS. These facts raise a need for further research on the subject matter.

4. Methodology

This paper employs quantitative research techniques and uses secondary data only. It utilizes secondary data of over 200 SACCOS that was collected by the Bank of Tanzania (BOT) from 2008 to 2012. However among the assessed SACCOS, 105 were sampled because they reported consistently for at least two years, and the rest were left because of not meeting that requirement. In total there are 484 observations, with SACCOS reported from 2 to 5 times, but most SACCOS reported 5 times, making the average number of observation per SACCOS to be 4.6 times. Financial performance is measured by two factors: Return on Assets (ROA) and Return on Equity (ROE), which are the dependent variables. The capital structure variables (independent variables) include Debt to Equity Ratio (DTEQ) and Savings to Assets Ratio (SAVAST). The control variables included in this study are the effectiveness in loans disbursement – measured by Loans to Total Assets Ratio (LOANAST), firm size – measured by Logarithm of Assets (LOGAST), and time effects – measured by years dummies. We employed panel data analysis methods as explained in many econometrics books such as Gujarat (2003). The following regression equations summarize the study:

$$ROA = \alpha + \beta_1 DTEQ + \beta_2 SAVAST + \beta_3 LOANAST + \beta_4 LOGAST\ldots\ldots\ldots (1)$$
$$ROE = \alpha + \beta_1 DTEQ + \beta_2 SAVAST + \beta_3 LOANAST + \beta_4 LOGAST\ldots\ldots\ldots (2)$$

5. Data Set and Analysis

As pointed out in Section 4 above, the variables included in this study are ROA, ROE, DTEQ, SAVAST, LOANAST and LOGAST. All the variables, except LOGAST, are financial ratios. ROA is a profitability measure and is calculated as a ratio of net income to total assets. In the same manner, ROE is a profitability measure, calculated as the ratio of net income to total

equity. DTEQ is the measure of firm's financial leverage and is calculated as the ratio of total liabilities to total equity. SAVAST is the measure of the extent to which the financial institution is capable of mobilizing savings and is calculated as the ratio of total savings to total assets. LOANAST is the measure of the extent to which SACCOS use their resources for lending purposes and is calculated as the ratio of gross loan portfolio to total assets. On the other hand LOGAST is a proxy for firms size and is calculated by taking the natural logarithm of total assets. Table 2 below gives a summary of descriptive statistics of the variables put in place.

Table 2: Descriptive Statistics of the Variables

Variable	Number of observations	Mean	Standard Deviation	Minimum Figure	Maximum Figure
ROA	484	0.036216	0.045123	-0.1642	0.2081
ROE	484	0.049224	0.071454	-0.3103	0.2885
DTEQ	484	0.644898	1.414538	0	12.6877
SAVAST	484	0.517169	0.211066	0	0.9742
LOANAST	484	0.741672	0.153599	0.1667	0.9925
LOGAST	484	8.5576	0.70793	6.8791	10.1921
All the variables are defined in Section 4 of this paper.					

A rough prediction on the relationship among the variables was generated through correlation as shown in Table 3 below. This gives a highlight of the possible impact of independent variables (DTEQ, SAVAST, LOANAST and LOGAST) on the dependent variables (ROA and ROE). As we can see, SAVAST and LOANAST seem to have a positive effect on ROA, while DTEQ and LOGAST seems to affect ROA in a negative manner. On the other hand, all the explanatory variables, except LOGAST, seem to have a positive effect on ROE.

Table 3: Correlation Matrix of the Variables

	ROA	ROE	DTEQ	SAVAST	LOANAST	LOGAST
ROA	1.00					
ROE	0.90*** (0.00)	1.00				
DTEQ	-0.17*** (0.00)	0.05 (0.28)	1.00			

SAVAST	0.23***	0.04	-0.51***	1.00		
	(0.00)	(0.39)	(0.00)			
LOANAST	0.18***	0.15***	0.11**	0.11***	1.00	
	(0.00)	(0.00)	(0.02)	(0.01)		
LOGAST	-0.19***	-0.12***	0.19***	-0.14***	-0.06	1.00
	(0.00)	(0.01)	(0.00)	(0.00)	(0.18)	

Notes: p-values in parentheses. *, ** and *** indicate significant correlations at 10, 5 and 1 percent respectively (correlation coefficients are the ones that are not in parentheses). All the variables are defined in Section 4 of this paper.

After conducting the above preliminary tests, data analysis was conducted using fixed effects regression analysis, which is a primary test for panel data. Thereafter random effects and pooled regression analysis methods were employed. Hausman test was also conducted to check the suitability of either fixed effects or random effects regression methods on different equations. The research findings are discussed in Section 6 below.

6. Discussion of the Findings

6.1 Main Results – Based on Fixed Effects Regression

These results are summarized in Table 4 below whereby Model (1) and (3) summarize the results of the independent variables on Return on Assets (ROA), and the impact of the same variables on Return on Equity (ROE) in Model (2) and (4). Model (1) and (2) are based on main independent variables only while Model (3) and (4) include all variables i.e. independent variables and control variables. Both ROA and ROE (dependent variables) are the measures of SACCOS' performance in terms of profitability. The statistical significance of the results is indicated at three levels: 1%, 5% and 10% levels of significance. The Hausman Test results are also included in these findings so as to determine whether one should rely on the results basing on fixed effects or random effects approach. The basis of making a decision is to look at the p-value of Chi-square; when the value is statistically significant one has to rely on fixed effects approach, otherwise random effects approach is applicable.

The Hausman Test reveals that Model (1) and (3) fit for fixed effects analysis. From Model (1), it is revealed that savings mobilization has a positive and statistically significant impact on SACCOS' performance at 1% level while using debt has a negative but statistically insignificant impact. The results from Model (3) reveal a positive but statistically insignificant relationship between debt usage and performance of the SACCOS. It also shows that the ratio of savings to assets (SAVAST) and the ratio of outstanding loans to assets (LOANAST) have a positive impact on ROA, while firm size (LOGAST) has a negative impact. The impact of SAVAST is statistically significant at 1%; that of LOANAST is statistically significant at 5%, while that of LOGAST is not statistically significant at all three levels of significance. This suggests that borrowing does not guarantee better performance for SACCOS; the more the SACCOS mobilize

savings, the more profitable they become; the more the use the available resources for lending purposes, the more profitable they become; and the more they grow, the more the chance of becoming less profitable. This is when the results are based on ROA.

On the other hand, Model (2) and (4), though not supported by the Hausman Test for fixed effects approach, give more or less similar results. In Model (2) both DTEQ and SAVAST have a positive impact on ROE, but the impact of SAVAST is stronger than that of DTEQ. In Model (4), the findings indicate that DTEQ, SAVAST and LOANAST have a positive impact on ROE, while LOGAST has a negative effect on ROE. As shown in Table 4 above, the impact of SAVAST is statistically significant at 1% level, DTEQ at 5% level, LOANAST at 10% level, and LOGAST is not statistically significant at all three levels of significance. The most important aspect drawn from these results is the power of savings mobilization over other variables in determining SACCOS' performance, this time measure by ROE.

Table 4: Effects of Independent Variables on ROA and ROE – Fixed Effects Regression

VARIABLES	Main Variables		All Variables	
	(1)	(2)	(3)	(4)
	ROA	ROE	ROA	ROE
CONSTANT	-0.017*	-0.018	0.010	0.124
	(-1.701)	(-0.926)	(0.085)	(0.579)
DTEQ	-0.001	0.018**	0.001	0.019**
	(-0.252)	(2.284)	(0.193)	(2.376)
SAVAST	0.104***	0.107***	0.105***	0.098***
	(6.510)	(3.532)	(6.267)	(3.081)
LOANAST			0.036**	0.058*
			(2.178)	(1.867)
LOGAST			-0.006	-0.020
			(-0.448)	(-0.827)
Time effects			Included	Included
Observations	484	484	484	484
Number of SACCOS	105	105	105	105
Hausman Test: Random Vs. Fixed Effects				
Chi-square	9.22***	4.57	11.65**	4.67
P-values	0.010	0.102	0.020	0.323
Notes: t-statistics are in parentheses. The definition of all the variables is in				

Section 4 of this paper. Time dummies are included in Model (3) and (4).
*** p<0.01, ** p<0.05, * p<0.10

Hence, from fixed effects analysis based on both ROA and ROE, members' savings mobilization by SACCOS is seen to be the most efficient way (among the variables taken into consideration) of ensuring good performance of SACCOS in terms of profitability. This is because it both cases its impact is positive and statistically significant at 1% level. The second factors in term of importance is amount of funds lent (LOANAST), whose impact is positive in both cases but with statistical significance at 5% and 10% levels in Model (1) and Model (2) respectively. Debt usage (DTEQ) and size of the SACCOS (LOGAST) are the last ones in this case because they impact have different signs and they are less statistical significant. The consolidation of the findings, which also states which approach between fixed effects and random effects regression is better in each case, will come later in the "Hausman Test" discussion.

6.2 Robustness Checks
To ensure that our results are robust we conducted two alternative tests: (1) Random effects regression, and (2) Pooled regression. The results of these robustness tests are discussed in Sub-Sections 6.2.1 and 6.2.2 below.

6.2.1 Results Based on Random Effects Regression
As it was in Section 6.1, there are four models, whereby Model (1) and (3) summarize the results of the independent variables on Return on Assets (ROA), and Model (2) and (4) the impact of these variables on Return on Equity (ROE). Model (1) and (2) are based on main independent variables only while Model (3) and (4) include all variables i.e. independent variables and control variables. The statistical significance of the results is indicated at 1%, 5% and 10% levels of significance. The Hausman Test reveals that Model (2) and (4) fit for random effects analysis, hence we start discussing the findings of these models in this Sub-Section.

As shown in Table 5 below, in Model (2), the results show that both SAVAST and DTEQ have a positive relationship with ROE, but the impact of SAVAST is stronger than that of DTEQ. This once again insists that SAVAST is the key driver of SACCOS' performance. In Model (4), the results reveal that only LOGAST has a negative relationship with ROE while the rest of the variables have a positive relationship with ROE. The effect of SAVAST and LOANAST is statistically significant at 5% level; DTEQ at 10% and LOGAST is not statistically significant at all three levels. This is in line with the main findings that SAVAST and LOANAST are the key drivers of SACCOS' performance.

Table 5: Effects of Independent Variables on ROA and ROE – Random Effects Regression

	(1)	(2)	(3)	(4)
VARIABLES	ROA	ROE	ROA	ROE
CONSTANT	-0.005	0.011	0.052	0.087
	(-0.626)	(0.770)	(1.187)	(1.240)
DTEQ	-0.001	0.008**	-0.000	0.008*

	(-0.381)	(2.020)	(-0.142)	(1.958)
SAVAST	0.081***	0.063***	0.077***	0.054**
	(6.300)	(2.853)	(5.906)	(2.396)
LOANAST			0.038***	0.054**
			(2.709)	(2.153)
LOGAST			-0.009*	-0.012
			(-1.905)	(-1.603)
Time effects			Included	Included
Observations	484	484	484	484
Number of SACCOS	105	105	105	105
Hausman Test: Random Vs. Fixed Effects				
Chi-square	9.22***	4.57	11.65**	4.67
P-values	0.010	0.102	0.020	0.323

Notes: t-statistics are in parentheses. The definition of all the variables is in Section 4 of this paper. Time dummies are included in Model (3) and (4).
*** p<0.01, ** p<0.05, * p<0.10

On the other hand, in Model (1) and (3), though not supported by the Hausman Test for random effects approach, give more or less similar results. Model (1) shows that SAVAST has a positive and significant impact on ROA at 1% level while DTEQ has a negative and statistically insignificant impact. This puts more emphasis that SAVAST is a key driver of SACCOS' performance while DTEQ is not a guaranteed option. In Model (3) we see that SAVAST and LOANAST have a positive and significant impact on ROA at 1% while DTEQ and LOGAST have a negative impact. The impact of LOGAST is statistically significant at 10% level while that of DTEQ is not significant at all three levels. This is supplementary evidence that SAVAST and LOGAST are the key drivers of SACCOS' financial performance.

Hence, from random effects analysis based on both ROA and ROE, members' savings mobilization by SACCOS is seen to be the most efficient way of ensuring good performance of SACCOS, followed by efficient utilization of funds for lending purposes (LOANAST). Debt usage (DTEQ) is the third factor in the rank (having negative impact in one case and positive impact in another case), which again suggests that it is not a guaranteed approach of enhancing performance. The size of SACCOS has a negative insignificant effect on the performance.

6.2.2 Results Based on Pooled Regression Method

This is a second robustness check that was conducted and it came out with more or less similar results as compared with the main findings. The results of pooled regression test are summarized in Table 6 below. As in the previous sections, Model (1) and (2) are based on main independent variables only while Model (3) and (4) include all variables i.e. independent variables and control variables. In Model (1) and (3) – which are ROA based – we see that savings mobilization and efficient utilization of resources for lending purposes have positive effect on financial performance of SACCOS at 1% level of significance. From the sane models we see that debt usage and firm size have negative on financial performance. The results of Model (2) and

(4) – which are ROE based – show that all the variables, except LOGAST, have a positive impact on financial performance. In summary, the results of pooled regression test show that SAVAST and LOANAST have positive impact in all cases; DTEQ has positive impact in two cases and negative impact in two cases, while LOGAST has negative impact in both cases. Thus, we can draw similar conclusion as in the previous cases.

Table 6: Effects of Independent Variables on ROA and ROE – Pooled Regression

	(1)	(2)	(3)	(4)
VARIABLES	ROA	ROE	ROA	ROE
CONSTANT	0.016**	0.031***	0.074***	0.102**
	(2.364)	(2.881)	(2.654)	(2.209)
DTEQ	-0.002	0.005*	-0.002	0.004
	(-1.302)	(1.770)	(-1.438)	(1.565)
SAVAST	0.042***	0.029	0.033***	0.017
	(3.854)	(1.644)	(3.026)	(0.959)
LOANAST			0.046***	0.058***
			(3.527)	(2.676)
LOGAST			-0.010***	-0.012**
			(-3.404)	(-2.511)
Time effects			Included	Included
Observations	484	484	484	484
R-squared	0.058	0.008	0.108	0.043
Adj. R-squared	0.054	0.004	0.093	0.027

Notes: t-statistics are in parentheses. The definition of all the variables is in Section 4 of this paper. Time dummies are included in Model (3) and (4).
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

7. Implication of the Findings and Conclusion

This research used SACCOS' panel data to determine the effect of capital structure on financial performance. Primary findings were obtained by using fixed effects approach and robustness checks were done by using random effects approach and pooled regression method. Due to the results of the Hausman Test, the findings of Model (1) and (3) – which are ROA based – were mainly drawn basing on fixed effects approach, and those of Model (2) and (4) mainly basing on random effects approach. Basing on ROA, savings mobilization is the most important aspect in bringing about good SACCOS performance, followed by efficient utilization of resources for lending purposes (refer to Table 4 above). In more or less the same manner, basing on ROE, we see the same factors to be the leading ones (refer to Table 5 above). Utilization of credits (especially commercial borrowing) by SACCOS seems not to guarantee good performance, probably due to the fact that the cost of capital (interest charges) is higher in this option as compared to members' savings mobilization. Likewise, the size of SACCOS does not guarantee

good performance; and in some cases the more the SACCOS grow, the less efficient they become. The possible reasons for this might be management incompetence and misuse of resources as the SACCOS grow, which can be attributed by the fact that most of them do not adhere to corporate governance principles and mechanisms.

The findings of this research imply that mobilization of members' savings and effective utilization of funds for lending purposes are important aspects for good SACCOS' performance. Further, they bring the implication that usage of commercial borrowings is not a guaranteed approach of bringing financial sustainability; and SACCOS growth (in terms of total assets) need to well managed, otherwise it might lead to adverse effects on financial sustainability. It is therefore recommended that SACCOS should capitalize on efficient mobilization of members' savings and borrow less, unless they get cheap sources of external funds such as soft loans. These institutions are encouraged to use a greater portion of their funds for lending purposes instead of engaging themselves in other types of business. In addition to that, they should focus on best corporate governance practices so that they will not experience poor performance as they grow. This will make them sustainable operationally and financially.

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