

African Journal of Business Management

Volume 10 Number 4 28 February, 2016

ISSN 1993-8233



*Academic
Journals*

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Full Length Research Paper

The influence of ownership structure on financial performance of privatized companies in Kenya

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Received 15 October 2015; Accepted 29 January, 2016

This study investigated the influence of ownership structure on financial performance of privatized companies in Kenya for the period of 2007 to 2013. The study was informed by the property rights, the agency and the resource based theories. Data was extracted from prospectuses and financial reports of privatized companies, obtained from the Capital Markets Authority (CMA) and the Nairobi Stock Exchange (NSE). A unit root test was used to examine stationarity of data while a Hausman test determined the appropriate regression model. This study used a Fixed Effects (FE) regression model with a robust standard error option to control for heteroskedasticity and contemporaneous correlation which may lead to spurious results. The study found that ownership structure has a significant relationship with financial performance. Among individual variables, government ownership has a positive influence on Return on Assets (ROA) and the Tobin's Q; but a negative effect on cost efficiency. Institutional shareholders have a positive influence on ROA and technical efficiency. Large individual investors have a positive influence on cost efficiency. Dispersed shareholders have a positive influence on ROA but a negative effect on cost efficiency. This study recommends that the Privatization Commission of Kenya should restructure ownership of privatized companies to reduce government and dispersed ownership further to pass more control and decision making to private investors. However, the government should retain some ownership in privatized firms to enhance shareholders confidence, protection of investments and managerial monitoring. A strategic institutional investor in each company should be identified and be allocated adequate ownership to enable privatized companies attract managerial and technical expertise crucial to improve governance and financial performance.

Key words: Privatization, SOEs, ownership structure, financial performance, Kenya.

INTRODUCTION

Privatization involving the sale of government ownership to private investors is often seen as a remedy to transform

State Owned Enterprises (SOEs) to become efficient and profitable. The government as an owner of commercial

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enterprises is deemed inefficient due to wide separation between ownership and control which makes it difficult to monitor managers. Privatization is supported by the property rights theory which asserts that private ownership is more efficient due focus on profit objectives, rights to income, and decision making which creates incentives to monitor managers (Shleifer and Vishny, 1997). The agency theory contends that private shareholders influence performance by monitoring the managers to protect their investments. The resource based theory recognizes that private shareholders bring in resources and expertise required by a company to improve governance and financial performance of corporate entities.

The success of privatization of SOEs therefore depends on changing the ownership structure to bring in benefits associated with private ownership. However, the ownership structure of privatized firms often comprises of different types of shareholders with different sizes of ownership, diverse interests, incentives and abilities to influence performance.

The empirical studies on the relationship between ownership structure variables and firm performance yield conflicting results. Some studies find that state ownership negatively influences firm performance (Ongore et al., 2011; Pervan et al., 2012; Mishari et al., 2012). However, others found that large state ownership influences performance positively (Tian and Estrin, 2008; Trien and Chizema, 2011; Mei, 2013). Some studies conclude that institutional ownership influences financial performance positively (Alireza et al., 2011; Mishari et al., 2012; Uwuigbe and Olusanmi, 2012). However, other studies report a negative relationship (Wei et al., 2005; Alipour and Amjadi, 2011). In addition, Omran et al. (2008) found that foreign investors had no significant influence on performance while Wei et al. (2005) found a positive influence. Ongore et al. (2011) found that dispersed shareholders had a positive impact on performance while Mei (2013) found a negative relationship. Lack of consensus on empirical evidence is not surprising as performance depends on the effectiveness of ownership adopted and may differ not just by firms but national institutional specificities.

The Kenya government launched privatization of SOEs in 1992 but the extent to which changes in the ownership structure has influenced financial performance of privatized firms has not been fully investigated. Yaw and Toroitich (2005) examined the performance of Kenya Airways following privatization while Makokha (2013) compared profitability, leverage and activity ratios of privatized firms before and after privatization. Mwangi (2013) compared dividend pay and earnings per share of privatized firms five years before and after privatization. Ochieng and Ahmed (2014) examined the performance of Kenya Airways before and after privatization. This study focuses on capturing market value and efficiency which are key performance indicators in privatization. The

interest of policy makers which motivates this study is to know whether the emerging ownership structure following privatization has secured the benefits associated with private ownership.

The study is therefore important to the government and oversight authorities for policy implications and also to the shareholders for insights it offers over the management of their investments. This study improves on previous research by using a combination of four financial performance indicators which include: Return on Assets (ROA), the Tobin's Q, cost and technical efficiency. The cost and the technical efficiency values were generated using the Stochastic Frontier Analysis (SFA) approach which uses input and output approach. The study also uses panel data and employs modern econometric approaches that address potential biases which could be caused by non-stationary, heteroskedasticity and contemporaneous correlations in data values. The rest of paper is divided into five sections. Section one presents the introduction, section two literature review, section three the methodology that was used in this study while section four focuses on results and discussion. Section five presents the conclusion and policy recommendations derived from this study.

LITERATURE REVIEW

Theories that support privatization of SOEs largely focus on the advantages of private over public ownership. The property rights theory developed by Coase (1960) asserts that property rights determine the choices open to decision makers and consequently the financial performance. According to Alchian and Demsetz (1973), the property rights could be owned privately, by the state, or held in common by the society, and that different holders use the rights distinctively. The theory therefore identifies allocation of property rights as instrumental in improving financial performance as they create incentives to monitor managers leading to higher efficiency and profitability. Under this framework, the state ownership is considered detrimental to financial performance due to the wide separation between ownership and control which makes it ineffective in monitoring managers (Shleifer and Vishny (1997). The government as an owner is also likely to influence financial performance negatively due to focus on both welfare and economic objectives (Vickers and Yarrow, 1991). According to Boycko et al. (1996), public enterprises are inefficient due to political interference as governments use them to reward supporters. Inefficiency in SOEs has also been attributed to reliance on government funding and hence the discipline enforced on private firms by the money and capital markets does not affect them (Sun and Tong, 2002). Privatization is therefore expected to improve corporate financial performance by changing the

ownership structure and passing management of companies formally owned by the state to private investors and corporate boards.

The agency theory recognizes that in a modern corporation, there is a wide separation between ownership and management, resulting in the conflict of interests between the owners and the agents. The theory developed by Jensen and Meckling (1976) asserts that the wide separation gives the managers a leeway to pursue private interests which may lead to inefficiency, expropriation of corporate cash flows, assets and loss of firm value. The theory also identifies large block shareholders and individual as key variables which could influence firm performance. The prediction of the theory is that at large block shareholders and individuals may influence performance positively as they have incentives to monitor managers. However, Fama and Jensen (1983) argue that large ownership may entrench owners leading to expropriation of corporate wealth which could decrease firm value and returns on investments. The agency theory also predicts an insignificant relationship between dispersed shareholders due to the small size of ownership. These predictions are within the scope of privatization studies as they suggest the expected relationship between ownership structure variables and financial performance.

The resource based theory focuses on the importance of resources as a critical factor for a firm to have a competitive advantage. The theory is derived from Penrose's (1959) definition of a firm as a collection of physical and human resources crucial for its growth and performance. Barney (1991) defines the resources sought by firms to create a competitive advantage to include technical expertise, managerial skills and information essential in detecting and responding to market opportunities or threats. Privatization is expected to change ownership structure of SOEs to help firms co-opt the skills, technologies and financial resources needed to improve financial performance. Accordingly, large foreign institutional shareholders are expected to influence performance positively as they are considered to have good monitoring capabilities; bring professional expertise (Thomsen and Pedersen, 2000). Local institutional shareholders are also considered a crucial resource in improving firm performance due to their role in monitoring managers and focus on profits. They also help firms to expand networks by linking them with suppliers, buyers, public policy makers in addition to bringing resources such as managerial skills, technical expertise and information that a firm needs to increase performance.

Studies on the relationship between financial performance and ownership structure were pioneered by Berle and Means (1932) who observed that ownership in large US corporations was widely dispersed to small shareholders often holding less than one percent of shares. The study observed that under such

circumstances, no shareholder could influence the managers and therefore such firms could not be considered to be controlled by their owners. The agency theory identifies ownership by large block shareholders as a mechanism to reduce the principal-agency problems in corporate entities. Consequently numerous studies have been conducted to examine the effects of ownership structure on financial performance. One line of study examines at the influence of different ownership structures on firm performance largely using ROA and the Tobin's Q as performance indicators. Following this approach, Wei et al. (2005) examined the relation between ownership structure and firm value of partially privatized firms in China's from 1991 to 2001. The study found that the state and institutional ownership had a negative relationship with the Tobin's Q; while foreign ownership had a positive relationship with the Tobin's Q. Ang and Ding (2006) compared market value of SOEs and private firms in Singapore and found that SOEs had higher valuation compared to private firms. Tian and Estrin (2008) examined the relationship between retained state ownership and the market value of value of Chinese listed firms and found that the relationship is U-shaped implying that the state can increase firm value when its shareholding is large.

Using a similar approach, Trien and Chizema (2011) found that at low levels of state ownership, the Tobin's Q and ROA was negative, while it was positive when state ownership was high in Chinese listed firms. In Tehran, Alipour and Amjadi (2011) found a negative and significant relationship between institutional and individual shareholders on performance of listed firms. In some more recent studies Mrad and Hallara (2012) examined the relationship between the government ownership and performance of privatized firms in France. The study found that high state ownership had a positive relationship with ROA and the Tobin's Q, while the relationship on both indicators was negative when state ownership was low. Mishari et al. (2012) also explored the effects of ownership structure on the ROA and Tobin's Q of firms listed in Kuwait and found a positive relationship between institutional investors and firm performance while the government had a negative relationship. In Nigerian, Uwuigbe and Olusanmi (2012) found that institutional investors had a positive relationship with ROA while foreign ownership had a positive relationship on listed firms in the financial sector.

In Croatian, Pervan et al. (2012) examined the relationship between ownership structure and ROA of listed firms and found that firms with dispersed ownership had a higher ROA than those with concentrated ownership. The study also found that foreign controlled firms performed better than those with a high domestic ownership while firms with majority state ownership had a lower performance than privately owned firms. In contrast, Mei (2013) found that a higher state ownership influence the ROA, ROE and the Tobin's Q, better than

dispersed ownership.

A different line of study investigates the influence of ownership structure on performance using cost or technical efficiency indicators. Liu (2001) examined the effect of state ownership on technical efficiency in some international airlines and found that state ownership lowered the technical efficiency. Yildirim and Philippatos (2003) examined the cost efficiency of 12 European banks and found that foreign banks were more cost efficient than domestic, private and state-owned banks. Fries and Anita (2004) also examined the cost efficiency of banks in Europe and found that private banks were more efficient than state-owned banks. The study also found that privatized banks with majority foreign ownership were more efficient than banks with higher domestic ownership. Zelenyuk and Zheka (2006) examined the effects of ownership structure on efficiency of firms in Ukraine and found that the state-ownership and surprisingly, foreign ownership had a positive and significant relationship to inefficiency.

In Italy, Destefanis and Sena (2007) examined the influence of ownership on the technical efficiency of manufacturing firms and found out that large shareholders had a positive impact on efficiency. Yiwei et al. (2011) examined the cost efficiency of banks in Europe and found that the average bank cost efficiency was 68.59%. Foreign banks had a lower cost efficiency compared to government and domestic private banks. The study also found that the efficiency gap between foreign, domestic private banks and state owned banks narrowed over time. In Tunisia, Ochi and Yosra (2012) examined the effects of ownership on cost efficiency of banks and found that banks with majority foreign ownership were more efficient than those with a high domestic ownership. In Tunisian, Ayadi (2014) found that the technical efficiency of banks was 57.1% which means they could improve performance by 42.9%. It is evident that most of the studies using efficiency indicators largely focus on bank efficiency.

In Kenya, Ongore et al. (2011) examined the relationship between ownership structure and financial performance of companies listed at the NSE. The study found that a significant negative relationship between state ownership and financial performance while foreign, insider, diverse and institutional ownership have significant positive relationships with ROA, ROE and dividend yield. Mang'anyi (2011) found that foreign-owned banks had a better performance than domestic-owned banks. Kiruri (2013) examined the effects of ownership structure on bank profitability in Kenya and found that state ownership has negative effects on profitability while foreign ownership and domestic ownership had positive influence. It is evident that the existing literature present mixed results in that, some report positive, negative while others report no significant relationships between ownership structure and financial performance. It is also apparent that the empirical studies

in Kenya do not focus on privatized firms. The authors also use accounting ratios which not capture the market value and efficiency which are key objectives of privatization. This demonstrates the need to investigate the influence of ownership structure and financial performance in Kenya using market value and efficiency indicators.

METHODOLOGY

This section present the methodology used to examine the influence of ownership structure on performance of privatized companies in Kenya for the period 2007 to 2013. Purposive sampling was used to select the privatized firms from a population of all the listed companies in Kenya. This method allows the researcher to pick the sample according to the nature of the research problem and the phenomenon under study (Saunders et al., 2009). Firms selected were those privatized by sale of shares, listed at the NSE and the in which the GoK has retained some ownership. The study was also confined to firms where majority of the shares were owned by the state before privatization. This means one in which not less than 50% shares were held by the GoK and hence, fit the definition of the SOEs as provided in the State Corporations Act (CAP 446). The firms had published their annual reports and by using the criteria, eight firms were selected and are spread in economic sectors such as: communication; manufacturing; financial; commercial; insurance and energy.

The data was extracted from annual reports of privatized companies for the period 2007 to 2013. The audited annual reports were obtained from CMA and ownership variables extracted from the reports were the percentage of shares owned by state, local institutions foreign institutions, large individuals and dispersed shareholders. This was possible as the public offers, listing and disclosures regulations require listed companies to disclose the identity of major shareholders (CMA, 2002b). Financial performance variables used are ROA, Tobin's Q, cost efficiency and technical efficiency.

The values of ROA were computed by dividing profit after tax by total assets for each company for each year during the period 2007 to 2013.

The values of profit after tax and total assets were extracted from the NSE handbooks for 2008; 2012 to 2013 and 2013 to 2014. The variables were compared to those in the annual reports of privatized.

Tobin's Q ratio was computed by dividing market capitalization (total shares of a company at end of financial year multiplied by the share price) by the total assets. The values of the total shares and the share prices of the company at the end of the financial year were extracted from NSE handbooks for 2008; 2012 to 2013 and 2013 to 2014. The cost efficiency and technical efficiency values were computed using the SFA version 4.1c. The input values used were; cost of sales/ materials, total expenses (financial and operating) and total assets while output was measured by total sales.

The data analysis techniques applied in these study include a combination of summary statistics, correlation, regression diagnostic tests and regression analysis. As panel data is used in this study, a major concern is non-stationary of data series which may lead to spurious relationships.

This study used the Levin, Lin, Chu (LLC) test whose null hypothesis is that a variable is non-stationary implying that it has a unit root. As the study uses panel data, firms used in the sample may have individual characteristics which may impact on financial performance. A Hausman test was used to determine whether to

use the Fixed Effects (FE) or Random Effects (RE) regression model to control for firm individual characteristics.

Empirical model

The influence of ownership structure on performances was examined through the following four regression models:

$$PERF_{it} = \alpha_0 + \alpha_1 GOVT_{it} + \alpha_2 INST_{it} + \alpha_3 FORI_{it} + \alpha_4 LISH_{it} + \alpha_5 DISP_{it} + \alpha_6 \ln FSIZE_{it} + \alpha_7 LEV_{it} + \alpha_8 INVE_{it} + \epsilon_{it}$$

Where: $i = 1, \dots, 4$

$PERF_{1=}$ ROA; $PERF_{2=}$ Tobin's Q; $PERF_{3=}$ CEFF; $PERF_{4=}$ TEFF

The variables and coefficients used in the regression models are measured as follows:

ROA = Profit after tax divided by total assets

Tobin's Q = market capitalization (shares at year end multiplied by share price / by total assets

CEFF = Cost efficiency scores computed using the SFA technique

TEFF = Technical efficiency scores computed using the SFA technique

α = Intercept or constant

α_1 = Coefficients for each of the independent variables to be estimated: $i = 1-8$

i = Individual company

t = Time (year)

GOVT = Percentage of shareholding held by government in firm i in period t .

INST = Percentage shares owned by local institutions in firm i , in period t .

FORI = Percentage shares owned by foreign companies in firm i , in period t .

LISH = Percentage of shares held by large individual shareholders in firm i in period t .

DISP = Percentage of shares held by dispersed shareholders in firm i , in period t .

FSIZE = Total assets of a company (the log of total assets)

LEV = Total liabilities / total assets

INVE = Capital expenditure/ total assets

ϵ_{it} = Error term

RESULTS AND DISCUSSION

Descriptive statistics

The results on descriptive analysis indicate that the government is the main share holder in privatized firms with a mean ownership of 41%. This is consistent with studies which found that state remained the ultimate shareholder in privatized companies (Bortolotti and Faccio, 2008; Omran 2008; Tian and Estrin, 2008; Wei et al., 2005). This is an indicator that the government has the highest capacity to influence decision making in privatized firms. Local institutions own a mean of 10% shares which is low compared to 29.8% observed by Wei et al. (2005) in privatized companies in China. The findings imply that local institutions in Kenya have a lesser capacity to influence governance in privatized companies. The average foreign institutional ownership in privatized firms is 9%. This is lower than 11.77%

observed by Omran (2008) in privatized firms in Egypt. The results suggest that foreign ownership in privatized companies in Kenya is relatively low and may not have any significant influence on financial performance.

Large individual investors' own 1% shares in privatized firms which considered too small to have any effects on financial performance. Maher and Anderson (1999) indicate that individual should have at least 5% to have any impact on performance. The average shares held by dispersed shareholders is 39% which means that privatized firms in Kenya are still owned by a large number of small shareholders. This is similar to findings in other studies which found that ownership of large firms was widely dispersed (La Porta et al., 1999; Faccio and Lang, 2002). According to Berle and Means (1932) such corporations have no control over the management of their investments.

The companies are therefore likely to experience the agency problems associated with a large separation between ownership and control.

The mean of ROA in privatized firms is 5.2% which is lower than an average 6.18% observed by Boubakri and Cosset (1999) in privatized companies drawn from five African countries. It is also lower than the 7.17% documented by Sun and Tong (2002) in privatized firms in Malaysia. The Tobin's of privatized firms in Kenya is 48% which is lower than 82.9% observed by Mrad and Hallara (2012) in privatized companies in France. The mean cost efficiency in privatized firms is 10% which is consistent to other studies which found inefficiency in corporate entities in Kenya (Kinara, 2014; Sifunjo et al., 2014). The technical efficiency in privatized firms is 43% which means that they can improve performance by 57% using the same resources. This level of technical efficiency is low compared to 62.9% reported by Kamaruddin and Abokaresh (2012) in Libyan privatized firms.

This study incorporated other important variables in the regression model that have been found in the empirical literature to have significant effect on financial performance. These variables are the firm size, leverage and the investment levels of privatized companies. Firm size of privatized companies expressed as the log of its assets is 17.87 which is higher than an average of 10.23 documented by La porta et al. (1999) in Mexico. Privatized companies in Kenya are expected to be large in size as the government invested heavily in their establishment as they were meant to serve national strategic interests (GoK, 2005).

The leverage in privatized firms in Kenya is 62% which is lower compared to 66.26% observed by Boubakri and Cosset (1999). However Omran (2004) reported a leverage of 19.5% in Egyptian privatized firms.

The percentage of investment in privatized firms in Kenya is 6.63% which is lower than the 7.9% reported by Boubakri and Cosset (1999) and 13% documented by Hennesy and Whited (2005) in U.S corporations.

Table 1. Correlation between ownership, financial performance and the control variables of privatized companies.

Variable	ROA	T Q	CEFF	TEFF	GOV	INST	FORI	LISH	DISP	FSIZE	LEV	INVE
ROA	1.0000	-	-	-	-	-	-	-	-	-	-	-
TQ	0.6291	1.0000	-	-	-	-	-	-	-	-	-	-
CEFF	-0.2268	-0.1232	1.0000	-	-	-	-	-	-	-	-	-
TEFF	-0.2268	-0.1232	1.0000	-	-	-	-	-	-	-	-	-
GOV	0.1549	-0.1043	-0.0314	-0.2446	1.0000	-	-	-	-	-	-	-
INST	-0.3298	-0.2348	0.0959	-0.3004	-0.6483	1.0000	-	-	-	-	-	-
FORI	0.4193	0.5353	-0.0138	0.8250	-0.1611	-0.1986	1.0000	-	-	-	-	-
LISH	-0.2930	-0.1303	-0.1239	-0.0316	-0.5550	0.3412	-0.1957	1.0000	-	-	-	-
DISP	-0.2824	-0.1243	-0.0117	-0.1398	-0.6410	0.2336	-0.4589	0.6954	1.0000	-	-	-
FSIZE	-0.2007	-0.0746	0.2270	0.0180	0.1187	-0.2525	0.2364	-0.2606	-0.1439	1.0000	-	-
LEV	-0.6877	-0.5279	0.0846	-0.3721	-0.2373	0.4460	-0.2617	0.3167	0.1699	0.3249	1.0000	-
INVE	0.5403	0.5731	0.0399	0.6347	0.0019	-0.3322	0.6954	-0.2057	-0.3168	0.1676	-0.5289	1.0000

Key: ROA means Return on Assets; TQ; is the Tobin's Q ; CEFF is Cost Efficiency ; TEFF means the Technical Efficiency ; GOV means Government Ownership; INST is an indicator of Institutional Ownership ; FORI means Foreign Ownership ;LISH implies Large Individual Shareholders.; DISP is an indicator of Dispersed Ownership.

The correlation analysis

Table 1 presents the results of the correlation between ownership, financial performance and the control variables of privatized companies. According to Mugenda and Mugenda (2003) a relationship is strong when $r=0.5$ and above, moderate if r is between 0.3 and 0.49 and weak if r is below 0.29.

The results show that ROA has a positive correlation with government and foreign ownership but a negative correlation with institutional, large individual and dispersed shareholders. The ROA also has a negative relationship with firm size and leverage but positive with investment. A strong negative correlation of -0.69 is found between ROA and leverage. Except for foreign institutional investors, Tobin's Q has a negative correlation with all other ownership variables. The Tobin's Q has a positive correlation with investment while it is negative with firm size and leverage. A strong positive correlation of 0.57 exists between the Tobin's Q and capital investment. The Tobin's Q and ROA exhibit a high correlation of 0.63. The variables may be highly correlated as the Tobin's Q reflects the investor's opinion of the firm, based on performance measured by ROA. The relationship poses no problem in the regression models as they are examined separately.

Cost efficiency has a negative correlation with government, foreign, large individual and dispersed shareholders and a positive relation with institutional investors. Technical efficiency has a negative correlation with government and local institutional ownership while it has a positive correlation with foreign, large individuals and dispersed shareholders. It also has a positive correlation with investment and firm size while it has a negative correlation with leverage. A strong positive correlation of 0.83 exists between technical efficiency and

leverage. It is apparent government ownership has a high correlation with institutional investors with a coefficient of -0.65 and large individual shareholder with a coefficient of -0.56 and dispersed shareholders with a coefficient of -0.64. Foreign ownership has a high correlation with investment with a coefficient of 0.70. Dispersed shareholders are also highly correlated with large individual investors with a correlation coefficient of 0.70. High correlation is an indicator of possible multi collinearity problem among the variables. The correlation however does not prove causation as the causal relationships are analyzed using the regression analysis.

Panel unit root test and the Hausman test

This study used the LLC test whose null hypothesis is that panels contain unit roots normally testing whether the p value is greater or less than 0.05. A p -value of more than 0.05 means that a variable is stationary which implies that it has a unit root. Table 2 presents the unit root test results.

The results for ROA, Tobin's Q, technical efficiency, institutional, foreign, dispersed, leverage and investment shows that the p -values calculated are less than the critical value of 0.05 which means that the variables are stationary in their original form. The p -values for cost efficiency, government, firm size, and large individual were more than the critical value of 0.05 implying that the variables had unit roots. The variables were subjected to a first level difference which involved creating a variable that reflects the difference in scores for one time period. Following this procedure, firm size, and large individual achieved stationarity and hence the differenced values were used in the regression models. The cost efficiency and government remained non stationary and could not

Table 2. The unit root tests for the ownership variables and financial performance.

Variable	1(0) Adjusted t	P- value	1(1) Adjusted t	P-value
ROA	-2.9722	0.0015	-	-
Tobin's Q	-6.3857	0.0000	-	-
Cost efficiency	781.6944	1.0000	98.3920	1.0000
Technical efficiency	-17.4472	0.0000	-	-
Government	175.9886	1.0000	507.2046	1.0000
Institutional	-3.6325	0.0001	-	-
Foreign	-1.9067	0.0283	-	-
Large individual	-0.0949	0.4622	-2.9244	0.0017
Dispersed	-51.2902	0.0000	-	-
Firm Size	1.0494	0.8530	-5.3204	0.0000
Leverage	-2.4433	0.0073	-	-
Investment	-3.8166	0.0001	-	-

Table 3. The results of the Hausman test.

Variable	Hausman test result	Suitable model
ROA	Prob> $\chi^2 = 0.0037$	FE
Tobin's Q	Nil	FE
Cost Efficiency	Prob> $\chi^2 = 0.0008$	FE
Technical Efficiency	Prob> $\chi^2 = 0.0001$	FE

be differenced further as the unit root test requires a minimum of six (6) panels. Their p-values also remain constant which means the series is not mean-reverting. The cost efficiency and technical efficiency were therefore used in the regression models in their original form. Table 3 presents the Hausman test for the regression models examining the relationship between the ownership, and financial performance of privatized firms.

The results indicate that FE regression model was the best suitable model for ROA, cost efficiency and technical efficiency since the p-values were significant. The results for the Tobin's Q yielded no results and this study opted to apply FE in this model to be consistent to results of other tests.

The influence of ownership structure on performance of privatized companies

Table 4 presents the results of regression models used to examine the relationship between ownership structure and financial performance. The table has four panels as four regression tests were done using ROA, the Tobin's Q, cost efficiency and technical efficiency. Panel A presents the regression results of the influence of ownership structure on the ROA, Panel B on the Tobin's Q, Panel C on the cost efficiency and Panel D on

technical efficiency. The results include the coefficients of individual variables, robust standard error estimates; the coefficient of determination, R^2 ; F-statistics and the t -statistic.

The influence of ownership structure on the roa of privatized companies

Panel A of Table 4 presents the regression results of the influence of ownership structure on the ROA of privatized companies. A Hausman test identified FE as the suitable regression model to analyze the effects of ownership structure on ROA. The FE controls the fixed effects of firm individual characteristics which could influence ROA. The model rejects variables that don't vary with time and consequently foreign ownership was eliminated as most of the values were not varying. The procedure in Stata includes a robust standard error option to control for heteroskedasticity and contemporaneous correlation which may cause standard errors to be biased. The Stata procedure also automatically generates the F value which measures the overall fit of the model. The computed F value is 13620.60 and is significant at 1% significance level. This implies that the joint effect of the ownership variables on ROA is significant, although coefficients of some ownership variables are insignificant. The R^2 is 0.4342 which means that the regression model explains

Table 4. The Influence of ownership structure on financial performance.

Panel A : The influence of ownership structure on the ROA of privatized companies				
ROA	Coefficient	Robust standard error	t	Prob. value
Government	0.0212***	0.0045	4.73	0.002
Institutional	0.0150***	0.0048	3.15	0.016
Large individual	0.0070	0.0049	1.42	0.198
Dispersed	0.0206***	0.0048	4.30	0.004
Investment	0.1670	0.1069	1.56	0.162
Firm size (lag1)	0.0059	0.0213	-0.28	0.791
leverage	-.3237*	0.1513	-2.14	0.070
constant	-1.482	0.4386	-3.38	0.012
R²=0.4342		F= 13620.60		Prob> F = 0.0000
Panel B: The influence of ownership structure on the Tobin's Q of privatized companies				
Tobin's Q	Coefficient	Robust standard error	t	Prob. value
Government	0.2081**	0.0063	3.28	0.014
Institutional	0.0043	0.01379	0.31	0.765
large individual	0.0405	0.03834	1.05	0.327
Dispersed(lag1)	0.0106	0.0105	1.01	0.347
Investment(lag1)	1.785	1.0224	1.75	0.124
Leverage	-2.188*	1.1504	-1.90	0.099
constant	.4081	0.9778	0.42	0.689
R²=0.3154		F = 122.94		Prob> F = 0.0000
Panel C: The influence of ownership structure on cost efficiency of privatized companies				
Cost efficiency	Coefficient	Robust standard error	t	Prob. value
Government	-.0031**	0.0012	-2.69	0.031
Institutional	-.0009	0.0007	-1.36	0.216
large individual	.0009*	0.0004	2.09	0.075
Dispersed	-.0012**	0.0009	-2.69	0.031
leverage(lag1)	.0278***	0.0075	3.66	0.008
Firm size(lag1)	-.0148***	0.0004	-3.70	0.008
constant	.3160***	0.0845	3.74	0.007
R² =0.5501		F= 311.93		Prob> F= 0.0000
Panel D: The influence of ownership structure on the technical efficiency privatized companies				
Technical Efficiency	Coefficient	Robust standard error	t	Prob. value
Government	0.0041	0.0024	1.72	0.130
Institutional	0.007**	0.0023	2.66	0.033
Large individual	0.0096	0.0092	1.05	0.329
Dispersed	0.0048	0.0026	1.84	0.109
Leverage	0.0524	0.0616	0.85	0.423
Investment	0.08173	0.1159	0.71	0.503
constant	-.0427	0.2211	-0.19	0.852
R² =0.0082		F= 8.00		Prob > F = 0.0074

The asterisks*, **and *** represent significance levels at 10%, 5% and 1% respectively.

43.42% of the variance in the ROA. The remaining variation of 56.58% is unexplained and could be attributed to other factors not included in the model.

The *t*-tests for individual coefficients show that government ownership has a positive and significant relationship with ROA at 1% levels of significance. The

positive and significant findings contradict the property rights theory which asserts that state ownership is detrimental to firm performance. The results however support the agency theory which recognizes large shareholder have the potential to improve firm performance as they are more effective in monitoring managers. This also implies that when the government shareholdings decreases and private investors have rights to an income and decision making of a firm, the performance of a firm increases. The findings also support previous empirical studies which document a positive and significant relationship between large government ownership and ROA (Trien and Chizema, 2011; Tian and Estrin, 2008).

A positive significant relationship may also be an indicator that government ownership is crucial in a system where large number of shareholders is dispersed. The government has retained 41.1% which means that legally, it is a major decision maker and therefore has incentives to influence financial performance. From the agency theory perspective, government as a large shareholder is more effective than dispersed shareholders in monitoring managers. It is also more effective than other private investors who also hold relatively smaller sizes of ownership. It is notable that shares owned by the government are held by the Treasury which is expected to exercise its powers as shareholder in monitoring and exerting pressure on managers to perform. It is also likely that the presence of government in the ownership structure decreases the likelihood of expropriation of corporate wealth by managers and other investors. The sale of majority government ownership also removes most of the Parastatals from the ambit of the State Corporations Act. This could have redefined the objectives of the companies and served to communicate the expectations of government in a privatized company. The reduction of subsidies by the government of such firms following privatization may also put pressure on managers to utilize the human, financial and physical assets more efficiently.

The institutional shareholders have a positive and significant relationship with ROA at 1% level of significance. A strong significant relationship is surprising as the institutional investors consisting of banks, mutual funds, insurance firms and pension funds hold a mean of 10% ownership. These investors are however more focused on profits as their cliental demand profits and consequently have incentives to enhance efficiency and profitability in firms where they invest. From a RBT perspective, institutional investors bring in managerial, technology and financial resources crucial to firm performance. The results are consistent to other studies which document a positive relationship between institutional shareholders and firm performance (Kiruri 2013; Mishari et al., 2012; Ongore et al. 2011; Uwuigbe and Olusanmi, 2012). The results are also consistent to the property rights theory which views institutional

investors to be more focused in making profits and therefore can put pressure on the managers to generate profits and increase the value of their investment.

Large individual shareholders have an insignificant influence on ROA. This is consistent to the prediction of this study and with the agency theory which asserts that individual shareholders have no capacity to monitor managers or influence decision making in corporate boards. Large individuals hold a mean of 1% ownership in privatized firms which is considered insufficient to monitor managers or influence decision making by corporate boards. According to Maher and Anderson, (1999) an individual should have a substantial amount of ownership of about 5% to have any impact in monitoring managers and consequently firm performance. Surprisingly, dispersed shareholders have a positive and significant impact on ROA at 1% levels of significance. The findings contradict agency theory which asserts that diffuse shareholders lack capacity to collectively monitor managers. This argument, however fails to recognize dispersed shareholders demand dividends from former SOEs and therefore put pressure on managers to generate profits. The dispersed shareholders may influence decision making through the AGMs where they vote on key issues such as: election of directors, ratification of the auditor reports, approval of dividend and changes in by laws. They are also likely to protect themselves by selling their shares through which puts pressure on managers to control capital flight. It can be argued that greater diffuseness in ownership can convey compensating advantages if the shareholders can influence decisions that affect their investments. The findings are consistent to those of Ongore et al. (2011) who found a significant and positive relationship between dispersed shareholders and firm performance in listed companies in Kenya.

The control variables included in this regression model are capital investment, firm size, and leverage. Capital investment has an insignificant impact on ROA which contrasts the conventional view that investment in fixed assets increases prospective investment opportunities and associated with productivity. The insignificant results may however be attributed to the small percentage of investment by privatized firms. The firm size has a negative and insignificant relationship on ROA. The results contradict the widely held view that large firms exploit economies of scale to hire more skilled managers and adopt new technologies which could improve performance (Himmelberg et al., 1999). However, some reports indicate that some privatized firms experience managerial inefficiencies, corruption, overstaffing and political interference (KACC, 2010). The insignificant results could imply that the benefits of the large size are cancelled out by the managerial problems in privatized firms. Leverage also has a negative and significant relationship with ROA at 10% significance level. The results contradict the agency theory which views debt as

a tool to enhance monitoring by lending institutions (Jensen and Meckling, 1976). The results may be attributed to passiveness of the role of lending institutions which is not clearly specified in corporate governance guidelines.

The disciplinary effects associated with leverage may also be cancelled out in privatized firms as they may experience increasing costs of borrowing associated with the money markets.

The influence of ownership structure on the Tobin's Q and of privatized companies

Panel B of Table 4 presents results of the regression model examining the relationship between the Tobin's Q and the ownership structure of privatized firms. The FE regression model was used to examining the relationship and controls fixed firm individual characteristics that could influence the Tobin's Q. The model also included a robust standard error option to controls for heteroskedasticity and contemporaneous correlation which may cause the results to be biased. Consequently, foreign ownership was automatically eliminated as most of the values were not varying with time. The model also allows lagging of some independent variables to reduce the possible effect of unobserved heterogeneity and reverse causality. The model was significant when the dispersed ownership and investment were lagged once. This is an indicator that the past values of dispersed ownership and investment influence on the market value of privatized firms. The computed F value is 122.94 and is significant at 1% level of significance. This indicates that the joint effect of the ownership variables on Tobin's Q is significant, although the coefficient of some variables were insignificant. The R^2 statistic is 0.3154, which means that the regression model explains 31.54% of the variance in the Tobin's Q. The 68.46% of the variation is unexplained and could be attributed to other factors. Firm size was automatically dropped from the regression model due to the suspected problem of multi-collinearity. Firm size measured by total assets may be correlated with other variables such as investment and leverage as they include firm size in the denominator.

The *t*-test shows government ownership has a positive and significant relationship with the Tobin's Q at 5% level of significance. The results suggest that the government enhances investors' confidence in privatized firms. This is inconsistent with the prediction of this study and with the property rights theory which asserts that state ownership impacts negatively on firm performance due to focus on multiple goals and also the wide separation between ownership and control (Jensen and Meckling, 1976). The finding is however consistent to empirical studies which document positive relationship between high state ownership and firm value (Ang and Ding, 2006; Wei et al., 2005; Tian and Estrin, 2008). The results in reference to privatized firms imply that the presence of government

increases the investors' confidence. From an agency theory perspective, the government has the capacity to monitor managers more effectively in firms characterized by a large size of disbursed shareholders. The government ownership may give an assurance that shareholders investment will be protected from expropriation by managers and private investors. The state ownership may also lower uncertainty for investors as the government can use a wide range of measures to protect investors and reduce the likelihood of corporate failure. Consequently, the investors expect the government to intervene in the privatized firms to prevent any deficiencies by managers and private investors. The investors may also value state ownership positively as resources are likely to be used more efficiently if the state is a partner among other investors.

Institutional investors have an insignificant relationship with Tobin's Q.

The results contradicts the agency theory which views, institutions investors as effective in improving performance due to their focus on profits objectives and monitoring managers to act in the best interest of the shareholders. The results also contradict resource based theory which considers local institutional investors to be endowed with managerial and technological expertise to enhance the market value.

These results are there inconsistent with others which report significant and positive relationship between institutional ownership and firm value (Agyei and Owusu, 2014; Mishari et al., 2012).

The insignificant results could however be attributed to the small size of institutional ownership as they hold only 10% shares. The results suggest that the size of ownership is insufficient to influence the investors' confidence and consequently the market value of privatized firms. Large individual investors have an insignificant influence on the Tobin's Q. This is consistent with the agency theory which perceives individual shareholders to lack capacity to enhance firm value due to the small size of their investment. Individual investors hold only 1% ownership in privatized firms which is considered ineffective to influence market value of firm.

The dispersed shareholders also have an insignificant impact on Tobin's Q.

The findings confirm the agency theory which asserts that diffuse shareholders lack capacity to collectively monitor managers and therefore may not influence the market value.

Among the control variables, investment have an insignificant relationship with the Tobin's which may be attributed to the low level of investment in privatized firms.

The average investment in privatized firms in Kenya is 6.63% compared to 13% reported by Hennessy and Whited (2005). The small size of investment may be insufficient to impact on performance and consequently the market value of privatized firms. Leverage has a negative relationship with the Tobin's of privatized firms

which is significant at 10% level. Leverage as a governance mechanism is expected to enhance monitoring by banks.

The findings may imply the level of debt obligations with privatized companies may not have put pressure on the managers to enhance performance. It may also imply that the investors viewed debt negatively as firms incur relatively higher costs of debt following the withdrawal of guarantees by the government after privatization.

The influence of ownership structure on cost efficiency of privatized companies

Panel C of Table 4 presents the regression test results of the relationship between cost efficiency and ownership structure of privatized firms. The FE regression model with a robust standard error option was used to control for firm fixed effects which could be sources of heteroskedasticity and contemporaneous correlation which could influence cost efficiency. The FE model also eliminated foreign ownership as most of the values were not varying with time. Investment was also dropped from the model due to a suspected problem of multicollinearity which may arise due to measurement issues. Investment, leverage and firm size may be correlated as the denominator of leverage and investment ratios is total assets which are also an indicator of firm size. The computed F value is 311.91 and is significant at 1% level. This implies that the joint effect of the ownership structure variables on the cost efficiency is significant, although the coefficient of some ownership variables is insignificant. The R^2 statistic is 0.5501 which indicates that the model explains 55.01% of the variance in the cost efficiency. The remaining variation of 44.09% is attributed to other factors not included in the model.

The *t*-test for individual coefficients indicates that government ownership has a negative and significant influence on cost efficiency at 5% levels of significance. The results suggests when a government privatizes firms and retains large ownership, the agency conflicts between managers and shareholders may persist as top managers without any ownership of the firm are likely to be appointed by the government. The conflicts of interests may result into cost inefficiencies and expropriation of corporate wealth. The results are consistent to the property rights and the agency theories which associate state ownership with inefficiency. The findings are also supported by studies which found that the state ownership can influence cost efficiency negatively (Zelenyuk and Zheka, 2006; Yiwei et al., 2011). The inefficiency could be been attributed to the government focus on both welfare and economic objectives particularly where it has retained large size of ownership. This makes some privatized firms employ an input mix that does not match costs. It is evident that the government has retained over 50% ownership in some

privatized firms. These firms still operate under the State Corporations Act (CAP 446) and may be expected to address both welfare and economic objectives such as employment or production of public goods at subsidized costs. Some reports also point out that some privatized firms are still characterized by mismanagement, low capacity utilization and use of obsolete technologies which could lead to increased operational costs (KACC, 2010).

The local institutional shareholders have an insignificant relationship with cost efficiency. This is contrary to the prediction of the agency theory, which views institutional investors as having the capacity to reduce inefficient behavior in corporate entities. However, the results could be attributed to a relatively small ownership in the individual firms which averages at 10%. The ownership is also held by numerous institutions which may make it more difficult for the investors to influence the firm managers to reduce operational costs. The results may also suggest that although, institutional shareholders may exert substantial pressure on managers, the costs of monitoring may cancel out the benefits as they hold only a small size of ownership. Under such circumstances institutional investors, may therefore take a passive role in monitoring managers leading to insignificant influence on costs management in privatized companies. These results are consistent to studies which found that institutional ownership has no significant influence on cost efficiency (Pi & Timme, 1993).

Surprisingly the large individual shareholders have a positive and significant influence on cost efficiency at 10% level. This is inconsistent with the agency theory which views individual shareholders to have no capacity to monitor managers due to their small size of their shareholding. Individual investors hold only 1% ownership in privatized firms. However, a positive relationship could arise as large individual investors may interact closely with managers as they are among the top ten shareholders. They could also have some special decision making rights in firms where they invest. The individual investors are also vocal in decisions that influence their investments as they are also likely to bear consequences of inefficiency by managers. Dispersed shareholders have a negative and significant impact on cost efficiency at 5% level. A negative coefficient is an indicator that the firms are likely to experience agency problems in a system with a large size of dispersed shareholders. The results are also consistent to the agency theory which considers individual shareholders to be widely dispersed to have any capacity to influence performance. This finding is inconsistent studies which find that individual shareholders influence firms to perform positively (Ongore et al., 2011).

Among the control variables, leverage has a positive and significant influence on cost efficiency at 1% significance level. This is consistent with the agency theory which recognizes debt monitoring mechanism by

lending institutions to ensure that managers focus more efficient (Jensen and Meckling, 1976). The results may imply that banks were pressurizing managers of privatized firms to utilize corporate resources more effectively in order to repay loans. Firm size has a negative and significant relationship with cost efficiency at 1% level of significance. This suggests that privatized firms have not taken advantage of their large size firms to exploit economies of scale and achieve higher efficiency. This is evident as most of the privatized firms have not attracted strategic partners who are more likely to bring in technology and expertise required to reduce costs.

The influence of ownership structure on technical efficiency of privatized companies

Panel D of Table 4 presents the regression results of the relationship between technical efficiency and ownership structure of privatized firms. The Hausman test shows that an FE regression model is suitable to analyze the relationships. The FE model included a robust standard error option to controls the fixed individual firm characteristics which could cause heteroskedasticity and cross sectional dependence of errors and consequently impact on the technical efficiency. Foreign institutional ownership was eliminated as the values were not varying with time. The regression model also eliminates variables that may suffer from multi-collineality. Firm size was also eliminated due to suspected problem of multi-collineality. Firm size measured by total assets may be correlated with other control variables such as investment and leverage as their ratios include firm size (total assets) as the denominator. The computed F value is 8.00 and is significant at 1% level. This means that the joint effect of the ownership structure variables on technical efficiency is significant. The coefficient of determination R^2 is 0.0082, implying that the regression model explains only 0.08% of the variance in the technical efficiency. This implies that the model is weak as it is only one ownership variable which has a significant relationship with the technical efficiency.

The *t*-tests on individual coefficients show that government ownership has an insignificant relationship with technical efficiency. The findings are inconsistent with the property rights theory which asserts that government ownership influences firm performance negatively. Several studies also document negative relationship between state ownership and technical efficiency (Lin et al., 2009; Zelenyuk and Zhaka 2006; Ochi and Yosra 2012; Yiwei et al., 2011). The results suggest that the sale of government ownership alone may not be the only defining factor in firm technical efficiency. Leibenstein (1966) ascribe inefficiency to insufficient internal and external pressure and incentives on the managers to reduce costs. The insignificant results could be attributed to government's focus on both economic and welfare

objectives which may cancel any benefit associated with privatization. It is evident in Kenya that the government still owns over 50% ownership in some companies. Such companies still operate under that state corporations Act (CAP 446) and expected to address both economic and welfare objectives which may include employment and production of public goods at subsidized costs.

The local institutional shareholders have a positive and significant influence on technical efficiency at 5% level.

The institutional investors comprise of banks, pension and mutual funds which may stimulate technical efficiency in firms formally owned by the state. From a resource based theoretical view, institutions may have brought in technical expertise, financial resources and greater access to new markets which may increase production. The results are consistent to empirical studies which found a positive and significant relationship between institutional investors and technical efficiency (Ravi and Hovey, 2013; Su and Dai, 2012). The large individual shareholders have an insignificant impact on technical efficiency which is consistent to agency theory that considers individual to have no capacity to influence performance due to the small size of ownership. Large individual shareholders own only 1% shares in privatized firms which is too low to have any impact on firm performance. The individual investors are largely venture investors and may not have technical expertise required to stimulate efficiency. The dispersed shareholders also have an insignificant influence on technical efficiency. This is expected as individual investors may have no avenues to interact with firms and consequently influence technical efficiency. The insignificant results support the agency theory which views dispersed shareholders to be too scattered to influence firm performance.

Among the control variables, leverage has an insignificant relationship to technical efficiency. This may imply that although, although banks may pressurize managers to perform, they may not have the expertise to influence technical efficiency. The insignificant results may imply that leverage alone may not be a key driver of technical efficiency. Some also authors indicate that technical efficiency is largely driven by technology and best practices in production (Leibenstein, 1966). Capital investment has an insignificant influence on technical efficiency.

This contradicts conventional view that expenditure in fixed assets increases efficiency, production capacity and long term growth in a firm (Smith and Watts, 1992). An insignificant finding could however be attributed to the low percentage of investment in privatized firms.

CONCLUSION AND RECOMMENDATIONS

This study investigated the influence of ownership structure on financial performance of privatized companies in Kenya. The results of the study show

ownership structure has a significant influence on financial performance of privatized companies. The results on individual coefficients show that government ownership has a positive influence on ROA and the Tobin's Q but a negative effect on cost efficiency.

Institutional shareholders have a positive influence on ROA and technical efficiency while large individual investors have a positive effect on cost efficiency. Dispersed shareholders have a positive influence on ROA but a negative effect on cost efficiency. Arising from these findings, this study recommends the Privatization Commission should restructure ownership in privatized companies to reduce government and dispersed ownership further and pass more control and decision making to private investors. The government should however retain some ownership in privatized firms to enhance shareholders confidence in protection of their investments and managerial monitoring. The institutional ownership should be enhanced to enable privatized companies to attract managerial and technical expertise crucial to enhancing financial performance. It is therefore recommended that each privatized company should have an institutional strategic investor with technical expertise and sufficient shareholding to influence decision making.

Conflict of interests

The authors declare no conflicts of interest from organizations or any other individual.

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Full Length Research Paper

The link between financial performance and loan repayment management in Tanzanian SACCOS

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Received 30 August 2015; Accepted 20 November, 2015

The Savings and Credit Cooperative Societies (SACCOS) which are co-operative financial models are flourishing in most of the developing economies recently. However, loan repayment capacity remains a challenge that threatens their future. Using financial statements data for the year 2012, from 36 SACCOS in Kilimanjaro Region, Tanzania, and using descriptive statistics and regression models in the analysis, this study examines the relationship between financial performance and loan repayment capacity. It thus examines the extent by which SACCOS are capable of recovering the loan issued and also the financial ratios that explain loan repayment capacity in SACCOS. The study depicts that there is a severe financial risk management problem among Tanzanian SACCOS. Focusing on sustainability is significant for improvements of loan repayment, but focusing on profitability in SACCOS results to an adverse loan repayment. The study asserts that the primary focus of SACCOS should not be profit but member's wealth maximization and sustainability of the institution. Moreover, we suggest that in addition the traditional means of dealing with financial risk, the uses of a modern risk management tool like credit scoring should be considered in evaluating borrowers.

Key words: SACCOS, loan repayment, Tanzania.

INTRODUCTION

Loan repayment performance is an important concept for all the lending institutions. It is a measure of whether loans are settled up in full according to the loan contract or not. The higher loan repayment performance leads to the higher probability of the collecting interest revenues and lower loan losses in a lending institution (Okurut and Kinyondo, 2009). On the other hand, the poor loan repayments have a harmful impact on institutions capital, earning as well as in realizing its objectives and may even lead to a financial institution collapse. For instance, failure to manage loan repayment performance results in losses and high delinquency management costs

(Ledgerwood, 2000). The higher expenses are for closer monitoring, more frequent portfolio and legal fees for pursuing seriously delinquent loans. Such costs adversely affect the generated income, and, in general, the operations of the lending institution, thus, the institution becomes unsustainable (Njanike, 2009).

Recently, the issue of credit risk management in microfinance institutions has become hot. Microfinance institutions prove to be highly vulnerable to poor loan recovery (Oguntoyinbo, 2011; Ayayi and Sene, 2010; visits to borrowers, more extensive analysis of the loan Arvelo et al., 2008). The point is that Micro-financial

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institutions have information opaque about their borrowers, and this plays a greater role in their failure in Credit Risk Management (Hermes and Lensink, 2007). Due to their weak institutional and managerial capacity they are not easily able to quantify quality project which means they suffer from adverse selection problem. Also, they cannot ensure that the loan issued not channeled in an alternative project that was not the reason for receiving credit which indicating moral hazard problem (Berger and Udell, 2002).

Similarly, cooperative financial institutions cannot detach themselves from loan recovery problem. This study thus focused on the Savings and Credit Cooperative Societies (SACCOS), which are co-operative based microfinance institutions, to add understanding of Credit Risk Management (CRM). The issue is, as other microfinance institutions SACCOS provide credit that lacks collateral to the poor. In SACCOS, the CRM is complicated and requires keen understanding and more innovative strategies in dealing with it. The reasons are; firstly, SACCOS as other co-operative institutions has mixed objectives to fulfill (Royer, 2014; Lagat et al., 2013). One, as a business entity, they have a financial objective of delivering services in a way that ensures the generation of income. To cover the cost of funds, other operational costs, and surplus for recapitalization purposes. Two, as co-operative, they focus on social objectives, for instance, enable members to save their money and access credit easily and at a lower costs. Three, they have to mobilize savings and to repackage the savings received to issue loans at a favorable price that benefits the members of the institution. Indeed, the second and third objectives are contradicting with the first which is focusing on sound financial stability. The reason is that the second and third objectives are likely to increase the adverse selection and moral hazards problems that, therefore, results in poor credit management.

Secondly, many stakeholders take for granted that SACCOS have a worthy portfolio, given the fact that these institutions play as cooperatives and have their standards of operations. In this case, the assumption lies in the three traditional methods of credit risk management in SACCOS that bonded to the cooperative attributes. First, as other "savings and credit" institutions, SACCOS use members' savings deposits as security to minimize financial risks (Absanto and Aikaruwa, 2013; Huppi and Feder, 1990). A member-borrower should borrow depending to his/her savings such that in case of default, the member's savings could recover the loan. Second, principally SACCOS are formed and serve persons with a similar field of membership/common bond. That means members know each other, as well as members, have the same focus, which then increases trust and eventually maximizes loan security (McKillop and Wilson, 2011). Third in their management structures, they have credit committees that have the task of implementing credit

policy, especially in evaluating and monitoring loans.

Despite these noble practices and theoretical expectations, the current experiences do not concur with the premise that SACCOS are risk-free institutions. The current situation signals the possible severe and unrestrained financial risk problem in SACCOS. In Tanzania, for instance, the Ministry of Agriculture, Food Security and Cooperatives reports for the year 2012 show that, out of 5,424 SACCOS, 1,346 (25%) were inactive. Given the fact that the main products traded by these institutions are financial services, the number of inactive organizations, among other factors, it is associated with poor quality of loan portfolio (reduced loan repayment). More importantly, recent literature including Magali and Qiong (2014), Lagat et al. (2013) and Absanto and Aikaruwa (2013) shows doubt in the CRM practices in SACCOS. As such, there are some questions that do not have enough answers, thus need to be explored in SACCOS for the purpose of improving the management of these important institutions. Firstly, to what extent SACCOS are capable of recovering the loan issued. Secondly, what factors determine loan repayment capacity of SACCOS?

This study contributes knowledge on these issues by employing portfolio at risk for 30, 90, 365 and total, as proxy measures for the loan repayment performance in SACCOS. It used portfolio at risk in determining the nature of credit risk in SACCOS. Moreover, the study accesses the effects of financial performances by examining the effects of various financial ratios that represent growth, liquidity, profitability, and sustainability, on loan performance capacity of SACCOS. The knowledge established in this study is useful in improving SACCOS practices and more importantly in improving policies within the SACCOS industry.

OVERVIEW OF SACCOS IN TANZANIA

SACCOS are the co-cooperative, non-profit association. They are member based microfinance institutions. SACCOS are the societies whose principal objective is to encourage saving among its members and to create a credit source for its members at a fair and reasonable rate of interest. On the same line, they are voluntary associations whereby members regularly pool their savings and subsequently obtain loans that they may use for a different purpose. To the members, SACCOS is a valuable safeguard for the unexpected illness, housing, employment and provides room for investment by enhancing microenterprises. Principally, SACCOS is important in financing small investments in farm and non-farm micro-enterprises that contribute the income and poverty reduction (Wangwe and Lwakatare, 2004; Sizya, 2001).

SACCOS are attractive to many people, especially in rural areas. SACCOS are now active cooperatives as

Table 1. The overall performance of Tanzanian SACCOS from 1990 to 2012.

Year	No of SACCOS	Membership	Shares (Million Tshs)	Savings and deposits (Million Tshs)	Loans issued (Million Tshs)
1990	89	15225	1345.63	1032.26	30.26
1991	156	19884	1526.99	1423.62	47.86
1992	198	23017	1745.64	1625.90	108.57
1993	289	45889	1925.63	1986.60	112.39
1994	306	68993	2105.30	2895.56	134.23
1995	306	73218	2563.47	3000.46	1586.43
1996	306	76113	2896.34	3114.23	1978.53
1997	514	79645	3118.47	3568.97	2063.46
1998	769	98762	3416.29	5114.21	2189.68
1999	825	125880	5569.33	8336.22	13210.99
2000	803	133134	5618.11	8425.55	11524.33
2001	927	137305	6610.36	8599.15	12362.21
2002	974	189497	7856.14	8790.64	18226.98
2003	982	245633	8956.23	9995.48	28966.33
2004	1104	781162	12589.63	19045.60	36922.42
2005	1875	255938	13169.50	31393.80	54140.06
2006	2028	291344	13116.25	39535.06	34340.79
2007	3469	590163	18240.23	59714.93	115106.84
2008	4524	758828	24218.14	114022.07	20272.26
2009	5332	820670	33529.61	148144.59	383563.96
2010	5251	919411	32870.90	203999.92	539278.90
2011	5314	1552242	81600.62	447664.73	741049.64
2012	5424	1059213	54967.64	75167.71	703285.74

Source: Author's compilation from Tanzania SACCOS statistical reports of the department of co-operative development; Ministry of Agriculture Food Security and Co-operative and Mwakajumilo (2011).

well as micro-financial institutions (Kivuvo and Olweny, 2014; Sumelius et al. 2014; Kaleshu and Temu, 2012). The implication is that SACCOS has shown rapid growth and acceptance by all. In Tanzania, for instance, SACCO's industry has shown a tremendous expansion since early 1990's. Both dimensions including the number of SACCOS and membership explain the escalation of SACCO's industry. Also, the growth is observed in terms of savings, loans, and shares (Table 1).

From the table, a large number of newly SACCOS have been established, and perhaps some large SACCOS have developed rapidly in size. Most of these SACCOS are in rural locales and become significant institutions in rural finance. For example, the Tanzania SACCOS statistical reports of the Ministry of Agriculture Food Security and Cooperative (MAFC) for the year 2012 show that, out of 5424 SACCOS, 3039 (56%) were rural SACCOS, and 2385 (44%) were urban SACCOS. Also, the participation of men and women in SACCOS is more or less even. For the same year (2012), male members were 57% while female members were 43%.

Furthermore, recent reports show that SACCOS have gained popularity as the most useful financial tool especially in rural settings in Tanzania. According to the

Bank of Tanzania (BOT, 2014) SACCOS is an essential element in the national financial inclusion framework. The BOT showed that in the year 2012, SACCOS contributed 5% out of 22% of the proportion of the population formally included in the financial arrangement. In general, there is profound acceptance and promotion by the users, governments, researchers and other stakeholders that, SACCOS are the crucial economic developmental model. Recent empirical literature like Mwangi and Wanjau (2012) indicated an active role in SACCO's development in economic development. Consequently, the central issue, which requires continuous investigation, be their long-term viability, so as to ensure that SACCOS model remains the long run development model, which is also the subject of this study.

LITERATURE REVIEW

There is a wide literature on Credit Risk Management (CRM) in financial institutions. The general conclusion in recent literature like Ab Manan et al. (2014) is that credit risk continues to be a threat to Microfinance sustainability. Due to this there has been deliberate effort to seek more

reliable and precise methods for assessing the risks in microfinance (Arvelo et al., 2008). In examining the management of credit risk in microfinance, there has been some suggestion. For instance, Oguntoyinbo (2011) studied Accion Microfinance Bank Limited (AMFB) in Nigeria and found that fine regulatory corporate governance and management practices, sound quantitative credit risk assessment and management, and quality and maturity of management lead to low credit risk accompanied by high profitability and sustainability for MFBS. Also Ayayi (2012), in a study that used data from Vietnam, found that low credit risk is a direct consequence of sound implementation of good governance practices and sustainable financial performance through sound qualitative and quantitative risk management tools.

Recent studies in SACCOS primarily have been focusing on the sustainability. Some of the recent works include Marwa and Aziakpono (2014), Olando et al. (2013) and Temu and Ishengoma (2010). Many of these determine whether SACCOS model is sustainable and efficient and in many cases, develop the determinants. However, one of the important areas of the viability of SACCOS that have given less weight in the literature is Credit Risk Management (CRM). Since SACCOS are meant to facilitate members' savings and provide loans to members, the knowledge of loan repayment is useful as a way to ensure financial stability and increase member's savings' security. However despite the growing number of works in microfinance as a whole, there is tiny works specifically for SACCOS.

Among the few previous works that are available include, Absanto and Aikaruwa (2013) which investigated the role of credit rationing among member-borrowers on Loan Repayment performance in Tanzania. The study asserted that the SACCOS understudy were experiencing poor loans recovery because of the poor practice of credit rationing. The researchers referred credit rationing as the situation where the borrower receives a smaller loan amount than desired. The implication was that; the credit rationing mechanism failed to distinguish unworthy credit borrowers from creditworthy borrowers.

Magali (2013a) investigated the influence of rural savings and credit co-operative societies' variables on the loans defaults risk of Tanzania rural SACCOS. From his investigation, the results indicated that, on total assets, the more the loans issued, the more the risk and therefore positively influenced loans defaults risk. While failing to apply their high levels of education in managing defaults and their failure to repay the loan debts, managers' high level of education encouraged loan default risk. Nonetheless as a result of inadequate credit risk management that ensured no follow up on borrowers, the more the number of borrowers increased, the more the co-operative based MFIs were at the risk of loan defaults. The researcher was also able to establish that savings and deposits were key variables to reducing loan default risk. Therefore, the study recommended the

continued use of savings and deposits as means of managing credit risk in the co-operative based MFIs. Lagat et al. (2013) examined the effect of employing credit risk management practices among Savings and Credit Co-operatives in Kenya. Credit risk management practices were risk identification, analysis, monitoring, evaluation and mitigation of the number of the loan facility and performance of the lending portfolio. They revealed that the majority of the SACCOS were primarily employing risk management practices as means of managing their lending portfolio. Also, the majority of SACCOS had the definite methods and mechanisms for identifying lending default risks. The mechanisms for identifying lending default risks described as the overall risk identification policy of the institution. Results demonstrated that risk identification, analysis, monitoring, and mitigation had significantly affected the performance of the lending portfolio. Risk evaluation found to having no significant effect on the performance of the lending portfolio. In contrast, a risk analysis was the only factor found to have no significant impact on the number of loan facilities in the lending portfolio. Others including risk identification, monitoring, evaluation, and mitigation were revealed to have a significant impact in adopting the number of loan facilities in the lending portfolio.

In general, these previous empirical studies show that despite the fact that SACCOS have risk management practices yet they are highly vulnerable to poor loan recovery. This situation is dangerous for the success and survival of SACCOS model in Tanzania and many other developing countries that are increasingly using SACCOS model. This study focuses on identifying financial ratios that are relevant in credit risk managements. As such the paper aim at increasing understanding the role of financial performance in credit management and ensuring the long-term viability of SACCOS.

DATA SOURCES, VARIABLES SPECIFICATION AND METHOD OF ANALYSIS

The analysis of this study grounded on the importance of the CRM in financial institutions. CRM theory based on risk identification, analysis, monitoring, evaluation, and mitigation. Under this theory, therefore, the study examined how various financial ratios affect credit risk management in SACCOS. The study used secondary data gathered from SACCOS network known as Umoja wa SACCOS za Wakulima (USAWA). USAWA is an organization, created in 2006 that gather Savings and credit co-operatives into a network to mutualise technical and financial support and contribute to improving access to the management of financial services. Data collected from 2012 financial statement of all SACCOS members of USAWA (up to November 2014 there were 36).

The loan repayment performance is the dependent variable. It is measured by the percentage of the Portfolio at Risk (PAR). PAR formula is an unpaid balance divided by Current Loan Amount (outstanding portfolio) (Khan and Jain, 2009; Ledgerwood, 2000). For the sake of making a broad discussion, the study used both PARs in 30, 90, 365 days, as well as total PAR. In general, the PAR ratio shows the exact situation about the institution's portfolio at risk and is used to evaluate potential losses, as well as any future credit

Table 2. Financial Indicators used as independent variables.

Variable name	Formula	Classification
Net profit growth rate (PGR)	$((\text{Profit2}-\text{profit1})/\text{prifit1}) * 100$	Profitability
Net income growth rate (IGR)	$((\text{income2}- \text{income 1})/ \text{income 1}) * 100$	Growth
Current ratio (CER)	current assets/current liabilities	Liquidity
Quick ratio (QCR)	Quick assets/Current liabilities	Liquidity
Debt to equity ratio (DER)	total debt/shareholders' equity	Liquidity
Capital ratio (CPR)	total debt/total assets	Liquidity
Return on equity (ROE)	revenues/equity	Profitability
Return on employed capital (REC)	Revenues/employed capita	Profitability
Operation Self-Sufficiency (OSS)	Total revenue/financial costs + operating expenses + loan loss provision	sustainability

Note: profit used is before tax; however this is equivalent to the after-tax because SACCOS were not paying tax.

risks. Increasing the percentage (ratio) means reduced loan repayment performance.

The independent variables were financial ratios, with the attentions on the profitability, liquidity, sustainability and growth ratios. Usually, for the firm's credit risk evaluation, the financial indicators are the primary tools. The reason is that they have the nature of comparable and measurable, and so they make the comparison between the firm and historical data possible (Wei et al. 2010). The assumption in this study is that SACCOS are non-profit institutions thus the increase in profit increase adverse loan repayments. Also, SACCOS should focus on investing in loans than physical assets because they were made to provide finance to the members. Thus, liquidity is expected to lower financial risk. In term of sustainability, the assumption is that sustainable SACCOS are that which can collect the loans issued. Hence, sustainability lowers financial risks. Similarly, reasonable growth is necessary and a sign of sound performing loans. Table 2 provides the summary of independent variables (financial ratios) that is used in the model. Most of the ratios used were adapted from previous works that focused on other forms of enterprises, like Wei et al. (2010). However, the researchers were careful in calculations because SACCOS are not perfectly the same as other forms of financial institutions.

This study employed descriptive statistics and multiple linear regression models in the analysis. For multiple linear regressions the general regression model is:

$$\text{PAR (30, 90, 365, Total)} = \beta_0 + \beta_1\text{ROE} + \beta_2\text{REC} + \beta_3\text{OSS} + \beta_4\text{CER} + \beta_5\text{CPR} + \beta_6\text{QCR} + \beta_7\text{DER} + \beta_8\text{IGR} + \beta_9\text{PGR} + \mu \tag{1}$$

Where:

PAR (30, 90, 365, Total) = repayment performance of loan

β_{is} = coefficients of explanatory variables, and

β_0 = is intercept

μ = error term

Then tested the hypotheses that;

$$H_0 = \beta_1 = \beta_2 = \beta_3 = \dots \beta_9 = 0$$

$$H_1 = \beta_1 \neq \beta_2 \neq \beta_3 \neq \dots \beta_9 \neq 0$$

Then the null hypothesis (H_0) is: $H_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$, (H_0 and H_1 are not opposite, i.e. the opposite of H_0 is $H_1 : \beta_i \neq 0$ for any $i \in \{1, 2, \dots, 9\}$ (not all $i \in \{1, 2, \dots, 9\}$)).

RESULTS AND DISCUSSION

We started by analyzing the capacity of SACCOS in managing loans. In this case, the performance is presented in terms of loan repayment performance in PAR (30, 90, 365, Total). Table 3 shows that some SACCOS had PAR equal to zero. The indication is that there are SACCOS, which manage well their loans. However, most of these institutions are having a serious problem. For instance, basing on the criterion that, PAR30 days should not be above 5% of less than 2% for loans PAR 90. However, the mean values are far above the standards.

Table 4 is a summary of the default for two years, 2011 and 2012, for 36 SACCOS' members of USAWA. First of all, the table reveals that there were no significant differences in loan performance between the two years. Secondly, the nonperforming loan is SACCOS more than 60 of all issued loans. The implication is that, at large, the industry has reduced loan recovery. These findings are in agreement with those of Magali (2013a and 2013b), and Lagat et al. (2013) that SACCOS have higher credit risk.

In Figure 1, the correlation between loan repayment performances in different periods is presented. The results indicate that there is a close relationship between PAR 30, 90, 365. The findings suggest that when SACCOS is failing to recover the loan in early days it is not capable even in the long time. The inverse is also true.

Table 5 is the empirical results. The table shows the estimated coefficients of all variables included in Equation 1, using four dependent variables (PARs) and multiple independent variables. In the table, the t-values are in parenthesis. Also *, **, and *** indicate significant level at 1%, 5% and 10% respectively. The STATA software determined the coefficients.

From the Table 5, OSS, CER, QCR, IGR, and PGR are the significant factors that influence the loan repayment performance in SACCOS. OSS is a show the negative relation to the loan repayment. The meaning is that

Table 3. The descriptive statistics of variables used in models.

	N	Minimum (%)	Maximum (%)	Mean (%)	Std. Deviation
PAR 30	36	0	104	16.8	19.9
PAR 90	36	0	104	12.4	19.9
PAR 365	36	0	90	7.1	17.4
Total PAR	36	0	104	19.4	20.1
Return on Equity (ROE)	36	2	202	75.6	49.9
Return on Employed Capital (REC)	36	0	109	42.1	30.7
Operation Self-Sufficiency (OSS)	36	89	3	153	46.4
Current ratio (CER)	36	19	240	143.3	43.3
Capital Ratio (CPR)	36	1	652	123.2	140.6
Quick ratio (QCR)	36	1	95	22.3	22.8
Debt Equity Ratio (DER)	36	1	120	54.8	36.2
Income growth rate (IGR)	36	0	196	72.6	48.2
Profit growth rate (PGR)	36	-111	747	117.16	164.6

Table 4. The default summary.

Portfolio risk	2011		2012	
	Frequency	Probability	Frequency	Probability
PAR30 Performing loans	12	33%	12	33%
	24	67%	24	67%
PAR90 Performing loans	13	36%	11	31%
	23	64%	25	69%

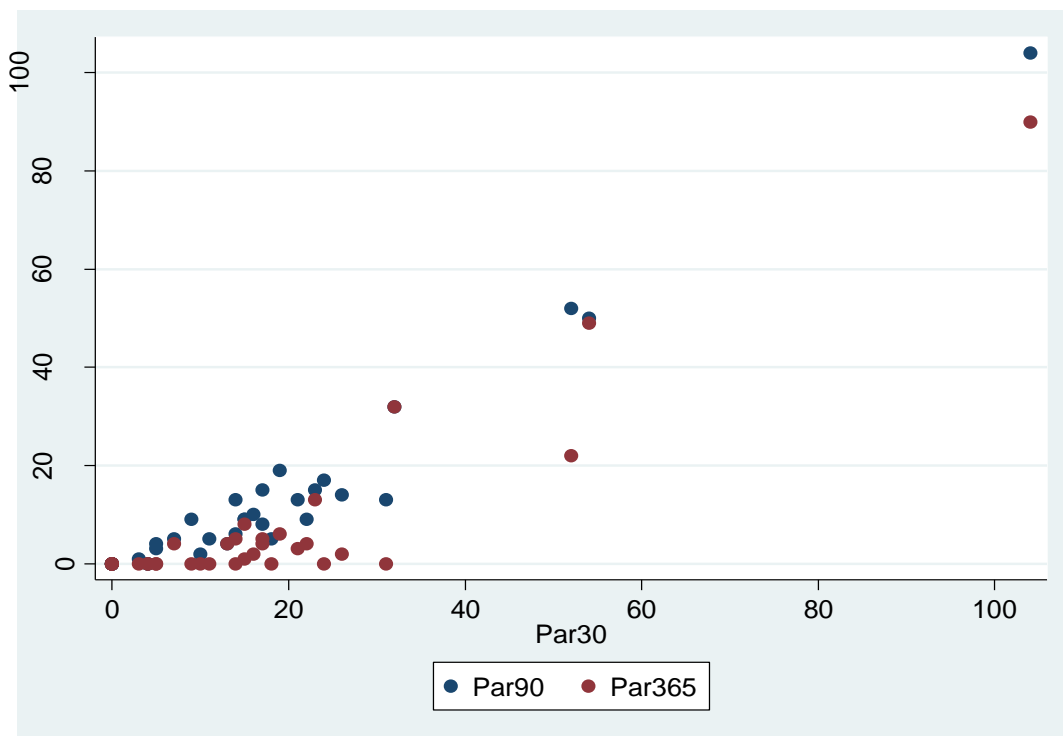


Figure 1. The relationship between loan recovery capacities in different time.

Table 5. The summary of regression coefficients.

Independent variables	Dependent variable			
	PAR30	PAR90	PAR365	Total PAR
ROE	0.0832915(1.13)	0.0614354(0.79)	0.0340241(0.52)	0.0751793(0.99)
REC	-0.0110511(-0.06)	-0.0100489(-0.05)	-0.0512955(-0.31)	0.0993638(0.52)
OSS	-0.3048608(-2.31)**	-0.2743679(-1.97)***	-0.2047271(-.75)***	-0.3675511(-2.71)**
CER	0.2506019(3.12)*	0.2332915(2.75)**	0.2128418(2.98)*	0.2541505(3.07)*
CPR	0.0016119(0.07)	0.0090113(0.35)	0.0067299(0.31)	0.0068412(0.27)
QCR	-0.4072229(-2.60)**	-0.3492164(-2.11)**	-0.2501228(-.80)***	-0.3756538(-2.33)**
DER	-0.1534357(-1.62)	-0.1402972(-1.40)	-0.0862374(-1.03)	-0.1397194(-1.43)
IGR	-0.247758(-2.26)**	-0.2956524(-2.55)**	-0.2887351(-2.96)*	-0.2243506(-1.99)***
PGR	0.1005184(3.02)*	0.1137896(3.24)*	0.1064644(3.60)*	0.0995327(2.91)*
Constant	45.48768(2.41)**	39.43269(1.98)***	25.59004(1.53)	49.46509(2.55)**
Obs	36	36	36	36
Prob > F	1%	3%	2%	2%
R-squared	51%	46%	50%	50%

increase in OSS increase SACCOS loan repayment capacity (note that higher percentage of the portfolio at risk indicate poor loan recovery). SACCOS, which have a higher level of OSS, are those which can maximize the collection of income from their investments. The effects of OSS are similar to the IGR that represent the growth of SACCOS, which also shown an opposite relationship with loan repayment performance. It shows that those SACCOS that have higher income growth also have good repayment capacity. This observation is similar to that of Ayayi (2012) that little credit risk has a close relationship with the sound financial sustainability.

However in the case of liquidity there are mixed results. QCR is having an inverse relationship with poor loan repayment. The meaning here is that SACCOS, which were liquid, are those which had little credit risk. However, on the other hand, more CER means reduced loan repayment performance in SACCOS. A lot of current assets in SACCOS indicate a higher level of issuing loans. This finding is congruence to the Magali (2013a) whose findings are that the larger the size of the loan granted the higher the credit risk.

Lastly the PGR (profitability growth) lower the repayment capacity. The indication is that, when an SACCOS is aiming at a profit, firstly it is needed to expand loans that are their primary business. As the results of focusing on profit, the first thing is that SACCOS increases the average loan. The problem is that most of the people collect much money without proper business plans, in which most do not manage the investment and have difficulty in repaying. Also, some SACCOS give loans to the ineligible applicants, for example, those who have no enough deposits by using compensating balance idea. For example, a candidate, who asks for Tshs 10,000,000, is approved for a loan and receiving Tshs 7,000,000 whereas Tshs 3,000,000

remains in SACCOS as compensating balance. Of course, it is the easiest way to expand business and may lead to higher profit but in turn, the institution is increasing the risk because there is less security for their money. When SACCOS are focusing on profit, they mostly depend on external funds and possibly try to stretch their managerial and institutional abilities. As commented by Huppi and Feder (1990), this should never be done in credit cooperatives. Also, the results indicate that an increase in CER and CPR increases the credit risk in SACCOS. These are the measures of liquidity and solvency. These findings might be slightly different from other creditors like commercial banks when they are rating borrowers (say institution borrowers), the higher ratio is good. For instance, it is indicated in Khan and Jain (2009) that the ratio of more than 1.5 is good as compared to that of less than 1.5.

Conclusion

This paper adds knowledge on credit risk management in SACCOS by analyzing the relationship between financial performance (measured by financial ratios) and loan repayment performance in SACCOS. The findings suggest that despite the available traditional tools used in SACCOS to manage financial risks, there is a higher level of credit risk problem in SACCOS. Also, findings suggest that focusing on sustainability and growth of SACCOS is a valuable tool to fight reduced loan repayments by member-borrowers. However, the results show that focusing on profitability lower loan repayment in SACCOS. The reason is that when SACCOS are focusing on the maximizing profit they tend to stretch their activities beyond their managerial and institutional abilities. As such most of the people collect much money

without proper business plans, in which most do not manage the loan and have difficulty in repaying. Also, sometimes SACCOS give loans to the ineligible applicants, for example, those who have no enough deposits or have been members for a short time that their behaviors are not well known. In the case of the level of liquidity, the study found mixed results for different liquidity ratios.

From these findings, the implication is that the financial performance is important in showing the loan repayment performance. These findings congruence to the previous works like Wei et al. (2010) and Sharma and Zeller (1997) which acknowledge the role of financial indicators on firm's credit evaluation. Thus, as cooperatives based microcredit institutions, SACCOS should focus on relevant performance, which focuses on maximizing the member's welfare and not maximizing profit. It is also a time for SACCOS to reconsider appropriate means to improve their loan recovery. In this paper, we suggest that SACCOS can use, and it is important to use credit scoring model following the fast growth experienced in recent years. As also shown by Berger et al. (2007) and Frame et al. (2001), credit scoring on small financial enterprises tends to increase portfolio quality by reducing information opaque. That is to say, an essential tool in CRM is appropriate information through a highly efficient loan administration and management information system. This study has deployed secondary data from 36 SACCOS for one year, which then can affect the conclusion. As such, an area for future research, the study can be conducted by surveying large sample and including more financial factors and nonfinancial factor. Also, primary data will add value in understanding CRM management practices is SACCOS as well as in informal financial institutions.

Conflict of Interests

The authors have not declared any conflict of interests.

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