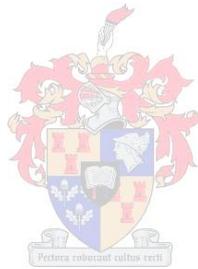


EFFICIENCY AND SUSTAINABILITY OF TANZANIAN SAVING AND CREDIT COOPERATIVES

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Dissertation presented for the degree of
Doctor of Philosophy (PhD) in Development Finance
at the University of Stellenbosch

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OCTOBER 2015

DECLARATION

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ABSTRACT

Despite the consensus among economists that finance plays a critical role in growth and development at national/regional and enterprises/household levels, more than 90% of Tanzanians are excluded from the mainstream banking. To fill the existing financing gap, there has been an explosive growth of microfinance institutions including Saving and Credit Cooperatives (SACCOs) during the past two decades. Given the risky segment in which SACCOs operate, such an explosive growth may signal either a stairway to economic heaven or a highway to micro-financial crisis. Hence, it is necessary to empirically investigate the performance (efficiency and sustainability) of the SACCOs. Specifically, knowledge of SACCOs' performance could generate valuable and concrete information for policy makers, industry managers and academics. This is of particular interest for the nascent but fast-growing Saving and Credit Cooperatives industry in developing countries such as Tanzania.

The aim of this study is to conduct an empirical investigation of the performance of SACCOs in Tanzania. Specifically the study addressed the following three questions: a) How efficient are they? b) Are they sustainable and profitable? c) What drives their performance in terms of efficiency and sustainability?

The study employed data envelopment analysis with bootstrap approach to estimate the efficiency of the SACCOs. Standard financial ratios were used to assess profitability and sustainability. A multiple case study approach was used for an in-depth investigation into the drivers of performance in high- and low-performing SACCOs. Secondary data from 103 SACCOs was collected from the Ministry of Cooperatives and Food Security and the regional headquarters of the Cooperatives Audit and Supervision Corporation. Primary data was collected from managers, board members and regulators through face-to-face interviews.

The results of the study have been organized into four empirical essays. The first essay investigates the technical and scale efficiency of SACCOs using data envelopment analysis. The bias corrected results show that average scores are 32%, 43% and 77% for technical, pure technical and scale efficiencies, respectively. Since most of the inefficiencies are either technical or scale in nature, the study recommends increasing the operating scale for smaller firms. Firms operating beyond the optimal scale may need to downsize. The managers from

technically inefficient firms may reduce the waste of productive resources by utilizing inputs more efficiently.

The second essay estimates the profitability and financial sustainability of SACCOs. The results show that approximately 61% of the SACCOs in the sample are operationally sustainable and 51% of the SACCOs are both operationally and financially sustainable. The average sustainability score was 127%. On average, our results for profitability, measured by return on assets, are higher than some of the results reported for standard microfinance in the region and globally.

The third essay benchmarks the performance of SACCOs using an efficiency-profitability matrix to distinguish best performers from struggling SACCOs. The findings show that the majority of the firms (61%) were classified in the low efficiency, low profitability category. Only 12% (12 out of 103) of the SACCOs are classified as best performers in both efficiency and profitability dimensions. It can be concluded that the performance of SACCOs in Tanzania needs a well thought through turnaround strategy to mitigate the problem of low performance. For the majority of the SACCOs, both profit- and efficiency-increasing strategies are required.

The last essay complements the previous three essays by using a multiple case study approach. The essay explores the perceptions of regulators, board members and managers to elicit the key drivers of performance in the industry. It emerged that limited capital, low level of members' education on cooperatives, effective governance and leadership are major performance constraints common to both high and low performing SACCOs. High performing SACCOs tend to have an income diversification strategy, committed and dedicated leaders, as well as well-articulated lending processes and procedures which apply to everyone including board members and management. In contrast, weak performing SACCOs have weak governance and/or management teams, discriminatory lending processes allowing management and board members to have special privilege on loan allocations, and a less diversified income strategy. A more conservative capital growth strategy that leverages on internal capital mobilization, effective oversight of management, members' education and training could foster the prosperity of the industry.

In conclusion, it was found that there is a significant potential for performance improvement in both efficiency and sustainability. While SACCOs are on average sustainable, the fact that about 49% of them are not financially sustainable is a matter of concern. The effort in resolving capital constraints, effective regulation, governance and members' education could improve the performance of the industry.

ACKNOWLEDGEMENTS

First and foremost, I would like to thank the almighty God for guiding me through and giving me the strength, hope and wisdom during my studies. I am particularly indebted to my supervisor, Prof. Meshach Aziakpono, for his guidance, dedication, support and care during my PhD studies. To me, he was like an angel sent from heaven to see me through my PhD journey. Without his moral support, brotherly advice and firm but constructive guidance, my PhD journey could have been in vain.

I am grateful and honoured to have a lovely wife (Lilian Waryoba) and two children (Joyce and Emmanuel) who were always there to give me moral support and a reason to go on, even when the journey seemed very daunting. I especially thank my father, Wambura Marwa, and my mother, Mukami Isamba, for setting a good foundation in me from childhood to date. May God bless them.

To my PhD colleagues, Dr Alfred Mthimkhulu and Dr Oscar Akotey, and my friend Isabel Ezevedo who virtually read and critiqued every chapter of this work, and the moral support from the 2013 Doctoral cohort in Development Finance, especially Tereza, Mccpowell, Tita, Pieter, Emma, Ronald, Luvuyo, Omolola and Akinshola, I say thank you for being there.

I also thank Prof. Charles Adjasi and Prof. Sylvanus Ikhide, Prof. Charlene Gerber and other academic staff from USB for their constructive comments during my doctoral journey. Immense thanks to Norma Saayman and Marietjie Van Zyl for their administrative and logistical support during my study.

My further acknowledgements go to Research on Poverty Alleviation (REPOA) who funded 75% of my research costs and the African Economic Research Consortium (AERC) who funded 20% of research cost of my doctoral research, and the University of Stellenbosch Business School for its Doctoral studies scholarship. I appreciate in a special way the support I received from Mr Marwa Nyahende from the Ministry of Cooperatives and employees of the same ministry in the regions of Arusha, Mwanza and Dar Es Salaam. Last, but not least, thank you to the management of COASCO, Eugen Ludovick and Godfrey Gwatengile, and the

management of the participating SACCOs for their cooperation and support during the field work.

The thesis also benefited from the comments of the participants at different conferences where papers of different chapters of this thesis were presented. These includes (1) 13th *European Workshop on Efficiency and Productivity Analysis* 15-18 June, 2015 Helsinki, Finland (What Drives Performance among Tanzanian Savings and Credit Cooperatives? Multiple Case Study Approach); (2) 12th *International Data Envelopment Analysis Conference*, 14-17 April, 2014 Kuala Lumpur, Malaysia (Scale and Technical Efficiency of Saving and Credit Cooperatives in Tanzania); (3) *Global Development Finance Conference*, 5-7 November, 2013 Cape Town – South Africa and REPOA annual workshop, 19-20, April 2014 Dar Es Salaam, Tanzania, (Financial Sustainability of Saving and Credit Cooperatives: Evidence from Tanzania); (4) *The Biennial Conference Economic Society of South Africa*, University of Free State, 25-27 September, 2013 (Scale and Technical Efficiency of Saving and Credit Cooperatives in Tanzania).

Specifically comments received from the following conference participants are gratefully acknowledged: Subhash Ray, Rajiv Banker, Konstantinos Triantis, Emrouznejad Ali, Rebecca Owuso, Amin Mugeru and Robertson Khataza. Last but not least, I acknowledge the comments from the Doctoral admission committee at the department of Economic and Econometrics of the University of Johannesburg where the initial proposal of this work was submitted concurrently with the University of Stellenbosch Business School during 2011/2012 Doctoral admission cycle. In particular I acknowledge the initial inputs from Prof Alain Pholo and Prof Steven Gelb for their initial guidance before I moved to the University of Stellenbosch Business School.

DEDICATION

By the grace and mercy of the almighty God, I would like to dedicate my work to my lovely wife Lilian and our beloved children, Joyce and Emmanuel, who have given all they had and persevered through my absence while studying abroad over five years when they needed me the most in their lives. We always make sacrifices, but their sacrifice, love, support and persistence were beyond my imagination.

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List of Abbreviations

ACCA	Association of Chartered Certified Accountants
AERC	African Economic Research Consortium
AGRA	Alliance for Green Revolution
APR	Annual Percentage Rate
BCC	Banker, Charnes and Cooper
BOT	Bank of Tanzania
CAMEL	Capital adequacy, Asset quality, Management capacity, Earnings ability, and Liquidity
CCR	Charnes, Cooper and Rhodes
CDA	Co-operative Development Agency
CFI	Center for Financial Inclusion
CGAP	Consultative Group to Assist the Poorest
CMEF	Council of Microfinance Equity Funds
COASCO	Cooperative Auditing and Supervisory Corporation
CPA	Certified Public Accountant
CRMP	Cooperative Reform and Modernization Programme
CRS	Constant Returns to Scale
CUCC	Credit Union Central of Canada
DEA	Data Envelopment Analysis
DMU	Decision-Making Unit
DRS	Decreasing Returns to Scale
EIB	European Investment Bank
ERSA	Economic Research South Africa
FSS	Financial Self-sufficiency
ICA	International Co-operative Alliance
ILO	International Labour Organization
IRS	Increasing Returns to Scale
KNCU	Kilimanjaro Native Cooperative Union
KPI	Key Performance Indicator
LCT	Life Cycle Theory
MAFC	Ministry of Agriculture, Food Security and Cooperatives
MFI	Micro Finance Institution
MSMEs	Micro, small and medium enterprises

MUCCOBS	Moshi University College of Cooperative and Business Studies
NEPRU	Namibian Economic Policy Research Unit
NGO	Non-Government Organization
NMB	National Microfinance Bank
NSSF	National Social Security Fund
OECD	Organization of Economic Co-operation and Development
OSS	Operational Self-Sufficiency
PEARLS	Protection, Effective financial structure, Asset quality, Rates of return and costs, Liquidity, and Signs of growth
PPF	Parastatal Pension Fund
PTE	Pure Technical Efficiency
REPOA	Research on Poverty Alleviation
RFSP	Rural Financial Services Programme
ROA	Return on Assets
ROE	Return on Equity
SACCO	Saving and Credit Cooperative
SCULT	Savings and Credit Cooperatives Union League of Tanzania
SE	Scale Efficiency
SELF	Small Entrepreneurs Loan Facility
SFA	Stochastic Frontier Analysis
TE	Technical Efficiency
TCU	Tanzania Commission for Universities
UK	United Kingdom
UN	United Nations
UNCDF	United Nations Capital Development Fund
URT	United Republic of Tanzania
USA	United States of America
VIF	Variance Inflation Factor
VRS	Variable Returns to Scale
WBS	Wharton Business School

CHAPTER 1

INTRODUCTION

1.1 Introduction

It is widely acknowledged that finance plays an important role in promoting economic growth, both at macro and micro levels (King & Levine, 1993 a,b). Financial institutions, in particular, play a significant role in intermediation between net savers and net borrowers. In the process, these institutions make finance available where it is most needed, for example to start a business or new projects, scaling up, investing in new technology, unlocking entrepreneurial potential and improving managerial competence (Schumpeter, 1911; King & Levine, 1993a,b; Arestis & Demetriades, 1997; Odedokun, 1998; Wangwe, 2004). It is expected that, if finance is used appropriately in spurring investment, then it should translate into better economic outcomes, including higher productivity, more jobs and business development with a positive feedback to economic growth and development (Aziakpono, 2011). However, in order to gain most from the process, the users need to trust the stability and efficiency of the financial institutions. Specifically, healthy and efficient financial institutions are expected to promote more saving and create more loanable funds by reducing unnecessary wastage during the intermediation process.

However, the health and efficiency of financial institutions depends on several factors, such as size, age, operating environment, governance, managerial competencies and the client niche. Against this backdrop, it is expected that a nascent and evolving financial industry operating in riskier client niches may be facing myriad challenges in terms of their health and efficiency, which calls for a constant review and monitoring of their performance. Tanzanian Saving and Credit Cooperatives (SACCOs), in particular, have recorded explosive growth in the past 15 years, but there is limited literature documenting their performance as demonstrated in Section 1.3. In responding to such a need, this study aims to explore the performance of SACCOs in Tanzania and discern factors driving the performance of the industry. Specifically, the performance in this context is proxied by efficiency, sustainability and profitability. These indicators will be used interchangeably with performance in the study.

Knowledge to be gained from the analysis on the performance of SACCOs could foster a better understanding of the performance of the SACCOs and provides evidence-based inputs

for informed policy dialogue and decision-making in the microfinance sectors. The findings of such a study could also provide insights needed to formulate long-term policy and development of effective management strategy for SACCOs in the country. This is echoed by the following statement by Berger and Humphrey (1997) on the importance of performance evaluation in financial systems:

“The information obtained from banking efficiency analysis can be used either: (1) to inform government policy by assessing the effects of deregulation, mergers, or market structure on efficiency; (2) to improve managerial performance by identifying “best practices” and “worst practices” associated with high and low measure of efficiency, respectively, and encouraging the former practices while discouraging the latter; (3) to address research issues by describing the efficiency of the industry, ranking its firms, or checking how measured efficiency may be related to the different efficiency techniques employed”(P. 175).

1.2 Background

As alluded to in the previous section, the financial sector plays an important role in economic growth and development through the financial intermediation process. Despite the importance of such a service in any economy, the majority of the poor in developing countries are excluded from the formal financial sector. In the Tanzanian context, 90% of the population is excluded from the classical banking system (FinScope, 2009). The reasons for such exclusions include the limited collateral, the relatively high risk associated with high default rates, dis-economies of scale and implied transaction costs (Luzzi & Webber, 2006; Haq, Skully & Pathan, 2010; Mwakajumilo, 2011).

In response to these challenges, an alternative and flexible lending approach has emerged to address the existing credit market failure in the classical banking system. The new lending approach, which uses soft collateral and social capital, is being driven by the microfinance industry. There are diverse forms of microfinance players, such as donor-, government-, profit- (or market-) and member-driven players (SACCOs). This study focuses on SACCOs: their widest coverage among the diverse groups of people countrywide are member-driven and -owned microfinance institutions. According to the Ministry of Agriculture, Food Security and Cooperatives (MAFC, 2013), the number of SACCOs has increased from 803 in 2000 to 5,400 in 2013. This represents an increase of approximately 572% over the past 13

years. The number of members and direct beneficiaries increased from 133,134 to 1,153,248 during the same period. This is a seven-fold growth in membership within nine years, while members' savings have increased from 8.4 billion to 158 billion Tanzanian shillings (TZS) in the same period (MAFC, 2013).

While the growth rate is impressive, the speed at which the industry is growing warrants a systematic investigation to discern its stability and robustness based on sound and rigorous economic analysis. Based on the nascent nature of this industry and the fact that these organizations are operating in a niche market with relatively high risk clients (Luzzi & Webber, 2006; Nyamsogoro, 2010; Mwakajumilo, 2011), some fundamental questions arise. The central question is whether the aforementioned observed growth is supported by economic fundamentals or whether the boom is going to burst. These concerns are further magnified when one observes mixed empirical evidence on the performances of microfinance in other parts of the world. For example, the recent Indian microfinance crisis of 2010/2011 (Marr & Tubaro, 2011) has highlighted the need for further investigation of the performance of microfinance institutions, especially in developing economies. Also experience from other regions on the performance of microfinance presents a more pessimistic account of the microfinance industry. For example, empirical evidence from South Asia shows a repayment rate of less than the minimum requirement of 70% in Nepal (Acharya & Acharya, 2006), and another study in Namibia by Adongo and Stork (2005) reveals that almost all microfinance institutions are not sustainable. On the other hand, some microfinance institutions, such as Banc Sol in Latin America and Credit Unions in the United States of America (USA), Canada and Kenya have been successful (WBS, 2013; McKillop & Wilson, 2010).

The mixed evidence on the performance of these institutions implies that context-specific empirical evidence is imperative in guiding industry's management and policy-makers. The limited empirical literature and nascent nature of the microfinance industry in most developing countries, particularly in sub-Saharan Africa, make this research a timely undertaking. The political, cultural and economic context in Tanzania has also evolved significantly in a unique way that makes it an interesting case study. Some of these landmark changes include shifting from a state-controlled economy to a more market-based economy that offers more autonomy to enterprises such as SACCOs (Maghimbi, 2010). Other changes include financial sector liberalization, increased competition and significant improvements in economic growth and regional and global integration.

1.3 The gap in the literature

Apart from the mixed empirical evidence presented in previous subsection, most of the extant literature on performance evaluation of financial cooperatives is concentrated in mature economies with a focus on mature credit unions and microfinance institutions reported in Mix Market database (Jayamaha & Mula, 2011; Berger & Humphrey, 1997). The majority of the empirical literature focuses on North America, Australia and Western Europe (Jayamaha & Mula, 2011; McKillop & Wilson, 2011). There are limited studies in developing countries, especially in sub-Saharan Africa. This is partly explained by the nascent nature of the industry in the region, and the limited and fragmented nature of the appropriate data from the industry.

It is important to note that even on a global scale the substantive part of performance evaluation of financial sector has focused on the mainstream banking sector (Berger, 1993; Berger & Humphrey, 1997; Hughes & Mester, 2010; McKillop & Wilson, 2011). Yet the need to explore and understand the issues around performance of financial cooperatives and other microfinance is no less pronounced (Worthington, 2010). This is further echoed by the recent observation by Labie and Perilleux (2008). In their paper titled “Corporate Governance in Microfinance: Credit Unions” they argue that, despite the tremendous development experienced by microfinance over the last few years, one type of institution has not generated all the attention that it could is credit unions. Thus, the current research extends the earlier empirical work on efficiency analysis of the financial sector into saving and credit cooperatives (SACCOs) using the recent available data from Tanzania.

1.4 Statement and significance of the research problem

In the past decade, Tanzania has experienced a strong positive trend in the growth of SACCOs and other microfinance institutions (MFIs). Such a positive growth trend provides a promising future direction for improved access to financial services; promotes investment, spur asset accumulation and economic activities at grass root level; and help the poor uplift from poverty. As a result, desired economic growth may be achieved by enabling poor and low-income people to use financial services to take advantage of economic opportunities, invest in their future and protect against economic shocks to their households and enterprises (UNCDF, 2002).

However, such growth may lead to a microfinance crisis if the performance of these institutions is not appropriately measured and monitored as recently evidenced in India (Mar and Tarboro, 2011). The fact that these organizations are working in a more risky market segment, if constrained by the managerial capacity and scale of operation (URT, 2002; Luzzi & Webber, 2006; Labie, 2008; Birchall and Simmons, 2010; Mwakajumilo, 2011) their sustainability and future continuity could be in jeopardy. In addition, historically cooperatives, in general, have underperformed in Tanzania due to various factors, such as political interference, poor governance, inadequate human capital and capital constraints (URT 2002; Mwakajumilo, 2011). Such accounts, when coupled with the mixed evidence on the performance presented in Section 1.2, demonstrates the need for empirical research to understand the level of the performance and related drivers in the industry. Therefore, the overarching research theme is empirical analysis SACCOs' performance in Tanzania. The performance is measured in terms of efficiency, sustainability and profitability.

Efficiency, which is basically a question of how well a financial institution allocates inputs such as assets, staff and subsidies to produce the maximum output, for example the number of loans, financial self-sufficiency and poverty outreach (Bassem, 2008), is an important economic parameter. More specifically, efficiency and sustainability are important managerial aspects for measuring and monitoring performance in the financial sector. These two measures reflect a sound intermediation process and hence their due contribution to economic growth and continuity of service delivery (Aikaeli, 2008). Thus knowledge about efficiency and sustainability plays a pivotal role in assessing the continuity of financial services. For institutions such as SACCOs, which are predominantly small in their scale of operation and work mainly with poor and high risk clients, it is important to understand their efficiency and sustainability for effective management and responsive policy decisions.

The results from this study are expected to provide a better understanding of the *status quo* in terms of productive efficiency and provide evidence-based inputs for informed policy- and decision-making in the microfinance sectors. The study will also add to the current body of literature on the efficiency and sustainability of SACCOs in developing countries.

1.5 Research questions

Based on the research problem presented above, the main research question addressed in this research is: How are the SACCOs in Tanzania performing? To answer this question, the following questions are invoked: (i) How efficient are Tanzanian SACCOs? (ii) Are Tanzanian SACCOs financially sustainable? (iii) Who are the top performers and what distinguishes them from low performers? Essentially, the study explored and tested specific factors that influence SACCOs' performance in Tanzania. The study started by empirically exploring the level of efficiency and sustainability and tested whether they are significantly different from zero. Later it used multiple case studies to explore the performance drivers among SACCOs.

1.6 Research objectives

The goal of this research is to investigate the performance of SACCOs in Tanzania. The following specific objectives will be pursued:

- i. To analyze the technical and scale efficiency of SACCOs and explore whether there is room for improvement;
- ii. To examine the profitability and financial sustainability of SACCOs and the implications of these on the health of the institutions;
- iii. To benchmark the performance of SACCOs based on an efficiency and profitability matrix; and
- iv. To explore the factors affecting the performance of SACCOs in Tanzania.

1.7 Limitation of the study

The study population used in this study is Tanzanian SACCOs which had available audited financial statements during 2011 in four regions. We acknowledge that this could introduce self-selection bias especially if only SACCOs with certain characteristics systematically self-selected to do so. It could be that all high performing and transparent firms self-selected to be audited or that struggling firms are voluntarily audited as a requirement for accessing external loans. Future studies may consider extending the study to include data from non-audited firms and broaden the coverage geographically and over time. This could improve generalizability of the results and capture the performance dynamics.

For the fourth empirical essay in Chapter 7 the study used self-reported data from management and boards of directors to explore factors influencing performance of SACCOs. This kind of data is limited by the fact that it is difficult to independently verify. Future studies could extend the current work by extending the sampling framework to including SACCOs' members as participants in the research process. Accessing historical data on performance of SACCOs over time was difficult because of the fragmented nature of record keeping practices among SACCOs. These hurdles will remain important obstacles to be tackled by future researchers in this domain.

1.8 The Structure of the Thesis

This thesis is divided into eight chapters. The first chapter introduces the research problem, the background of the study, research objectives and limitations of the study. Chapter 2 provides an overview of the microfinance landscape in Tanzania, while Chapter 3 presents a review of economic theory of cooperatives. An empirical essay on efficiency estimation is presented in Chapter 4 while Chapter 5 focuses on financial sustainability estimation. This is followed by the use of a combination of efficiency and profitability in a classification matrix in Chapter 6, in order to develop the best practice in the industry. Chapter 7 presents an empirical essay on factors influencing performance among savings and credit cooperatives. The overall conclusions and future research directions are provided in Chapter 8.

CHAPTER 2

THE LANDSCAPE OF COOPERATIVE DEVELOPMENT IN TANZANIA¹

2.1 Introduction

Cooperatives have been recognized as an important tool in countervailing the market power resulting from imperfect competition, as well as providing services that are not provided or are underprovided by the market (Marwa, 2014b; McKillop & Wilson, 2011; Maghimbi, 2010; Soboh, Lansink, Giesen & van Dijk, 2009). Cooperatives are a special type of social enterprise and are owned and controlled by members. In developing countries, and in Tanzania in particular, cooperatives play an instrumental role in community economic development through the provision of financial services, the marketing of agricultural produce and the supply of agricultural inputs to the urban and rural poor (Maghimbi, 2010). However, the growth trajectory of the cooperatives industry in the country has demonstrated a rise and fall (Maghimbi, 2010), which questions the overall effectiveness of these organizations in improving the welfare of their members. Understanding such dynamics facing the industry within its local context might be useful for informed policy and management decisions. But there is limited literature on this topic. The objective of this chapter is to systematically review the historical development of cooperatives in Tanzania, with a special focus on financial cooperatives. The chapter also explores the challenges facing the industry and future prospects for financial cooperative industry. The chapter set a contextual stage for empirical chapters (chapter 4, 5, 6 and 7) which focus on empirical performance evaluation of SACCOs.

The rest of the chapter is organized as follows: Section 2.2 presents the evolution and development of cooperatives in Tanzania, while Section 2.3 presents the growth trends of SACCOs during the reform period. The role of SACCOs in the financial sector is discussed in Section 2.4, and Section 2.5 concludes the chapter.

¹ The chapter was further developed into a paper titled “The Rise, Fall and Re-birth of Tanzanian Co-operatives: What Does the Future Hold for Financial Cooperatives”. The has been accepted as a conceptual paper to the journal *Enterprise Development & Microfinance*

2.2 Evolution of cooperatives in Tanzania

Cooperative unions in Tanzania have had a long history starting during the colonial era. While there is evidence of some presence of cooperatives in pre-colonial times (Birchall & Simmons, 2010), this chapter starts from the colonial era (1900s to 1960), and reviews the post-independence period (1961-1984) and recent times. The period under review has been selected because it is during this time that the industry experienced significant development. Furthermore, there is limited availability of information documenting the pre-colonial era (Muenkner & Shah, 1993).

According to Birchall (1997:468), the cooperative movement in developed countries has historically “evolved autonomously according to the ebb and flow of social movement and economic comparative advantage”. In contrast, for most developing countries, including Tanzania, cooperatives were promoted and controlled by the colonial government and later by the nationalist government after independence. During this era, cooperatives were heavily controlled and regulated by the government to protect her political interest. Members did not have full autonomy and ownership of their own cooperatives and, in fact, often saw these as quasi-governmental agencies that provided a useful service but did not belong to them (Develtere, 1994). This was further complicated by structural adjustment programs that removed government patronage and exposed cooperatives to the free market. As a result, most cooperatives collapsed due to inherent weak management and weak financial positions (Birchall & Simmons, 2010; Maghimbi, 2010).

Modern cooperatives in most developing countries evolved organizational structures that were inherited from the colonial era. It is also important to note that during the formative stage, different colonial masters had different cooperative and institutional structures. For example, the British cooperative structure was more centralized, with a top-down approach to management and with one centralized cooperative registrar. This structure comprised three to four tiers, that is, primary cooperatives, secondary cooperatives at regional or district level, and a national federation of cooperatives. The primary cooperatives reported to district/regional cooperatives and regional cooperatives reported to a national federation of cooperatives (Muenkner & Shah, 1993). The French model was more decentralized, with different cooperative registry bodies depending on the focus and nature of a specific cooperative. For instance, a fisher cooperative would be registered by the Ministry of

Fisheries while housing cooperatives would be registered in a different ministry (Birchall & Simmons, 2010).

The ramification of the colonial legacy in contemporary cooperatives is that the current cooperative structure is highly influenced by the colonial legal and administrative structure, due to past dependence. While there is no good or bad system, the research on colonial legacies and institutional set-up has demonstrated that colonial legacies have influence on institutional efficiency and related bureaucratic red tape (Walley, 2010; Seidler, 2011). The major argument is that British colonies and the British administrative system have less bureaucracy and are relatively efficient compared to French-based legal and administrative systems (Walley, 2010; Seidler, 2011). Since Tanzania was a British colony, its cooperative structures mirror the British cooperative system. The rest of this chapter therefore focuses on the British-oriented cooperative system. The next subsections focus on cooperative development and its dynamics during the three distinct eras classified by Birchall and Simmons (2010): the colonial era, post-independence and post-liberalization.

2.2.1 Colonial period (1920-1960)

The cooperative movement in Tanzania dates back to 1925, when peasants in Tanganyika (now the mainland of Tanzania) started informal (unregistered) cooperatives so that they could secure part of the trade profit from their crops. The first cooperative union in the country was the Kilimanjaro Native Cooperative Union (KNCU), which was registered with 11 affiliated primary cooperatives on the 1st January 1933 (Maghimbi, 2010). Since then, the cooperative movement has experienced vibrant growth across the country, with widespread members in the southern highland, Lake Zone and other parts of Tanzania. The growth was mainly influenced by cotton farmers' cooperatives, which started in the late 1940s out of the nationalist campaign (Gibbon, 2001). Around 1958, there were approximately 275 cooperative societies controlling the cotton market in the country (Birchall & Simmons, 2010).

2.2.2 Post-independent period/Nationalist period (1961-1985)

The growth of the cooperative movement continued to flourish after independence, with the cooperative sector receiving significant political and financial support from the government (Maghimbi, 2010). Most government leaders were brought up under the cooperatives

movement-based nationalist agenda and had a strong regard for the industry (Spaull, 1965). Cooperatives also received support from donors and the international community. The government of Tanzania viewed cooperatives as a means towards achieving socialist aspirations, while Western bloc donors regarded them as a means towards achieving a market society (Birchall & Simmons, 2010). By 1968, Tanzania had the largest cooperative movement in Africa and the third largest cooperative in the world in terms of the percentage of the market share of agricultural exports (Maghimbi, 2010). During this time, it was observed that the cooperative movement in Tanganyika (now Tanzania) was expansive: “Cooperatives handle £27.5 million worth or 49 per cent of the country’s annual exports. Only in Israel and Denmark do cooperatives market a greater proportion of the nation’s overseas business” (Maghimbi University Press, 1968:176 cited in Maghimbi, 2010).

During this era, the cooperative movement was dominated by agricultural and marketing cooperatives, with relatively weak participation by savings and credit cooperatives (Maghimbi, 2010). During the mid-1970s, the government instituted radical changes in government policy on cooperatives after the government’s introduction of socialism in the economy, as detailed below:

On 14th May 1976 all primary cooperatives were abolished by the government. Their crop marketing functions were taken over by communal villages. At the same time cooperative unions were also abolished and their functions were taken over by parastatal crop authorities, which had to buy crops directly from villages. The abolished cooperative unions never bought crops directly from peasants, but through primary cooperatives. The other services which were rendered by the abolished cooperatives, such as wholesale and retail trade, were taken over by state owned cooperatives in Tanzania mainland: Revival and growth companies, such as the Regional Trading Companies and District Development Corporations. (Maghimbi, 1992:224-225)

After the 1970s, the industry was dominated by political interference from government officials, who used cooperatives to achieve their political ends (Muenkner & Shah, 1993). Part of the reason for the abolishment of the cooperative movement was the view held by President Julius Nyerere during 1976 that cooperatives could not cope with his “quick march

to socialism” as they were a capitalist movement (Birchall & Simmons, 2010). The policy change led to the near collapse of the cooperative movement in the country. Other challenges that weakened the cooperative movement included poor management, incompetent leaders, inadequate education about cooperatives among members, corruption, nepotism and inefficiency (Birchall & Simmons, 2010; URT, 2002). After a serious economic crisis and the failure of the marketing boards in marketing agricultural produce, which led to crises in the rural areas, President Julius Nyerere changed his mind and allowed the country’s cooperative movement to be re-introduced in 1984 (Birchall & Simmons, 2010).

However, when the cooperatives were reinstated, they failed to recover their old vibrancy. There was heavy political interference and government manipulation, which eroded the poverty reduction potential of cooperatives (Sizya, 2001). Cooperative debt has risen significantly and government confessed that 87% of the debt was as a result of its own policies (Birchall & Simmons, 2010). Interestingly, savings and credit cooperatives (SACCOs), which were not as numerous as the crop marketing cooperatives during the pre-abolition period, became more vibrant. Since their reintroduction, SACCOs have grown rapidly and, as institutions, have been more stable than the crop marketing cooperatives of the period between 1976 and 1984. During the 1980s and 1990s, when most crop marketing cooperatives collapsed, SACCOs continued to thrive (Maghimbi, 2006). Section 2.2.3 explores the possible causes of the surge of SACCOs in detail.

2.2.3 The period of structural adjustment and post-liberalization (1985-1989)

Many countries around the world were advised by the World Bank, IMF and other donor agencies to embark on structural adjustment programs. Tanzania embarked on an economic structural adjustment program during 1985 (World Bank, 2014). During this time, the country’s economy was transitioning from being controlled centrally to a market-based economy. The shift from the socialist ideology was exacerbated by the collapse of the Union of Soviet Socialist Republics, which further weakened this ideological stronghold. During this period, most of the sectors of the economy were subjected to a free market philosophy. Having emerged out of government patronage, weak management capacity, troubled balance sheets, a low capital base, inefficiency, heavy indebtedness, exposure to market rigour and competition (Birchall & Simmons, 2010) led to most of the cooperatives collapsing.

2.2.4 The cooperative reform period (1990 to date)

The government of Tanzania embarked on a major reform of the cooperative sector, starting with President Benjamin Mkapa in 1995-2005 to the current President, Jakaya Kwikete. The reform focuses on rehabilitating cooperatives into member-owned and member-controlled businesses. This emphasis is minimizing government interference and creating a conducive environment for prosperity. According to the findings of an in-depth case study by Birchall and Simmons (2010), the reform of cooperatives in Tanzania has been credited as one of the success stories in developing countries. During the reform period, many cooperatives disappeared, many more continued at a survivalist level while some, under strong leadership and good management, began to prosper (Wanyama, Develtere & Pollet, 2009). Wanyama *et al.* (2009) argued further that liberalization acted as a sieve that sifted the grain from the chaff in the cooperative sector.

According to Sizya (2001), it is evident that the impact of liberalization was disastrous in Tanzania, as cooperatives were in a weak position to start free trade reform. The adjustment came in an abrupt fashion and cooperatives were not given space to breathe and adjust because private traders took most of the viable business. Cooperatives were left with an inefficient inherited structure and attitudes that put little emphasis on members' education. Some of them were also turned into private business agents. The government wrote off approximately 87.5% of the outstanding debt of cooperatives (TZS 35 billion out of TZS 40 billion), which was owed by different banks. Most of these debts were exacerbated by dishonest managers and committee members (Birchall & Simmons, 2010), with approximately 262 cases of dishonesty waiting for the police or court action between 1994-2000 (URT, 2002).

The reform of Tanzanian cooperatives reached a turnaround point in 1991 with the Reform Act. The act recognized the International Co-operative Alliance (ICA) principles of cooperative independence and members' autonomy, amongst others. The reform effort was supported and guided by the ICA, which provided new identity statements and a new set of principles emphasizing the autonomy and independence of cooperatives (Birchall & Simmons, 2010). The second milestone was the United Nations (UN) initiating the process of developing a law in 2001 that would safeguard the autonomy and independence of cooperatives. The purpose of this law was to disengage the government from the internal affairs of cooperatives (UN, 2001). The third milestone was the International Labour

Organization (ILO) declaring cooperatives as a tool for helping members to create income-generating activities, gain access to markets and improve their own economic social well-being while respecting their autonomy (ILO, 2001). This led to the enactment of new laws and the repealing of old ones in many countries around the world, including Tanzania (Birchall & Simmons, 2010). A new and better understanding of the relationship between government and cooperatives is emerging and has started remedying some of the mistakes of the past. My personal interview (November 19, 2012) with COASCO director and Commissioner of Cooperatives clearly showed that the regulatory agencies are both underfunded and understaffed, which handicaps their capacity to deliver desired results.

Despite the reported success stories in the cooperative sector reform in Tanzania, more work is needed to develop a better and more effective strategy on cooperative management principles; surveillance committees; the incompatibility of board members with the job requirements; rules on external and internal financing, as well as on education and training for board members, management and employees; regular audits and the settlement of disputes (Birchall & Simmons, 2010). Another concern is that too much freedom may lead to a dictatorship in terms of obscuring transparency, corruption or the registering of pseudo-cooperatives for short-term gains (Birchall & Simmons, 2010). The focus should thus be on preserving the integrity of the legal form of cooperatives while keeping them from unnecessary regulation and providing a supportive environment. Birchall & Simmons (2010) have argued that the focus should be on earned autonomy. They further justified the argument by a key informant consensus statement, which suggested that there is a need for a grading system for cooperatives. It is envisaged that such a grading system would depend on performance; cooperatives would be more or less regulated depending on key performance indicators, such as transparency, accuracy of accounting and inclusiveness of governance (Birchall & Simmons, 2010).

Alongside the challenges stated in the previous paragraph, the Presidential Commission on Cooperative Reforms of 2000 identified the following key constraints to the revival and strengthening of the development of the cooperative sector: (i) a weak capital base, (ii) poor management, (iii) theft, (iv) weak support institutions for cooperatives, (v) insufficient education and training, (vi) confinement to too few sectors, and (vii) inappropriate policies and legal environment. Based on the recommendation, during 2001 the Department of Cooperatives was upgraded to the independent Ministry of Cooperatives and Marketing. This

was followed by the formulation of the Cooperative Development Policy of 2002. The goal was to get cooperatives back onto the development trajectory, while at the same time ensuring that they became more responsive to the needs of members (URT, 2002).

During 2003, the Cooperative Societies Act of 2003 was passed. Among other requirements, it stated the code of conduct required for a person to be on the board of a cooperative. The new code stated that before being elected as a board member, such a person should have been an active member of a SACCO for the past three years and should have secondary education. Board members were limited to three terms of three years each, after which they would stand down. Candidates for the board were also required to declare their personal property during each year of their service (Birchall & Simmons, 2010; URT, 2002). Financial cooperatives are further required to have the internal capacity to supervise and audit, rather than relying on the Cooperative Supervisory and Audit Cooperation Agency alone. A mutual fund for members was launched to protect primary cooperative societies against defaults from loans.

All these reforms are implemented by the Cooperative Reform and Modernization Programme (CRMP), which was instituted in 2004 by a team of experts from the private sector, Non-Government Organizations (NGOs), government, the ILO and academia. It aims at initiating comprehensive transformation in the cooperative sector so that organizations become member-owned and -controlled, competitive, viable, sustainable and with the capability to fulfill members' economic and social needs (URT, 2004). The mandate is recognized as urgent and challenging, due to the high level of mismanagement of funds among cooperatives (Birchall & Simmons, 2010). The latter has fuelled public mistrust of cooperatives, which is aggravated by delays in the handling of cases by the police and courts. Another area of improvement that has been highlighted by the literature is the need to strengthen patronage cohesiveness, membership governance and improved operating systems (Shah, 1996).

The inadequate supply of skilled human resources in cooperative education was pointed out as another constraint. Moshi University College of Cooperative and Business Studies (MUCCOBS) is the only institution responsible for cooperative education and training, but serious capacity building is needed in training and research (Birchall & Simmons, 2010). The areas of cooperative supervision and auditing need capacity building and further financial

support in order for MUCCOBS to carry out its mandate. During the past decade, MUCCOBS has been aggressively expanding in terms of both student enrolment and program portfolio. According to the 2012 prospectus, the college offers a total of 41 different academic programs in cooperatives management and business studies (eight certificates, eight ordinary diplomas, 10 Bachelor's degrees, 10 postgraduate diplomas, 4 Masters and PhD degrees). When taking into account the complementary role of other higher education institutions in the country, there is a basis for optimism about the future supply of quality human capital in the industry. Furthermore, in the past three decades, the number of higher education institutions in Tanzania has increased significantly from three public universities in 1990 to 37 universities and 21 university colleges (both private and public) in 2015 (TCU, 2015). With the increasing number of higher education institutions we expect to have an increasing supply of well-trained manpower, albeit there is ongoing debate about the quality of graduates produced and their relevance to the job market.

2.3 The growth trends of SACCOs during the cooperative reform period (1990 to date)

The consequence of the 1980s reform was disastrous for agricultural cooperatives. The number of primary cooperatives shrunk from 9,000 in 1990 to approximately 4,000 during 1994 (Birchall & Simmons, 2010). But the picture was not uniformly bad across the sectors. SACCOs continued to grow and, by 2000, there were approximately 803 SACCOs (Mwakajumilo, 2011). The reputation of agricultural cooperatives has been compromised because of the past, but SACCOs seem to continue to grow. According to the Savings and Credit Cooperatives Union League of Tanzania (SCULT), there were 4,524 SACCOs in 2007, with 758,829 members. In the same year, it was reported that there were only 8,151 primary cooperatives in Tanzania mainland (SCULT, 2010). This implies that SACCOs constitute over 50% of primary cooperatives in Tanzania. There were 2,670 crop marketing cooperatives and the total number of members of registered primary cooperatives was approximately 1,600,000 in June 2008 (Mwakajumilo, 2011). Based on these statistics, SACCOs are now the leading type of cooperative in terms of numbers of cooperatives and cooperative membership, with Dar Es Salaam, Mwanza, Mbeya, Kilimanjaro, Kagera and Iringa being the regions with the highest numbers of SACCOs (Mwakajumilo, 2011).

The growth of SACCOs can be partly explained by the need for the services that these institutions provide and the prevalence of financial exclusion by the mainstream banking

sector in the country. According to FinScope (2009), more than 90% of Tanzanians are excluded from the mainstream banking system. Another explanation for the surge in SACCOs is the favourable reforms and government policies geared towards stimulating the growth of SACCOs. For example, the incumbent president earmarked TZS 21 billion, dubbed 'Kikwete's billions', which is to be disbursed as revolving credit through SACCOs in the 21 regions in Tanzania. However, it may be argued that such government pressure on SACCOs to lend out TZS 21 billion may jeopardize the integrity and performance of the microfinance system, which might lead to strategic default as people may see this money as a hand-out. In fact this is a popular view among cooperative extension officers in the country.

Apart from the government loan mentioned above, the active involvement of international donors, international NGOs (such as World Vision, Stromes and Oiko Credit), local pension funds and commercial banks, have played a significant role in making wholesale loans available for cooperatives. In brief, the recent institutional thickening through the emergence of international and local players in the microfinance space may have played a catalytic role in promoting the growth of SACCOs. Favourable economic growth, a surge in the number of universities and business colleges, and technological innovations such as mobile money (Mpesa) are likely to steer the industry towards improved performance. The major channels through which such improved performance is expected to occur are economies of scale due to the availability of external funds, reduced transaction costs by the adoption of technological innovation, and the availability of trained human capital.

A recent increase in the graduate unemployment rate in the country might be a signal of the saturation of the formal labour market and an over-supply of graduates given the current level of demand from this market. Each year about 700,000 new graduates enter the labour market and only 40,000 (less than 6%) find employment (REPOA, 2014). This opens the door for a trickle-down effect of such graduates to the semi-formal sector, including SACCOs. The increased institutional support from government and the private sector, complemented by an increased willingness by the private sector to extend wholesale loans to SACCOs, demonstrates the buoyance of supply-side forces in taking advantage of the unfolding transformative economic opportunity in the microfinance space.

Despite the optimistic view emerging from the previous paragraph, the evidence from the recent data as shown in Figure 2.1 demonstrates that the growth of the number of SACCOs is almost reaching saturation point. As can be seen in Figure 2.1, the growth rate of the number of both rural and urban SACCOs seems to be approaching saturation point, at approximately 2,340 and 3,000 SACCOs for rural and urban, respectively. When combined, the turning point seems to be approximately 5,300 SACCOs. The period between 2005 and 2009 accounted for most of this growth. The SACCOs growth has slowed down since 2009 as can be seen from Figure 2.1. The highest growth rate coincides with the Presidential Special Fund Programme for SACCOs, which may explain some of the driving factors of the highest growth during the past decade.

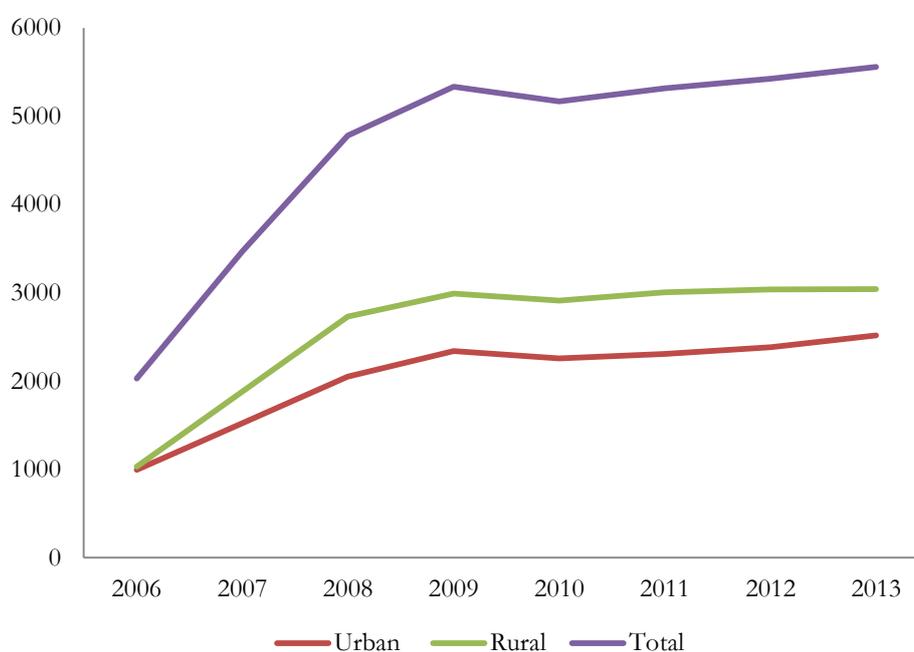


Figure 2.1: Growth in the numbers of SACCOs from 2006 to 2013

Source: Author compilation using secondary data from Ministry of Cooperatives

When decomposed in terms of membership, the growth rate is rising, albeit with the gap between male and female members hovering between 33-40%. SACCOs' membership has increased from 291,344 to 1,153,248 between 2005 and 2013. Based on the data, SACCOs in Tanzania are still male-dominated, which is not surprising given the strong patriarchal culture in the country. Figure 2.2 shows the membership profile over time in terms of gender in the left-hand panel, while the right-hand panel shows the evolution of total savings and total outstanding loans over time.

On average it seems that, SACCOs' members save more than they borrow as demonstrated in the right hand panel of Figure 2.2. This is a positive signal for the potential stability of the industry, and implies that SACCOs could raise capital internally. It can be suggested that, on average, the SACCOs industry in Tanzania seems to be savers-dominated. The gap between savings and loans is widening over time, which may mean either that SACCOs are recruiting more savers than borrowers or that the current members are increasing their level of saving over time.

According to economic theory of cooperatives (Smith, 1984), this may have a long-term negative impact on borrowers because SACCOs may tend to protect the interests of the savers at the expense of borrowers. Such a problem may be magnified, especially when the net interest income from loans is paid back to the members as dividends, but it may be less of a problem when the interest income is paid back as a loan interest rebate. The question of whether savers' dominance is playing a catalytic role in growth and outreach or is a constraint to future growth remains open to further research.

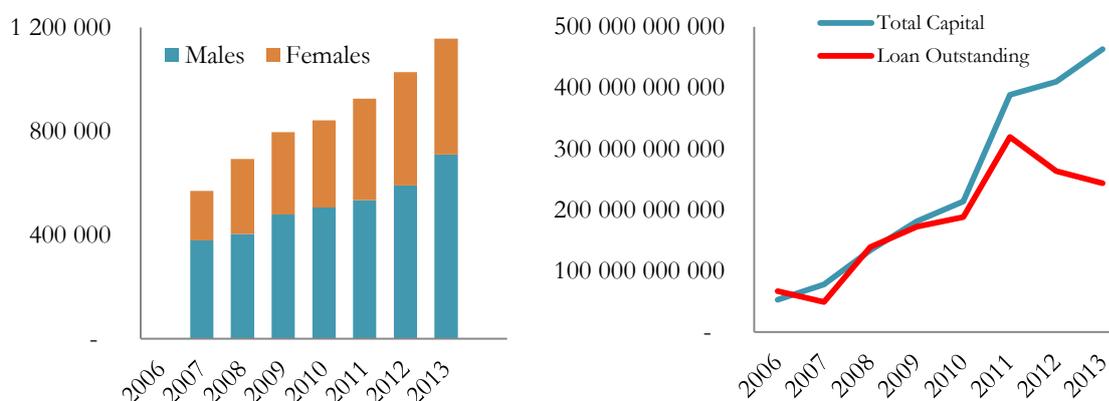


Figure 2.2: SACCOs' membership profile over time by gender (left-hand panel) and the evolution of total savings and total outstanding loans in TZS (right-hand panel)

Source: Author compilation using secondary data from Ministry of Cooperatives

When total capital is decomposed into total current assets, shares (ordinary members' share of SACCOs), savings and deposits, it is observed that saving has been increasing significantly. While it may be premature to make a conclusion, there is *prima facie* evidence that SACCOs might have changed members' behaviour by creating a positive incentive for saving. As

demonstrated in Figure 2.3, shares and deposits have also recorded steady growth over time, but not at the same rate as savings.

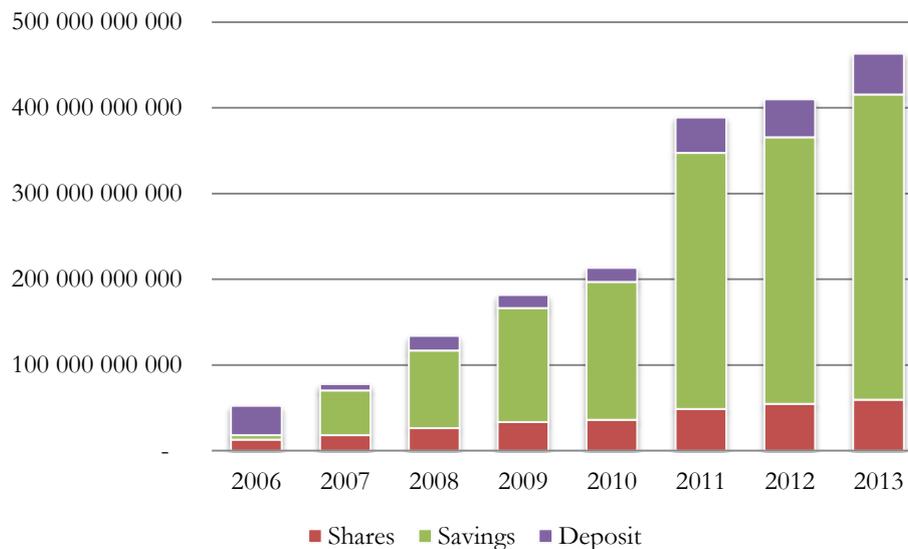


Figure 2.3: Growth of shares, savings and deposits in TZS (Y axis) over time (X-axis)

Source: Author compilation using secondary data from Ministry of Cooperatives

Despite these positive results, there is concern over whether the performance of these institutions can be taken for granted. More importantly, the stability and quality of the observed growth is highly questionable, given the industry's past. While growth is often good, if it is not well managed, it can easily lead to microfinance disaster. This is supported by the following quotations, which offer anecdotal evidence for the reason to be concerned about the performance of the industry:

Kikwete: "For government to help pay coop debts, thieves must be arraigned. President Jakaya Kikwete has said that the government will not settle off cooperative societies debts owed to various banks unless it is established how they came into being and the leaders connected with the embezzlement of the money are dragged to court. According to the President, the debts in some cooperative societies might be as a result of embezzlement by various officials. 'Am sorry to inform you that I am not ready to okay the debt for your cooperative society until it is verified how they came into being,' the President said. "This is because in the past we once squared debts for a number of cooperative societies totaling between 27bn/-and 30bn/-. I want to get a full report on how this cooperative society (TAMCU) got into that debt. I want to know whether it is a real loss or

embezzlement,” Kikwete said. He said squaring such debts is like fuelling embezzlement of public funds ... In early June this year President Kikwete directed the Inspector General of Police to conduct thorough investigation and take disciplinary action against people alleged to have been involved in the embezzlement of cooperative money” (The Guardian, 2014).

The historical narrative presented demonstrated that the SACCOs industry in Tanzania is relatively nascent but transitioning towards growth stage. According to the economic theory of cooperative life cycle (Cook, 1995) the growth stage comes with its own challenges which may end up making or breaking the organization. The major challenges during this stage are increased heterogeneity among members and high transaction costs. The increased transaction cost is generated by five types of problems: free rider problems, horizon problems, portfolio problems, control problems and influence problems as demonstrated in detail in Section 3.2.2. These problems, if not well monitored and managed, may lead to the collapse of the cooperative. Given the dynamics of life cycle theory and the nascent nature of SACCOs in Tanzania, an empirical performance evaluation and monitoring is critical.

2.4 The role played by SACCOs in the financial sector

Financial cooperatives and other microfinance institutions play a key role in providing inclusive financial services for the poor and lower income earners. Such a role is even more critical for developing countries, where such earners comprise over 80% of the population. Based on such evidence it is apparent that the business model of traditional banks is not flexible enough to cater for this market segment. This section presents an overview of the financial services sector in Tanzania, with a focus on its composition in terms of portfolio and membership size, and ending with the overall coverage of financial service provision between the formal banking system and financial cooperatives.

The financial sector in Tanzania has undergone substantial structural changes since the liberalization of the sector in 1991. The financial landscape in the country is composed mainly of banks, pension funds, insurance companies, mutual funds and microfinance institutions. In terms of assets, the sector is dominated mainly by the banking sector, followed by pension funds. The banking sector holds 75% of the financial sector’s assets by volume, followed by pension funds, which hold 21% of the asset base (Bank of Tanzania, 2010;

Shelter Afrique, 2012). The insurance sector, mutual funds and microfinance hold 2%, 1% and 1%, respectively. Figure 2.4 demonstrates the composition of key financial sector players in the country.

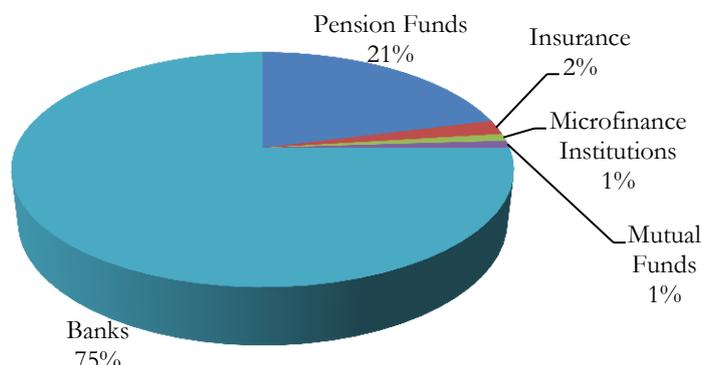


Figure 2.4: Financial sector asset-based composition in 2010

Source: Bank of Tanzania (2010)

Table 2.1 demonstrates different levels of access to finance by different institutions among Tanzanians. Surprisingly, formal financial institutions serviced only 14% of the adult population during 2013. In contrast, microfinance, which owns about 1% of the total assets, services about 43% of the total adult population. Microfinance, including SACCOs, thus plays a significant role in inclusive finance and thereby inclusive growth in Tanzania. Formal banking serviced 14% of adult population in Tanzania mainland during 2013 compared to 9% during 2009. Nonbanks, which includes SACCOs, Mobile Financial services, Microfinance and other semi-formal institutions, serviced about 43% during 2013 compared to 7% during 2009.

Table 2.1: The trend of financial inclusion in Tanzania between 2009 and 2013

Year	Banks	Nonbanks	Informal Mechanism	Excluded
2009	9%	7%	29%	55%
2013	14%	43%	16%	27%

Source: Computations based on FinScope data (2014)

When combining the percentage of the population which relies on either informal mechanism or was excluded during 2013, it is apparent that about 43% (i.e. 16%+27%) of Tanzania’s

adult population are still excluded from financial services, which presents a significant growth potential for financial cooperatives. It is also instructive to note a surge in nonbanks from 7% to 43% between 2009 and 2013. Such a surge in services for this segment is mainly accounted for by including mobile money as a form of financial inclusion. However, although credit facility in mobiles has started recently it is still limited in the volume and the term of the loan. If we exclude mobile money, the actual financial inclusion shrinks to less than 30% of the adult population, which means that there is a significant growth potential for financial cooperatives and other forms of microfinance.

The observed high growth of SACCOs and the large proportion of population served by them underscore the importance of assessing their efficiency and sustainability while providing the financial service to the people at the bottom of the pyramid.

2.5 Conclusion

This chapter explored the evolution of the cooperative sector in Tanzania, with a special focus on financial cooperatives. According to the evidence discussed in this chapter it is apparent that the cooperative industry has since 1925 gone through turbulent times, but is now moving towards stability, with financial cooperatives taking the lead. However, there are still remnants of the past, such as weak boards of directors and management teams, government intervention and low levels of education about cooperatives. Despite these challenges, SACCOs are playing a significant role in financial inclusion and have a wider membership base than commercial banks.

Financial cooperatives are, however, operating in a precarious environment that exposes them to relatively high risk clients compared to those served by commercial banks. Another potential disadvantage is that financial cooperatives operate on a smaller scale, which might constrain them from enjoying economies of scale. These concerns call for continuous monitoring of and research into the performance of the industry, which at present is limited.

In conclusion, there seems to be a promising future for financial cooperatives in terms of internal saving mobilization and membership base. However, weak governance and management structures, historical hangover, capital constraints and inadequate education

about cooperatives among members, act as barriers preventing financial cooperatives from realizing their full potential. Policy makers and cooperative management need to develop effective strategies that allow these issues to be addressed for the betterment of the industry.

CHAPTER 3

SAVINGS AND CREDIT COOPERATIVES PERFORMANCE EVALUATION IN PERSPECTIVES²

3.1 Introduction

Saving and Credit Cooperatives (SACCOs), also known as credit unions or financial cooperatives, are a unique type of financial institution which emerged as an alternative solution to provide financial services in the presence of credit market failure (McKillop & Wilson, 2011). Like other forms of cooperatives, SACCOs are autonomous member-based enterprises with the objective of meeting members' economic, social, cultural and aspirational needs through a jointly owned and controlled enterprise (Rubin, Overstreet, Beling & Rajaratnam, 2013; FES, 2012). SACCOs are community-driven businesses which are guided by the cooperative values of self-help, self-responsibility, democracy, equality, equity and solidarity (WOCCU, 2015; Birchall & Simmons, 2010).

The members' belief is founded on ethical ideals of honesty, openness, social responsibility and caring for others. Together, the values and beliefs have culminated into seven principles of cooperative enterprises (ICA, 1995 cited in FES, 2012). These principles are: voluntary and open membership; democratic members' control; members' economic participation; autonomy and independence; education, training and information; cooperation among cooperatives; and concerns for community (Birchall, 2005). Such a unique business model and ownership structure of cooperative enterprises, including SACCOs, expose them to unique challenges and opportunities which may constrain or foster their performance compared to those facing standard business enterprises.

To put things into perspective, a typical SACCO is composed of the following three characteristics: (i) a financial institution, (ii) a cooperative, (iii) development finance and social enterprise. First, as a financial institution a SACCO receives deposits and savings, and offers loans, payment services, investments and other retail products (Aziakpono, 2013). Being a financial institution by default it is exposed to problems of moral hazard and adverse selection. If not checked and mitigated such problems could lead to under-performance

² This chapter has been submitted as a conceptual paper to the international *Journal of Co-operative Organization and Management* and is currently under review.

through increased default rate and agency cost. Second, as a cooperative, a SACCO operates under values and principles of cooperatives including democratic membership control and multiple objectives of meeting economic and social goals. Such a structure might have far-reaching ramifications on performance evaluation and the governance structure of SACCOs. Third, as development finance institutions, SACCOs operate mostly where there is market failure due to high risk or cost (Aziakpono, 2013).

Moreover, because of the relative size of SACCO enterprises, such institutions are placed in a unique operating environment which might lead to challenges of weak regulatory environment, low skill and training, poor utilization of modern technology and low management capacity. These factors are likely to influence the performance of these institutions. As such, the knowledge about the interplay between the cooperative business model and how it might influence behaviour of the members is critical for performance evaluation of cooperative enterprises. Thus, understanding the implication of these features in SACCOs' performance evaluation is important. Building on the previous chapter, this chapter explores different theoretical and empirical approaches which have been adopted in extant literature in evaluating the performance of financial cooperatives in the presence of these challenges. The chapter starts with the overall historical evolution of credit union from the global perspectives followed by a review of the different theoretical approaches to performance evaluations. The empirical performance evaluation strategies are presented and the choice of the approach adopted for the empirical modeling is justified. The chapter sets the stage for the empirical strategies employed in Chapters five and six.

The rest of the chapter is organized as follows: Section 3.2 presents the evolution and typology of financial cooperatives, key characteristics of financial cooperatives and their implication for the management and performance evaluation of financial cooperatives; Section 3.3 discusses the major approaches used in empirical literature in performance evaluation of SACCOs; Section 3.4 presents a detailed economic approach to performance evaluation; and the conclusion is presented in Section 3.5.

3.2 Evolution and typology of financial cooperatives

This section is divided into two subsections. The first subsection presents the evolution of financial cooperatives and their prevalence around the world, and the second subsection

presents the growth path and typologies of financial cooperatives globally and their implication on financial performance.

3.2.1 The evolution of SACCOs

Historically credit unions emerged as alternative solution for credit market failure due to their ability to operate where banks cannot (McKillop & Wilson, 2011). The literature reports that the actual cooperative movement dates further back to 1844 when Robert Owen, who was driven by humanitarian concerns, experimented at New Lanark. At this time, Owen was concerned with helping workers to escape from poor working conditions created by the industrial revolution. The focus of his approach was on creating an equitable society (Macpherson, 2007). Although Owen's experiment failed, it remained instrumental in spreading the cooperative ideology (McKillop & Wilson, 2011).

The second attempt, which was a lasting and practical cooperative model, was the Rochdale Cooperatives Store in Great Britain which started during 1844. The members of Rochdale jointly raised capital to buy goods and sell them to members at a saving. While Rochdale has a consumer cooperative orientation it does not differ much from a credit union except that in a credit union the good traded is the money itself. The key difference between the two initial experiments is that the Rochdale model was interest-bearing and the residual was distributed proportionate to use of the service (McKillop & Wilson, 2011), while Owen's approach used the surplus for the entire community which made it vulnerable to the classical problem of free riders.

About a decade after the formation of Rochdale, a German by the name of Friedrich Wilhelm Raiffeisen formed the first rural credit cooperatives in 1864. The structure of rural cooperatives was similar to that of Rochdale but focused on helping farmers. During the 19th century two types of institutions merged giving rise to the modern form of credit union (McKillop & Wilson, 2011). Since then, the credit union movement has expanded significantly, spreading to the rest of Europe, North America, Australia, Asia and Africa.

To date, there are about 57,000 credit unions spread across 103 countries and serving about 208,000,000 members (WOCCU, 2015). What is common in the financial cooperative

movement globally is their role as alternative institutions for providing financial access where traditional banking fails to offer such a service. In other words they are a special variation of member-driven development finance institutions which have emerged in response to the existence of credit market failure. They have a unique advantage of operating where banks cannot because of their distinct economic advantage over banks for certain segments of the borrowers (Nyamsongoro, 2010; McKillop & Wilson, 2011). In contrast to traditional banking, their knowledge of the members and local economic conditions reduces the information cost and increases the screening efficiency (Guinnane, 1994).

3.2.2 Typology of SACCOs along the growth path

The typologies or classification of financial cooperatives draws insights from the organizational life cycle theory (LCT). According to LCT financial cooperatives evolve through three distinct phases: formative (nascent) phase, transition phase and mature phase (Grashuis & Cook, 2013; McKillop & Wilson, 2011; Quinn & Cameron, 1983; Greiner, 1972). The specific attributes which characterize various financial cooperatives in each category were documented by Ferguson and McKillop (2000, 1997).

The credit union in formative (nascent) stage is mostly characterized by small asset size, tight common bond, and heavy reliance on volunteers, and it provides basic savings and loan products (Ferguson & McKillop, 2000). Financial cooperatives in the transition stage tend to exhibit the following characteristics: large asset size, flexible common bond, high level of product diversification, less reliance on volunteers and greater emphasis on growth and efficiency. The maturity phase is characterized by large assets, loose common bond, diversified portfolio product, professionalism of senior management, centralized services, adoption of electronic technique and deposit insurance.

Based on the unique characteristics of each growth phase as predicted by the life cycle theory it is expected that financial cooperatives in different stages of life cycle will face different challenges. While some of the performance challenges may be common in all the stages, such as the role of effective leadership, there are also unique specific challenges depending on the stage of development of an individual organization. The nascent stage is mainly characterized by undercapitalization, high growth and increasing heterogeneity among members which might lead to an increase in transaction cost and reduced performance. The increase in

transaction cost is inflated by the five major problems inherent in cooperative enterprises as a result of vaguely defined property rights (Cook, 1995): free rider problem, horizon problem, portfolio problem, control problem and influence cost problem (Ortmann & King, 2007; Hansmann, 1996; Cook, 1995). Each of these problems is explained in detail later in this section. But before we explain these problems the next four paragraphs present a digression with a focus on the property rights problem and its implication on the performance of cooperative enterprises.

A property rights system is defined as method of assigning to individuals the authority to select the final use of a specific good among different alternative uses (Vera, Ugedo & Lario, 2010). The concept of property rights can be traced back to the seminal paper of Coase (1937). The existence of a well-defined property right is central to well-functioning and sustainable systems. This is attributed to the role played by property rights in protection against the use or misuse that other people could make over an asset that they do not own (Alchian, 1977; Furubotn & Richter, 2000; O'Driscoll Jr. & Lee Hoskins, 2006) cited in Vera *et al.*, 2011). The property rights theory focuses mainly on allocating the property rights among individuals such that the problem which might arise due to incomplete contracts are mitigated (Klein, Crawford & Alchain, 1978; Vera *et al.*, 2011).

The role of property rights in resource allocation is further justified by inherent transactions involved in the production process. Such costs results from informational search cost, incomplete contracts, cost of enforcing and monitoring compliance (Coase, 1937; Royer, 1999; Sykuta & Chaddad, 1999). Due to the existence of incomplete contracts, the theoretical prediction is that assets should be re-allocated to those uses which yield the highest return. On the other hand, if contracts were complete, then re-allocation will be redundant, as it would clearly point out what actions should be carried out due to any contingency that could arise and what compensation each part would receive (Vera *et al.*, 2011).

However, most of the contracts are incomplete and in practice contracts are guided by the group verifiable decisions. The non-contractible decisions are not realised if not specified *a priori* and if their occurrence is not known with certainty. In such situations if anything should happen it needs to be negotiated among the parts, and if agreement is not possible, the decision relapses on the part that possesses the control rights on the implied assets (Royer, 1999). The implication of this classical problem is that the ownership of an asset implies

control over the residual flows that it generates. Therefore, the owner of the assets is the one who has the incentive to use it effectively, involving himself or herself in investment decisions.

Based on the argument above, it follows that, the owner of the asset is the one who has to decide what to do with it when circumstances arise that were not included *ex ante* in a contract (Tarjizán, 2003 cited in Vera *et al.*, 2011). Cook and Iliopoulos (1999) argue that in the case where a person does not have clear possession of an asset, he or she will not have any incentive to protect its value. In addition, if property rights cannot be transferred, the probability that the asset is finally owned by the person who will use it best is reduced. It turns out that most of the property rights in cooperatives enterprises are vaguely defined, which exposes them to the four property right problems mentioned in paragraph three of Section 3.2.2. The next five paragraphs explain such problems in detail.

The free-rider problem in financial cooperatives emerges due to inherent weak property rights which are untradeable, insecure, or unassigned (Cook, 1995), and is linked to patronage residual claimants instead of investment-based residual claimants. In the patronage-based approach both new members and older members receive the same patronage and residual rights as existing members without making upfront investments proportionate to their use. The ramification of this approach is the creation of disincentives for existing members to invest in their cooperative because of the dilution of their returns (Ortmann & King 2007; Vitaliano, 1983; Royer, 1999). Although most of the literature was anchored in the context of agricultural cooperatives, the free rider problem is also likely to be common in financial cooperatives. The direct consequence of this problem from a financial cooperative perspective is on the long-term capital accumulation and investment in financial infrastructure which requires upfront investment. Because of the open nature of the cooperative enterprises model, the incumbent members will not have an incentive to invest into the project with longer term income streams because they may be diluted by new incoming members who will share the same patronage.

The second problem linked to weak property rights is the horizon problem, which arises as result of non-tradability of the property rights. This is more critical when a member's residual claim on the net income generated by an asset is shorter than the productive life of that asset (Cook, 1995). In such situations members will tend to under-invest in long-term projects due

to a myopic focus on short-term returns which are limited to the horizon over which the member expects to patronize the cooperative (Vitaliano, 1983; Royer, 1999). Thus the management is always under pressure to maximize current returns instead of focusing on long-term investment, and this may affect the leverage which could have been realized from long-term investments.

The third challenge is the portfolio problem, which emerges due to the lack of a secondary market of cooperative shares. This limits the members from diversifying their individual investment portfolios according to their personal wealth and preferences for risk-taking (Royer, 1999). The diversification of the portfolios will be conditioned by the possibility of purchasing or selling the shares. This limitation leads to sub-optimal decisions because it is not possible to satisfy the risk preferences of all members, leading to inefficient risk sharing. In addition, members have to accept a risk that could be avoided by diversification, resulting in a decrease in their welfare (Vera *et al*, 2010)

The fourth issue is a control problem which occurs because board and members of the cooperatives are not able to monitor the managers' performance effectively compared to profit firms, and because of the lack of information and external pressure compared to those imposed by publicly traded equity instruments. It is argued that the cooperative's board members are handicapped by incomplete search and monitoring information devices they need to mitigate agency problems (Cook, 1995). Thus co-operatives cannot use this option due to the absence of an equity market for evaluating the performance of cooperative shares (Royer, 1999).

The fifth problem due to incomplete property rights in financial cooperatives is the influence costs issue. The influence costs in an organization emerges when the organizational decision affects the distribution of wealth or other benefits among the members (Cook, 1995), i.e. when a certain group, in pursuit of its selfish interests, attempts to influence the decision to its benefit. This is a classical problem of new borrowers or net savers as articulated by Smith (1984). Thus, in financial cooperatives this problem is likely to result between net savers and net borrowers.

The problems mentioned are more likely to occur to a different degree at the end of the nascent stage and when cooperatives move into the transition phase, but they may also happen at any point in time during the organizational life cycle.

As the organization progresses along the life cycle trajectory, and specifically during the transition stage, financial cooperatives start to recognize the challenges which may lead to a strategic turnaround decision. Such decision might lead to exit, tinkering or re-inventing the ownership structure. There is a diverse geographical distribution of different categories of financial cooperatives. Most of the nascent industries are primarily found in Africa, Asia, Latin America and the former Soviet Union bloc (McKillop & Wilson, 2011). Financial cooperatives in these regions are used as an instrument for poverty reduction within a more general framework of microfinance. Australia, Ireland and Canada could be viewed as having a mature financial cooperative industry, while Poland and Latvia are examples of financial cooperatives in transition.

Financial cooperatives in Tanzania re-emerged in the past three decades and are still in a nascent stage. Applying the classification above, Tanzanian financial cooperatives are expected to exhibit the formative stage and are more likely to face the challenges of undercapitalization, economies of scale, heterogeneity, restrictive common bond and heavy reliance on volunteers. These factors are likely to have a drag on SACCOs' performance. In addition to these factors, the next subsection discusses the theory of financial cooperatives followed by the empirical approaches to performance evaluation.

3.3 Economic theories of SACCOs

The inherent uniqueness of financial cooperatives limits the application of standard theoretical models of financial intermediaries and cooperative enterprises in modelling their behaviour (Smith, Cargill & Meyer, 1981; Bonin, Jones & Putterman, 1993; McKillop & Wilson, 2011). In a typical firm or financial intermediary the objective is clearly stated as maximizing the value of the shareholders, i.e. profit maximization (Smith *et al.*, 1981; Brealey, Myers & Allen, 2010). But in financial cooperatives members are both owners and consumers of the service, which implies that the organization cannot simply seek to maximize the profit generated by member's transactions irrespective of the price and quantities of those transactions (Smith *et al.*, 1981). The ramification of the dual nature of ownership and

consumption is that the model of traditional financial firms based on profit maximization cannot be directly applied to financial cooperatives.

Typically, financial cooperatives take deposits from members and offer loans to members. Since financial cooperatives conduct their business only with their members, there is an overlap of both ownership and consumption. As a result, there is always a potential conflict between borrowing members and saving members (Rubin *et al.*, 2013; Smith, 1984; Taylor, 1979). Borrowing members prefer lower interest rates on loans in order to minimize the cost of borrowing, while saving members prefer higher interest on loans so as to maximize their net dividends. This behavioural approach is not consistent with the standard banking model in which there is a separation between owners and users of the service.

Thus the objective of financial cooperatives is not the same as maximizing the value of shareholders as the standard neoclassical theory of the firm predicts. Financial cooperatives seek to maximize the benefits of the members whose goals may be opposed to each other depending on whether they are savers or borrowers. The central issue which the theory of financial cooperatives tries to deal with is how to resolve this conflict and maximize the overall welfare of all the members (Fried, Lovell & Eeckaut, 1993; Smith, 1984). Gambs (1981) argues that the existence of financial cooperatives presents a problem in the way economists think i.e. individuals are supposed to maximize utility and firms are supposed to maximize profit, yet a financial cooperative looks like a firm but does not seem to maximize profits. Thus, the major concern of theoretical and empirical modellers of financial cooperative behaviour is how to achieve equilibrium between the interests of borrowers and savers and how external factors may disrupt such equilibrium.

The earlier theoretical and empirical pioneers in cooperative performance measurement focused on a static approach to analyze the behaviour of financial cooperatives (Taylor, 1971, 1977, 1979; Carson, 1979; Smith *et al.*, 1981, 1984; Spencer, 1996). However, some recent advances have focused on building on the seminal paper of Smith (1984): they have extended a static theoretical model of financial cooperatives by taking inter-temporal behavioural issues such as inter-temporal equity retention and rate policy into the traditional static model (Rubin *et al.*, 2013). However, the dynamic approach is still new and developing, which limits its empirical application in extant literature. The dynamic co-operative behavioural theory needs

further testing before it can be widely adopted for empirical evaluation. Therefore, the rest of the discussion will focus on the static modelling approach which is widely used in the literature for empirical modelling of financial performance.

Taylor proposed a series of models with the 1979 model being the most developed form of the behavioural model of financial cooperative (Spencer, 1996). In his analytical model he emphasized that the profit motive is absent for financial cooperatives operating on behalf of all the members. However, he insisted that for a savers-dominated financial cooperative there will be a restriction of new savers to maximize the net returns. For a borrower-dominated financial cooperative there will be a restriction on new borrowers to minimize the average net cost of the loan. He assumed that the supply of the new loanable funds depends on the dividend rate, while the demand of the loan depends on the long-run average cost.

According to Taylor the equilibrium level will vary according to the initial level of reserves. The equilibrium condition will be the ideal situation when net savers are almost equal to net borrowers. Once one group dominates the other group, the dominant group will tilt the balance towards its preference. This model fails to take into account the endogenous effect of the current period reserve on the balance sheet which is important for growing or declining organizations. Spencer (1996) extends the model to account for this effect by including reserves in the model.

Another widely used model in the empirical literature was developed by Smith (1984) in his seminal paper “A theoretic framework for the analysis of credit union decision making”. In his modelling framework, the objective function is to maximize pecuniary gains to members by a market rate comparison. The members are said to enjoy net gains if the loan rate is lower than the market comparison and if the dividend rate on savings is higher than the rate available elsewhere with comparable accounts. Thus, members’ borrower-saver preferences influence loan and dividend rates along with other factors such as inherited balance sheet portfolio, operational cost, and regulatory constraints. There has been very little work done to develop the theory of financial cooperatives beyond this seminal paper which remains a benchmark for most of the empirical work in modelling financial cooperatives (Rubin *et al*, 2013).

In addition, it is also acknowledged that financial cooperatives are successful if they can provide the members with a superior service than if they acted individually or outside cooperatives (Smith, 1984), thus financial cooperatives are supposed to play a key role as price leaders and stabilizers. The members of SACCOs collectively decide on the interest rate to charge on loans and interest to be paid on deposits/savings. Depending on the agreement reached and whether the preference is inclining towards net savers or net borrowers, the profit margin may be high or low respectively. Theoretically we expect neutral cooperatives where there is a balance between net savers and net borrowers and the profit margin may converge to zero (Smith, 1984). If this happens, then the benefit among the members would have been maximized. This result inherently makes profit not a predictable measure of performance in some cases. Based on this anomaly, the standard theory of the firm which emphasizes profit maximization becomes limited when analysing cooperative behaviour empirically. Most of the empiricists have adopted cost minimization as the objective of cooperatives to mitigate the problem (Rubin *et al.*, 2013).

3.3.1 Approaches to empirical performance evaluation in SACCOs

The empirical evaluation of financial cooperatives is contentious due to the inherent complex structure resulting from multiple features and objectives of SACCOs as discussed in Section 3.1. Practically, performance evaluation of financial cooperatives is difficult to implement to capture all the dimensions (Fried *et al.*, 1993; Soboh, Lansink, Giesen & Van Dijk, 2009). Specifically, performance evaluation of cooperatives requires taking into account social and economic objectives (McKillop & Wilson, 2011). Thus, a fair performance evaluation of SACCOs entails measuring both social and economic goals. The social benefits include social cohesion, social bonds among members and local economic development. However, measuring social performance is a new territory for many SACCOs and other development finance institutions (CUCC, 2012). Some performance measurement has been uncharted territory because of the unavailability of social performance data and the inherent complexity in quantifying such measures (Rubin *et al.*, 2013; CUCC, 2012; Soboh *et al.*, 2009).

It is further argued that social performance evaluation was not taught in business schools, which led to a systematic knowledge void among managers on how to measure and report social performance (CUCC, 2012). As result, most of the performance evaluation literature in financial cooperatives focuses on economic performance evaluation. Despite the limitations

of the economic approach in performance evaluation in capturing social dimensions, the approach still serves as a good proxy of organizational performance in the absence of social performance data. Due to data limitation our study uses the economic approach to evaluate performance of SACCOs. The next section presents a review of economic and empirical approaches used in performance evaluation of financial cooperatives in the extant literature.

3.3.2 Economic approaches to performance evaluation

The economic approach to performance evaluation in financial cooperatives is divided into three categories. The first category, which is widely used in the industry and practice, is the accounting ratio approach. The second approach uses the frontier method to estimate the efficiency of financial intermediation institutions. The third category, which is a hybrid, combines efficiency and ratio based approaches and is discussed in detail in Chapter 6. The rest of this section will focus on the two major categories: ratio and accounting based approaches. While the ratio approach is easy to understand, it has been criticized for being atheoretical and for its inability to capture multiple dimensions of performance (Jayamaha & Mula, 2011; Soboh *et al.*, 2009; Berger and Humphrey, 1997; Salmi & Martikainen, 1994; Diewert, 1992). Thus most of the recent academic literature is focused on the frontier method, which is based on the neoclassical producer behaviour theory and can accommodate multiple inputs and multiple outputs in the analyzing the performance of organizations (Jayamaha & Mula, 2011; McKillop & Wilson, 2011; Soboh *et al.*, 2009; Berger & Humphrey, 1997).

3.3.3 Empirical evaluation of performance of financial cooperatives

As mentioned in Section 3.4, the extant empirical literature on performance evaluation of financial cooperatives is grouped into two categories: those which use accounting ratios and those which use the economic efficiency frontier approach. Despite the limitation of the accounting approach highlighted in Section 3.4, Shubik (1996) argues that financial ratios are necessary to account for the dynamic reality of organizations' status and activities. The most commonly used ratios are profitability ratios, liquidity ratios, solvency ratios and efficiency ratios, and in practice the ratio approach has dominated the industry's practitioners. The popular performance evaluation ratios are the PEARLS (Protection, Effective financial structure, Asset quality, Rates of return and costs, Liquidity, and Signs of growth) and CAMEL (Capital adequacy, Asset quality, Management capacity, Earnings ability, and Liquidity) methodologies recommended by the World Council of Credit Unions.

While CAMEL and PEARLS methodologies are popular performance evaluation tools among practitioners and consultants, their application in academic literature is limited. Instead, the recent trends in academic literature are shifting towards the economic efficiency approach using frontier methods. The limited applications of the PEARLS and CAMEL methodologies in the empirical literature can be explained by some of their limitations mentioned in the previous section. The dominance of economic efficiency performance evaluation using the frontier approach in academic literature is explained by the theoretical foundation of the approach. The efficiency approach is embedded within neo-classical producers' theory and is flexible in accommodating the multi-dimensionality of the performance index (Coelli, Rao, O'Donnell & Battese, 2005; Diewert, 1992).

Within the frontier modelling approach there are different variations of frontier methods including parametric methods and non-parametric methods. The commonly used methods are Stochastic Frontier Analysis (SFA) for those adopting a parametric approach and Data Envelopment Analysis (DEA) for those adopting a non-parametric approach (Marwa & Aziakpono, 2015; Haq, Skully & Pathan, 2010; Soboh *et al.*, 2010; Fried *et al.*, 1993). In theory there is no clear consensus about which method is superior because each methodology has its own strengths and weaknesses (Jayamaha & Mula, 2011; McMillan & Chan, 2006; Coelli *et al.*, 2005; De Borger, Moesen & Kerstens, 1994). However, some data settings and contexts might lead to a preference for one method over the other. For example, in the case of a small sample design, the non-parametric approach has been playing a dominant role because of its distribution-free properties. Also the DEA approach has been widely used in handling multiple input and multiple output production and service organizations. On the other hand, in the presence of a relatively large data set and price information on inputs and outputs SFA has been widely used to model allocative and economic efficiency (Coelli *et al.*, 2005). It is instructive to note that there is some progress towards extending SFA methodology to include multiple outputs frameworks (Collier, Johnson & Ruggiero, 2011).

Most of the existing literature on performance evaluation of financial cooperatives is concentrated in mature economies with a focus on mature credit unions and microfinance institutions reported in MIX Market data base (Jayamaha & Mula, 2011; Berger & Humphrey, 1997). The majority of the empirical literature focuses on North America, Australia and Western Europe (Jayamaha & Mula, 2011; McKillop & Wilson, 2011). There are limited studies in developing countries, especially in sub-Saharan Africa. This is partly

explained by the nascent nature of the industry in the region, and the limited and fragmented nature of the appropriate data from the industry.

It is important to note that even on a global scale the substantive part of performance evaluation of financial sector has focused on the mainstream banking sector (Berger, 1993; Berger & Humphrey, 1997; Hughes & Mester, 2010; McKillop & Wilson, 2011). Yet the need to explore and understand the issues around performance of financial cooperatives and other microfinance is no less pronounced (Worthington, 2010). Such information will provide important insights in monitoring, regulating and managing the process of organizational and structural change in the industry.

3.4 Conclusion

The objective of this chapter was to discuss the key characteristics of cooperatives and their ramifications for financial cooperatives' performance evaluation. In addition, the chapter presented a concise review of economic theory of financial cooperatives and empirical evaluation approaches to financial cooperatives' performance. It was established that the uniqueness of financial cooperatives arising from multiple objectives (economic and social objectives) and coincidence of consumers (borrowers) and producers (savers) limits the standard theory of the firm in modelling the behaviour of financial cooperative organizations. To address this problem many attempts have been made to develop a theory of financial cooperatives, with Smith's (1984) seminal paper laying the foundation of the widely used theory in empirical literature.

An unresolved challenge emerging from the empirical literature is how to translate multiple objectives into modelling the behaviour of financial cooperatives. It is further complicated by the fact that there is conflict among the multiple objectives. For example, savers would want a higher interest rate while borrowers would like a low interest rate. The debate and theoretical development around this conflict are still far from being settled, which leaves empirical modellers with limited alternatives.

Most of the existing empirical literature adopted overall cost minimization or benefit maximization as the central objective in modelling the performance of financial cooperatives.

Given this objective, empiricists have used either financial ratios or the economic efficiency approach in measuring performance. Recent trends are shifting to an economic approach to modelling performance using either data envelopment analysis (DEA) or stochastic frontier analysis (SFA) due to the inherent limitations of the ratio approach.

CHAPTER 4

TECHNICAL AND SCALE EFFICIENCY OF SAVING AND CREDIT COOPERATIVES: EVIDENCE FROM TANZANIA³

4.1 Introduction

In line with objective one in Section 1.6, this is the first empirical chapter which is devoted to evaluating the performance of SACCOs from efficiency dimension. The efficiency is decomposed into three components i.e. technical efficiency which captures overall efficiency in resources transformation, scale efficiency and pursue technical efficiency. Technical efficiency which captures overall efficiency in resources transformation, pure technical efficiency captures the managerial effectiveness and scale efficiency captures the optimal scale of operation. The next paragraph introduces the role of finance in economic development and growth and justifies the need for performance measurement and monitoring.

The financial sector plays a critical role in economic growth and economic development (Beck & Levine, 2004; Levine, 1998). However, the positive impact of the financial sector on economic growth is realized if the sector is efficient and well developed. As a corollary, if the financial sector is not effectively monitored and regulated it may lead to an economic crisis. As argued by Sufian (2011), the health of a financial sector is critical for the health of the economy at large. Given the relationship between the financial sector and economic growth, knowledge about the efficiency of financial institutions and the underlying factors that influence their efficiency is crucial. Such knowledge is necessary to provide insights to managers, regulators, policy makers and other stakeholders to formulate policies to improve the efficiency of the financial sector.

The purpose of this chapter is to extend the earlier empirical work on efficiency analysis of the financial sector into saving and credit cooperatives (SACCOs). More specifically, the study investigates the technical and scale efficiency of SACCOs in Tanzania. Such analysis could foster a better understanding of the performance of the SACCOs and provides evidence-based inputs for informed policy dialogue and decision-making in the microfinance

³ This chapter has been accepted for publication as an empirical paper in the *Journal of Developing Areas* and has been published as Economic Research South Africa working paper No: 510. Available online at <http://www.econrsa.org/publications/working-papers/technical-and-scale-efficiency-tanzanian-saving-and-credit-cooperatives>

sectors. The findings of such a study could also provide insights needed to formulate long-term policy and development of effective management strategies for SACCOs in the country.

SACCOs are among the fastest growing microfinance institutions but often less explored in empirical literature. Among others, the limited data availability and poor governance might have acted as red tape preventing academic research in this area. Most of the empirical literature on microfinance performance modelling is based on Asia and Latin America with some focus on credit unions from North America and the UK (Jayamaha & Mula, 2011; Haq *et al.*, 2009; Qayyam & Ahmad, 2006; Gregoriou, Messier & Sedzro, 2005; Nghiem, 2004; Fried *et al.*, 1993). The MIX market⁴ dataset has been a dominant source for most of the recent empirical work on microfinance performance (Louis & Baesens, 2013; Arrassen & Avouyi-Dovi, 2013; Haq *et al.*, 2009; Bassem, 2008). Unfortunately the MIX market data does not include most small microfinance institutions such as saving and credit cooperatives. This has led to structural omission of this segment of microfinance in empirical research due to data problems. The current study explores this frontier and makes an attempt to explore the data challenges and solve the existing knowledge gap on the performance of these institutions in the Tanzanian context.

Despite the dearth of empirical work, the sector plays a significant role in bridging the gap left by credit market failure in developing countries and Tanzania in particular. In fact, the financial sector in Tanzania is highly underdeveloped, with a private sector credit to GDP ratio of 20%, and about 90% of the population excluded from the mainstream financial sector (World Bank, 2013; FinScope, 2009). As a result of such market failures, SACCOs and other microfinance institutions have emerged as an alternative solution. SACCOs particularly have experienced strong growth as an alternative financial service provider for the poor. According to the Ministry of Agriculture, Food Security and Cooperatives (MAFC, 2013), the number of SACCOs increased from 803 in 2000 to 5,344 in 2013: an increase of about 565% over nine years. The number of members and direct beneficiaries has increased from 133,134 to 1,153,248 in the same period, which is about a sevenfold growth rate within nine years. Members' savings have increased from 8.4 billion to 158 billion Tanzanian shillings (TSHS), equivalent to about a 19-fold growth in the same period.

⁴ Mix Market (Microfinance Information Exchange) is an online data base portal for microfinance around the world. It is important to note that most of the small microfinance organizations, such as SACCOs from poor countries, are not included in the data base. The data set can be accessed at <http://www.mixmarket.org/>.

While the growth rate is impressive, the speed at which SACCOs are growing raises many questions about their performance. The fact that most of these institutions operate on a relatively small scale and in a high risk environment with low potential for cost and loan recovery (at least in theory) complicates the issue further. Hence, despite the odds, the observed growth record makes a systematic investigation of their performance a timely undertaking.

4.2 Literature review

4.2.1 Distinguishing features of financial cooperatives

It is important to review the concept of financial cooperatives and show how they differ from the conventional banking sector in setting the stage for a further literature review on efficiency modelling. Cooperative organizations are a special type of economic entities whose objective is to maximize the members' welfare/benefits. In a typical cooperative organization, members are also users of the service(s). In some financial cooperatives, the services may be exclusively for members, who have a common bond through an associational, occupational or residential relationship. Prospective clients need to be qualified members before they can take advantage of saving or borrowing services from the cooperative (Fried *et al.*, 1993). The implication of this unique and voluntary model is that the objective of a typical cooperative may not necessarily reflect the standard neoclassical assumption of profit maximization theory of a firm. Instead, the objective of the cooperative is to pursue both economic and social objectives.

In its simplest form, a financial cooperative is both a producer cooperative and a consumer cooperative. It is a producer cooperative when accepting savings from the members, and a consumer cooperative when it is providing loans to the members. This suggests that profit maximization may not be the main objective since there are no non-members to exploit (Fried *et al.*, 1993). As such, SACCOs are treated as if they are seeking to maximize benefits to the members, where the maximum benefit is defined as service provision (loans and deposits mobilization) subject to resources available and given operating environments.

In the Tanzanian context SACCOs are very diverse in terms of membership, size and affiliation. But they all operate under cooperative principles, and are managed by democratically selected managers and a board of directors. The limitation of being guided by

democratic principles and owned and run by members is that, for small or less diverse SACCOs, they may not have a large enough pool of competence and skills to select from internally. However, as SACCOs grow bigger and become more diverse, there is an increasing tendency to hire external managers and accountants based on their experience and competence. As a result their cost of operation may increase due to the premium paid to more competent employees.

4.2.2 Review of analytical literature

Theoretical and empirical literature evaluating organizational performance is dominated by the use of frontier models. There are diverse frontier models, including parametric and non-parametric models. Despite their diversity, they share common characteristics in modelling relative efficiency as a quantitative measure of performance. In its simplest version, the efficiency of the decision-making unit (DMU) is defined as its ability to produce maximum possible output(s) with minimum possible inputs relative to its peers, subject to resource constraints and operating environments (Sufian, 2011; Coelli *et al.*, 1996; Banker, Charnes & Cooper, 1984). When evaluating the relative efficiency of different firms, the best practice frontier function is estimated using the most productive units which share a common technology.

The dominant model under the parametric approach is the Stochastic Frontier Approach (SFA). In the non-parametric approach, Data Envelopment Analysis (DEA) is widely used in the theoretical and empirical literature. The SFA approach assumes the specific production function which is then used to map the relationship between the inputs and outputs to estimate economic efficiency, which is further decomposed into pure technical efficiency and allocative efficiency (Fried *et al.*, 1993). The advantage of this approach is its ability to control for the stochastic error component in its econometric estimation, but it suffers from being data intensive. Another downside of this approach is the possibility of mis-specification of the production function and the unresolved issues of the actual probability distribution of the random component which may lead to biased results (Drake, 2001).

The DEA method developed by Charnes, Cooper and Rhodes (1978) has become an increasingly popular approach for efficiency estimation in banking literature. The method uses a piecewise linear programming procedure in identifying the empirical production

functions based on the actual data. DEA compares all the similar units in a given population by taking several dimensions of the output and inputs into account simultaneously. Every unit is considered as a DMU which transforms inputs into outputs.

The DEA model developed by Charnes, Cooper and Rhodes abbreviated as CCR (Charnes *et al.*, 1978) and the model developed by Banker, Charnes and Cooper or the BCC (Banker *et al.*, 1984) are used in this study. The two models are similar except that the BCC model takes into account additional constraints to accommodate variable returns to scale. Because of the flexibility of DEA and data limitations the current study employs DEA in efficiency estimation. It is important to note that DEA has been criticized for generating upward bias of the efficiency score. To mitigate this problem Simar and Wilson (2000) proposed the use of a bootstrap approach to correct for inherent bias. Section 4.3.1 presents a detailed discussion on DEA with bootstrap.

4.2.3 Empirical literature on efficiency estimation

The focus of the empirical literature here is on DEA studies. DEA has been extensively used in modelling efficiency in diverse fields including the banking, microfinance, health and agriculture sectors, to mention just a few. According to Lee and Ji (2013) there are over 446 empirical works which have used the DEA approach, mainly published in operations research, management science, production analysis, applied economics, etc. Of interest to this chapter is the empirical work on efficiency estimation in the banking and microfinance literature. There is extensive empirical research on the efficiency of financial institutions; however most of the literature is clustered around the banking sector with limited work on microfinance. When assessing the geographical distribution of the existing literature, most of the work is skewed towards North America and Europe with some notable work in Asia and Latin America but little in the African region. Among others, the existing empirical literature on banking performance in North America, Asia and Latin America can be accessed in Fukuyama (1993), Berger (1993), Berger and Humphrey (1997), Berger and Mester (1997), Drake and Hall (2003), Berger (2007), Delis and Papanikolaou (2009), Tahir, Abu Bakar and Haron (2009), Saez-Fernandez and Picazo-Tadeo (2011), Sufian (2011) and Charles, Kumar, Zegarra and Avolio (2011).

In sub-Saharan Africa the empirical work on banking performance focuses on Kenya, Tanzania, Botswana, Uganda, and South Africa and some traces in other countries. The most comprehensive study which provides a comparative analysis of sub-Saharan African commercial banks is the study by Kiyota (2011). However this study focused more on profit and cost efficiency using the stochastic frontier approach. Kamau (2011), Aikaeli (2008), Oberholzer and van der Westhuizen (2009) and Moffat (2008) investigated the efficiency of commercial banks in Kenya, Botswana, Tanzania and South Africa respectively.

Most of the empirical literature on microfinance performance analysis is based on Asia and Latin America with some focus on credit unions from North America and the UK (Jayamaha & Mula, 2011; Haq *et al.*, 2009; Qayyam & Ahmad, 2006; Gregoriou *et al.*, 2005; Nghiem, 2004; Fried *et al.*, 1993). The MIX market data set has been a dominant source for most of the recent empirical work on microfinance performance (Louis & Baesens, 2013; Arrasen & Avouyi-dovi 2013; Haq *et al.*, 2009; Bassem, 2008). Unfortunately the MIX market data does not include most of the small microfinance institutions such as saving and credit cooperatives. Such structural omission of SACCOs in a MIX Market might be a possible explanation of the limited empirical research in this domain due to data problems. The current study tries to explore this frontier and makes an attempt in exploring the data challenges and solving the existing knowledge gap on the performance of these institutions.

The overall finding from the empirical literature is that the average relative technical efficiency of the banking sector ranged between 60%-94% for OECDs (Favero & Papi, 1995; Delis & Papanikolaou, 2009). For the sub-Saharan African banking sector, the average efficiency ranges from 60%-90% (Kamau, 2011; Moffat, 2008; Aikaeli, 2008; Oberholzer & van der Westhuizen, 2009). In the domain of microfinance, the technical average efficiency estimates range between 14.5% and 69.0% (Kipsha, 2013; Jayamaha & Mula, 2011; Haq *et al.*, 2009). The observed inter and intra region heterogeneity of efficiency scores is expected due to the differences in firms' specific factors and operating environments. Apart from the environmental factors, the choice of variables included as inputs and outputs have been documented to influence the empirical results on efficiency. More discussions on the different approaches which have been used by the previous studies and the justification of the selection of the variables in banking literature are presented in the next section.

4.2.4 Specification of inputs and outputs

The specification of inputs and outputs in efficiency modelling is an important decision to be considered. In banking literature there are three major approaches which are useful in guiding the specification of inputs and outputs (Nghiem, 2004; Qayyum & Ahmad, 2006; Moffat, 2008): production, intermediation and assets based. Under the production approach, financial institutions are considered as the producers of deposits and loans. The number of employees and capital expenditures are important inputs in this approach. The second approach considers financial institutions as intermediaries, and as such they have the responsibility of transferring financial assets from the savers (surplus unit) to the investors (deficit unit). In this approach the inputs can be defined as labour, capital cost and interest payable on deposits, while the loans and financial investments are considered as outputs. Finally under the assets approach it is assumed that the basic function of any financial institution is the creation of credit (loans), and the value of assets of financial institutions acts as output.

Depending on the approach adopted, the choice of the inputs and outputs may be different (Moffat, 2008; Drake and Hall, 2003), and the empirical results may be sensitive to the choice of inputs and outputs. Favero and Papi (1995) posit that there is no simple solution to the problem of input and output specification since reasonable arguments can be made in all the approaches. Hence, the nature of the study and data availability plays a significant role in the final choice of the input and output variables. Since the intermediation approach closely matches the main objective of SACCOs, i.e. mobilizing savings and offering loans, this study adopts the intermediation approach in selecting the inputs and outputs. The choice of the intermediation approach for this study is also partly influenced by the data issues. In the intermediation approach SACCOs are treated as financial intermediaries between the savers and borrowers. They seek to maximize the outputs (total loans and other incomes) given the input levels: deposit, labour and capital (Sufian, 2011).

Another challenge of efficiency estimation is the choice of the orientation, that is, input or output orientation. Input orientation has been recommended for cost minimization focused policies, while output orientation has been recommended for impact maximization policies (Cooper, Seiford & Zhu., 2011). On the other hand it is argued that the orientation choice must be made according to the quantities of inputs and outputs that the managers are able to control (Coelli *et al.*, 2005). In our case, managers are more able to control the inputs (personnel, total assets and total costs) than the outputs (demand for loans and returns on

assets) which are subject to external market forces. Therefore, in this study we adopted the input orientation and intermediation approach.

4.3 Methodology

4.3.1 Estimation technique

DEA is used for estimation under constant returns to scale and variable returns to scale assumption. Basically, DEA derives the data envelopment surface by joining those points in the input–output space such that it is no longer possible to produce more output with the same input or the same output with less input. In the case of constant returns to scale the frontier will be linear, and for variable returns to scale the frontier will be convex hull (Luzzi & Webber, 2006; McKillop, Glass and Ferguson, 2002; Favero and Papi, 1995). Once the data envelopment surface is established it is then used as a benchmark to measure the relative efficiency or inefficiency of all other firms outside the envelopment surface.

Technical efficiency is estimated by measuring the ratio of the distance between a reference point's distance to constant returns to scale frontier and an inefficient firm's distance from the same frontier. The distance measured can be either in the input space or output space depending on input orientation. It is possible to decompose technical efficiency into scale efficiency and “pure” technical efficiency (Lee & Ji, 2013). Pure technical efficiency (PTE) is measured as the ratio of the distance between inefficient points to variable returns to scale (VRS) efficient frontier. Also a firm may be further categorized into the three scale categories: increasing returns to scale, decreasing returns to scale, or constant returns to scale.

In a multiple outputs and inputs settings with large number of firms, DEA can be formulated either as constrained maximization or minimization objective function under the general framework of linear programming. Since the maximization (multipliers) formulation is cumbersome to solve numerically, the alternative minimization (dual) formulation is often used because it is mathematically tractable (Coelli *et al.*, 2005). The study used the minimization approach but for completeness both maximization and minimization problems are illustrated below.

First the key notations are defined, and then followed by the mathematical presentation of the optimization problem. Assume there are data on N inputs and M outputs on each of I firms. Let x_i and q_i represent inputs and outputs for i -th firms respectively. The $N \times I$ input matrix, X, and $M \times I$ output matrix, Q, represents the data from all I firms. The DEA problem is to obtain the optimal solution of the weighted sum of outputs over inputs, such as $u'q_i/v'x_i$, where u is $M \times 1$ vector of outputs weights and v is $N \times 1$ vector of inputs weights. The optimal weight is obtained by solving the following mathematical programming problem:

$$\text{Max}_{(\mu, v)} (\mu' q_i), \text{ subject to } \begin{cases} \mu' q_j - v' x_j \leq 0 \\ v' x_i = 1 & j=1, 2, 3 \dots I \\ \mu, v \geq 0 \end{cases} \dots\dots\dots(4.1)$$

Using duality in linear programming the maximization problem can be derived into the minimization problem as follows:

$$\text{Min}_{(\theta, \lambda)} \theta \text{ subject to } \begin{cases} -q_i + Q\lambda \geq 0 \\ \theta x_i - X\lambda \leq 0 & j=1, 2, 3 \dots I \\ \lambda \geq 0 \end{cases} \dots\dots\dots(4.2)$$

where θ is the efficiency score of i^{th} firm; q is column vector of outputs, Q is $M \times I$ output matrix; x is column vector of inputs and X is $N \times I$ input matrix for all DMUs and λ is $I \times 1$ vector of weighting coefficients. Following Coelli *et al.* (2005), this study uses the minimization approach due to its mathematical tractability.

The value of θ computed is the efficiency score for the corresponding DMU. It ranges from 0 to 1 with the value of 1 indicating a point on the efficiency frontier and hence a technically efficient DMU. All efficient firms will be connected by a continuous locus to form an efficient frontier. The efficiency score for every DMU will be measured by how far it deviates from the frontier.

The conventional DEA technique specified above is still widely used in the empirical literature, however it suffers from several criticisms. The major criticism about the standard DEA approach is the lack of statistical properties of the estimated efficiency which may lead to biased DEA estimates (Wijesiri, Viganò & Meoli, 2015; Simar & Wilson, 2000). The point

estimates for efficiency generated by the standard DEA model fails to elaborate discussion on the uncertainty surrounding the estimates due to sampling variation (Simar & Wilson, 2000). To address the lack of statistical properties, Simar and Wilson (2000) in their seminal paper proposed a homogeneous bootstrap algorithm. The algorithm is based on the bootstrap approach (Efron, 1979) by repeatedly simulating the data generating process and applying the original estimator in each simulated sample. Then the empirical distribution of resampled estimates can be used to generate the bootstrap confidence interval (Wijesiri *et al.*, 2015; Simar & Wilson, 2000; Lothgren, 1998). We estimated both standard DEA and DEA with bootstrap approach but for consistency only bias corrected results will be presented in detail and interpreted. When necessary, standard DEA results will be presented for comparison purposes only.

After estimating efficiency scores, one sample t test is used to test if average technical efficiency, scale efficiency and pure technical efficiency scores were statistically significantly different from 1. Since the efficiency scores may be exhibiting positive skewness, the Wilcoxon rank sum test (a non-parametric alternative of the one sample t test) is used to check the robustness of the results. The efficiency estimation process was implemented in R version 3.1 using the FEAR programme. The rest of the analysis was conducted using STATA version 11.

The data sets were further decomposed into four quartiles based on the loan size to probe the variation of efficiency scores across different firm sizes. Technical Efficiency, Pure Technical Efficiency and Scale Efficiency scores were evaluated in each quartile. The median spline plot was used to plot the median scores of technical efficiency over different loan sizes. The box plot was used to study the distribution of different efficiency scores in each quartile.

4.3.2 Data source

The study used secondary data from annual audited financial statements for 2011. The auditing is done on an annual basis by the government agency called Cooperative Auditing and Supervisory Cooperation (COASCO). The major objective of the auditing is for supervision and regulatory purpose by a third party. While the original data was not collected for performance evaluation, it provides rich information based on the financial statements which could be leveraged for performance evaluation.

The data was collected during November 2012 – March 2013, at which time this was the latest audited financial statement data available. The SACCOs included in the study were from four regions⁵: Dar Es Salaam, Mwanza, Kilimanjaro and Arusha. In total the information from 139 SACCOs was collected but only 103 had complete information and was used in the analysis. The key variables extracted from financial statements are: Total Cost, Total Fixed Assets (a proxy for capital), Total Deposits, Total Revenue and Total Loan Portfolio, all in TZS. The first three variables were used as inputs and the last two were used as outputs in the analysis. Table 4.1 provides a detailed breakdown per region.

According to Charnes and Cooper (1990), the rule of the thumb suggests that the minimum sample size required for DEA is three times the sum of total number of inputs (X) and the total number of outputs (Y), that is, $N = (s+m) * 3$ where s is the total number of inputs and m is the total number of outputs. Further empirical studies using simulation data demonstrated that as the sample size increases, the DEA frontier converges to a true relative efficient frontier for a specific industry under study. The improvement follows a negative exponential trend with the optimal sample size being between 50-160 observations (Zhang & Bartels, 1998). Based on this literature our sample size is considered reasonable for DEA.

4.4 Empirical results and discussion

Results reported in the rest of the thesis are based on bias corrected results, but for completeness the conventional and bias corrected efficiency scores are reported in Table A.4.1 of the Appendix.

Descriptive statistics (mean, minimum, maximum, standard deviation) are presented in Table 4.1 for total loans, total expenditure, total deposits, total revenue and total assets. In the lower part of the table the ratio of average total deposit, average total revenue and average total expenditure to average total loans is presented in the last column. Such a proportion is useful

⁵ The four regions were selected based on the concentration of SACCOs with audited financial statements. By law all SACCOs should be audited by the Cooperative Auditing and Supervisory Corporation (COASCO). However in practice less than 10% of 5,300 SACCOs are audited countrywide. COASCO is severely constrained in terms of manpower and financial resources. Due to these challenges, the regions were ranked according to total number of audited SACCOs. All SACCOs with audited financial statement were included in all the top four regions. We considered SACCOs with audited financial statement because of the data consistency and feasibility of the study. We couldn't feasibly collect data from four regions due to time, logistical challenge due to geographical dispersion of the regions, and financial constraints. In total the four regions constitute 32% (1,717) of the total audited SACCOs in the country. The remaining 70% are spread across more than 18 regions.

for checking the percentage of external funding and the percentage of total cost to loan portfolio. Based on the summary statistics, the average total loan portfolio outstanding during 2011 was TZS 869 million. The average total deposits and total expenditure are 555 million and 61.2 million respectively. The percentage of the average deposit to average loans is 64%, implying that on average about 36% of the total outstanding loans is being financed by external funding sources. It is also important to note that on average SACCOs' total expenditure is around 7% of their loan portfolio.

Table 4.1: Average loans per region and summary statistics

Region	Audited SACCOs	Complete Cases	Mean (000,000)	Std. Dev. (000,000)	Min (00,000)	Max (000,000)
Arusha	25	22	518	729	3.5	2,540
Dar Es Salaam	85	57	1,120	1,430	0.94	7,460
Kilimanajaro	11	10	491	567	11.7	1,700
Mwanza	17	14	656	779	18.8	2,010
Total	138	103	869	1,190	0.94	7,460
Variable			Mean (000,000)	Std. Dev. (000,000)	Min (000,000)	Max (0,000,000)
Total Loans			869	1,190	0.94	7,460
Other Assets			126	243	1.50	1,590
Total Deposits			555	1,020	2.05	7,160
Total Revenue			116	154	0.26	813
Total Expenditure			61.20	94.90	0.46	586

Note: Upper table used data from all SACCOs and lower table used data from only 103 SACCOs with complete data

Source: Computed by author

The efficiency scores (technical efficiency, pure technical efficiency, scale efficiency and returns to scale classifications) were estimated for each firm. The ideal situation is to have all three efficiency scores as close as possible to one. In the case of returns to scale the desirable situation is to have as many firms as possible under constant returns to scale space.

A firm is said to be technically efficient if it produces maximum outputs at the minimum possible inputs compared to its peers. The technical efficiency (TE) scores are further decomposed into pure technical efficiency (PTE) and scale efficiency (SE). The decomposition provides more insights into the sources of inefficiencies. Pure technical efficiency measures how a SACCO utilizes the resources to produce output under exogenous

environments. Scale efficiency measures whether the SACCOs are operating at their optimal scale. The returns to scale helps determine whether the SACCOs have been operating at the most productive scale size (constant returns to scale), increasing returns to scale (IRS) or decreasing returns to scale (DRS). The performance ranking is reported based on the composite efficiency score (Technical Efficiency).

To make sense of the individual scores the results were aggregated into average scores for technical, pure technical and scale efficiency as reported in Table 4.2. The results under the conventional approach of efficiency estimates reveal that 9 firms were technically fully efficient (had a score of 100% under technical efficiency), 24 firms had a score of 100% under pure technical efficiency, and 14 firms had a score of 100% under scale efficiency. The average technical efficiency score is about 42%. However after correcting for bias none of the SACCOs are technically efficient under both pure and technical efficiency. Only 10 SACCOs achieved 100% scale efficiency. This implies that on average the SACCOs only needed 32% of the inputs currently in use to produce the same amount of output after correcting for bias. The estimated average efficiency score is relatively low compared to what is observed in the banking industry in Tanzania (about 80%) as reported in Aikaeli (2008). However, average efficiency scores reported here are higher than Tanzanian microfinance efficiency score of 14.5% as reported by Kipesha (2013) using MIX market dataset.

Table 4.2: Summary of efficiency estimates with total number of DMUs

Item		Standard Estimate	Bootstrap Estimates
Number of DMUs		103	103
Number of Efficient DMUs under	TE	9	0
	PTE	24	0
	SE	14	10
Average	TE	0.42	0.32
	PTE	0.52	0.43
	SE	0.76	0.77
% of DMUs in the Returns to Scale	CRS	7.8%	10%
	DRS	15.5%	28%
	IRS	76.7%	64%

Note: TE is technical efficiency, PTE is pure technical efficiency, Scale is scale efficiency score, CRS is constant returns to scale, DRS is decreasing returns to scale; IRS is increasing returns to scale

Our results are quite close to the findings from cooperative rural banks reported in the study of Jayamaha and Mula (2011) for Sri Lanka. Jayamaha and Mula found that the average

technical efficiency scores dropped from 66% during 2003 to 53.2% in 2005. The decline was mainly attributed to decreasing pure technical efficiency because the scale efficiency recorded positive growth during the same period. When compared with the results reported by Haq *et al.* (2009) using MIX market data for developing countries using an intermediation approach (47%), the performance of SACCOs seems to be relatively lower. On other hand our results are better than the recent SACCOs results reported by Tesfamariam, Tesfay and Tesfay (2013) in which they found the average technical efficiency of Ethiopian rural SACCOs to be 21.3%.

The percentage distribution of SACCOs across constant returns to scale (CRS-optimal scale), increasing return to scale (IRS-too small) and decreasing returns to scale (DRS-too large) is presented on the lower part of Table 4.2. In fact about 90% are operating in sub-optimal scale, that is, either they are too small or too large when the bias is corrected. Only 10% of SACCOs are operating in the optimal scale while 28% firms were operating beyond the optimal scale after correcting for the bias. From a policy and managerial perspective this means that those firms operating below the optimal scale may need to scale up and those operating beyond their optimal scale may need to improve their performance by scaling down.

When efficiency scores were tested to see if they were significantly different from one as reported in Table 4.3, all the three efficiency measures were found to be significantly lower than one. This implies that on average the industry is operating below the desired efficiency level as demonstrated by the negative and significant test statistics based on both one sample t test and one sample Wilcoxon signed rank test approach. In an effort to understand the sources of the inefficiency, TE scores were decomposed into PTE and SE. When comparing the magnitude of t statistics, on average the SE seems to be relatively good compared to PTE. This is in line with the results reported in Table 4.2 with average scores of 32%, 55% and 77% for technical, pure technical and scale efficiencies respectively after correcting for the bias. This implies that most of the inefficiency is contributed by inefficient allocation of the factors of production. However, there is also room for improvement in terms of SE.

Table 4.3: Parameter estimates for hypothesis testing on efficiency scores

Variable	T test (one sample)		Wilcoxon Signed Rank Test	
	Test Statistics	Pvalue	Test Statistics	Pvalue
TE	-33	< 0.0001	-8.81	< 0.0001
PTE	-26	< 0.0001	-8.81	< 0.0001
SCALE	-9	< 0.0001	-8.72	< 0.0001

Note: The left hand panel of the table represents one sample t test results for different efficiency scores and the right hand panel represents one sample Wilcoxon Signed Rank Test of efficiency scores

Figure 4.1 demonstrates the behaviour of TE across firm size using loan size as a measure of DMUs. The results show that TE follows an inverted U shape with two optimal solutions. The first sub-optimal solution is the first half of the inverted U curve, which represents the SACCOs whose loan size is below 1 billion (65%). The second sub-optimal solution represents the SACCOs whose loan size is above 1 billion. The implication of these results is that on average medium-sized firms and larger firms are more likely to be efficient, while smaller firms and very large firms are likely to be inefficient.

However, the relationship between efficiency and size seems to be non-linear in nature. The possible explanation of the observed inverted U shape is that the small firms may be incurring higher fixed costs in offering the services and may not afford to attract the best talents in running their operations effectively. On the other hand relatively large firms are more likely to operate in diseconomies of scale and suffer stiff competition with commercial banks. As pointed out by Coase (1937), large firms are more likely to suffer from resource misallocation, planning cost and cost of lack of motivation by the employee. Based on the results reported in Figure 4.1, the optimal firm size seems to range between TZS 2.5 billion to TZS 6 billion. The range is wide which implies that, contrary to neoclassical economic theory, there is no single optimal point but there is a band of points which stretches between the ranges specified above.

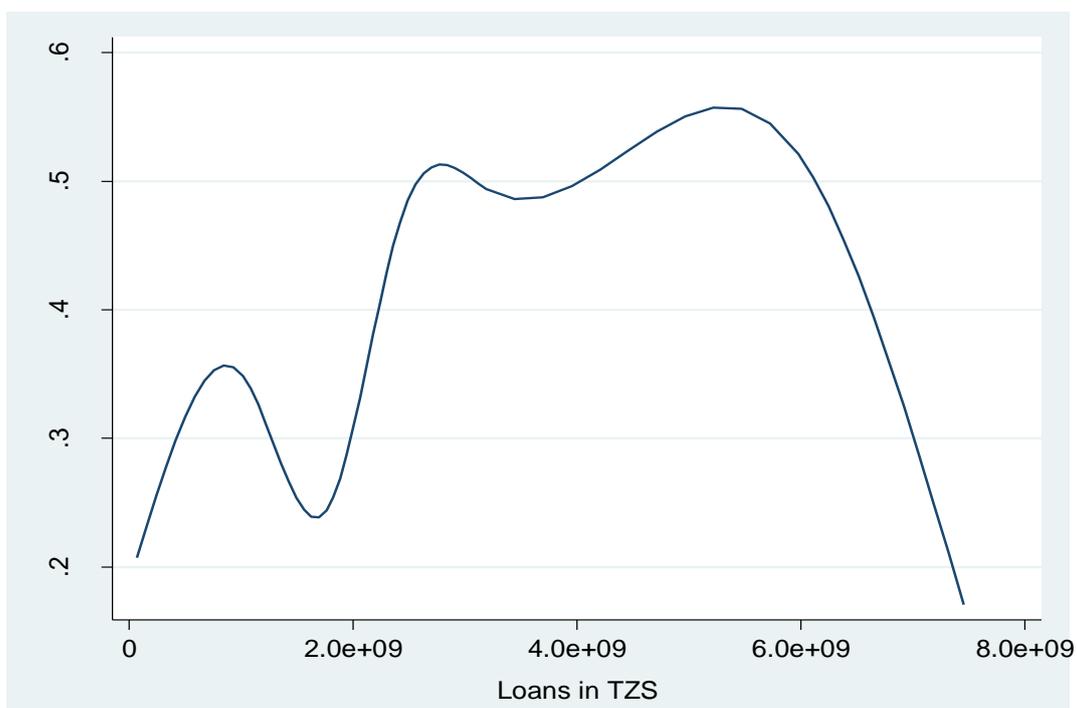


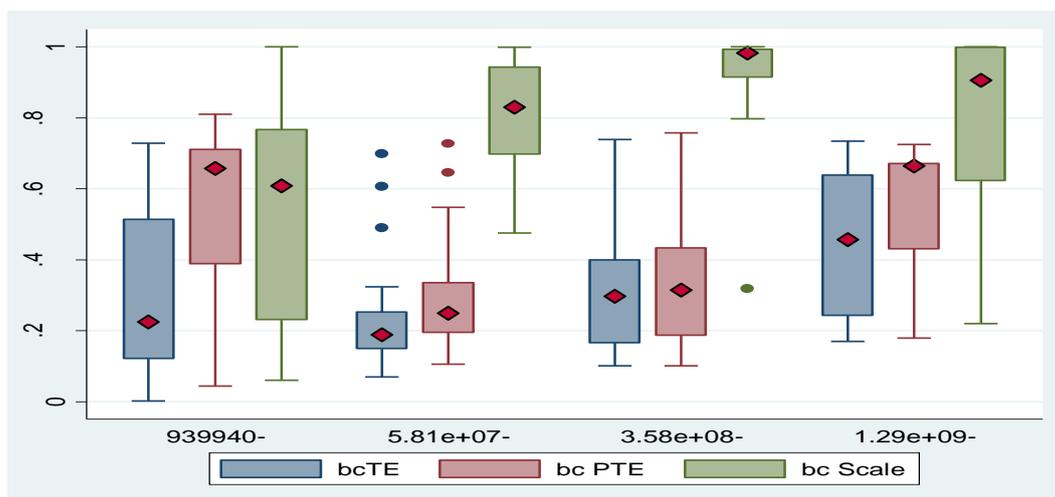
Figure 4.1: Median spline of technical efficiency scores across sizes of SACCOs

Our findings are in line with McConnell and Stigler’s illustration of the cost minimization curve of the firms in reality (cited in Canbäck, Samouel & Price, 2006). According to Canbäck *et al.* (2006), such a cost curve with a wide range of optimal output reconciles with several real world observations. The implication from such an inverted U-shaped efficiency curve with a stretched “saddle point” is the possibility of a wide range of output levels which can be produced within that range for which the unit cost per output is somewhat constant. This implies that small, medium and large SACCOs can co-exist at the same time without compromising on efficiency and competitiveness. However, when the firm is too small or too large, it may become counterproductive. Such flexibility is particularly important in SACCOs because they can easily converge to their maximum growth capacity due to their upper ceiling resulting from their inherent localized operations and ownership structure.

When the technical efficiency score is decomposed into pure technical efficiency and scale efficiency it becomes apparent that the major source of inefficiency emanates from PTE rather than SE. While there is room for improvement for SE, the need for improvement in PTE is even more critical. To understand how the three efficiency scores are distributed across the firm size, the box plot approach was used for each quartile as demonstrated in Figure 4.2.

A close look at Figure 4.2 reveals that the TE score mimics a weak U shape. The U shape can be inferred by loosely connecting the median point of the corresponding box plot of the TE of each quartile. The observed U shape implies that the smaller firms and larger firms are relatively more efficient than the medium firms using loan quartiles as classification of firm size. The fourth quartile has the highest TE scores as demonstrated by the median scores in the box plot. The results for PTE show the same pattern but with a more pronounced U shape, with the fourth quartile almost fully efficient. This demonstrates that smaller firms and large firms are leading by efficiently utilizing the inputs under their disposal to produce the same amount of outputs. In contrast, the SE shows an inverted U shape. This can be observed by loosely connecting the median point of each corresponding box plot. The third quartile has the highest SE score followed by the fourth quartile. Based on the observed behaviour for SE it appears that the optimal scale size for SACCOs is within the third quartile. Comparing the results from Figures 4.1 and 4.2, it appears that the inverted U shape results demonstrated by the TE scores are mainly influenced by SE.

The breakdown of firm size by quartile reveals a very interesting pattern which may have important managerial and public policy implications. The observation that pure TE scores are higher in smaller firms (quartile 1) and larger firms (quartile 4) is critical. The implication of this observation is that as firms grow in size they start struggling with internal managerial challenges and this makes them become inefficient in allocating their inputs to produce the maximum possible outputs. In the context of SACCOs the results may support the practice whereas as SACCOs grow bigger they tend to shift from using member-based managerial skills to hiring external managers. However, they can afford to hire managers of a certain skill and education level which can be outgrown by the managerial challenges of the organization as it grows further. The process remains iterative and depends on SACCOs' financial muscle to compensate, attract and retain appropriate candidates for the position.



Note: *bc* in Figure 4.2 above stands for bias corrected technical (TE), pure technical (PTE) and scale (Scale) efficiency respectively. The isolated dots represent outlier observations; the diamond sign indicates the median. If our efficiency scores were normal, the line (the median) would be in the middle of the box (the 25th and 75th percentiles, $Q1$ and $Q3$) and the ends of the whiskers (the upper and lower adjacent values, which are the most extreme values which within $Q3+1.5(Q3-Q1)$ and $Q1-1.5*(Q3-Q1)$ respectively) would be equidistant from the box. But box plots for our efficiency scores show positive skew (TE) and negative skew (SE and PTE) i.e. the median is pulled to the low end and upper end of the box respectively.

Figure 4.2: Box plot for Technical Efficiency (TE), Pure Technical Efficiency (PTE) and Scale Efficiency (SE) scores across different categories of loan size

Furthermore, while people with low levels of education and financial literacy can manage to lead small SACCOs well, a slight increase in size may outgrow their managerial capacity. A corollary of this argument is that, as the firm grows beyond a certain threshold, in our case as they move from quartile 3 to quartile 4, their financial muscle increases, the total number of their members' increases and diversity increases. The interaction of these factors is likely to generate a new complex pattern which may lead to strong oversight, more willingness to hire external managers to manage the organization, and an increased ability to afford such services. This may possibly explain the observed higher scores of PTE in the fourth quartile. Also as firms grow bigger, they tend to improve their SE by cutting down per unit cost, as would be predicted by neoclassical economic theory. However, such scale advantage occurs only up to a point, beyond which it starts to become self-destructive. Based on our results, the optimal scale is reached in quartile three as demonstrated by Figure 4.2.

Further analysis demonstrates that the optimal scale advantage can be reached as low as TZS 1.5 billion loan size and it starts decreasing the further the firm is from this point. On the other

side, the optimal PTE is achieved around TZS 2.3 billion and there is little gain beyond this point (see Figure 4.3)

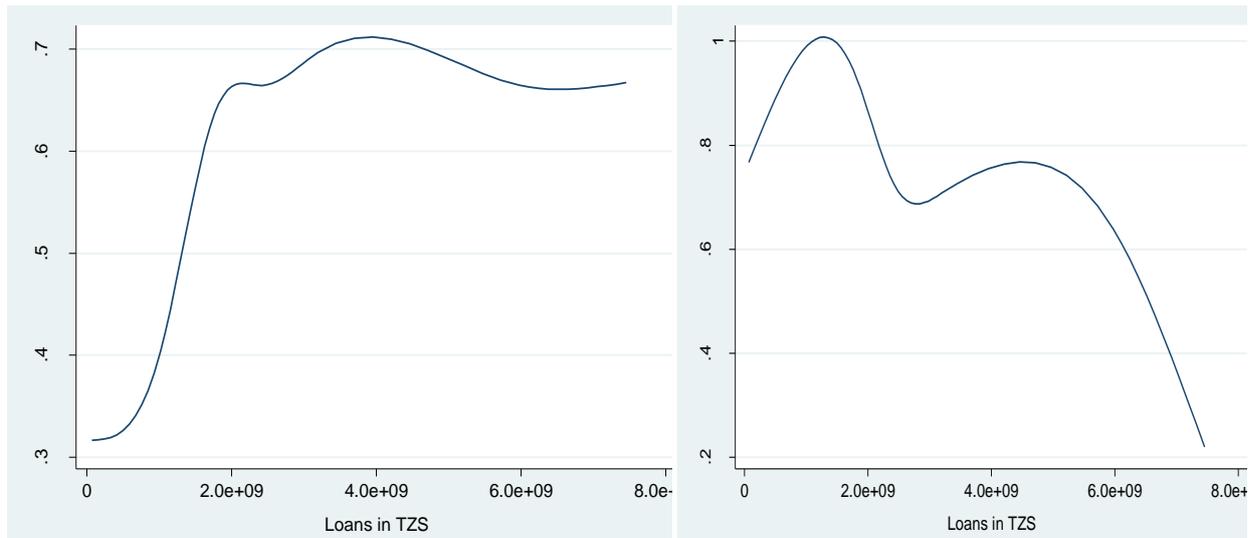


Figure 4.3: The median spline plot for PTE and SE score over the loan size

The observed declining efficiency in large SACCOs despite the highest scores of PTE is rather surprising. The possible explanation may be that, as SACCOs grow larger, they are likely to become more specialized and start attracting the lower end of the middle income clients and micro, small and medium enterprises (MSMEs). By operating in such a space, they are exposed to a stiff competitive environment with the sophisticated commercial banks. If this happens they are likely to lose through at least two channels. The first channel is that commercial banks are highly sophisticated and enjoy economies of scale which are relatively superior to those of large SACCOs. The second channel is that since the large SACCOs are attracting clients on the bottom of middle income clients and MSMEs, they are more likely to succumb to the riskier segment in this income category. If this happens, it means that large SACCOs are likely to increase their loans portfolio but with more risky clients.

4.5 Conclusion and recommendation

This chapter investigated the technical efficiency of 103 saving and credit cooperatives from Tanzania. The data used were collected from audited financial statements of 2011. The intermediation approach and input orientation was employed within a Data Envelopment Analysis framework to estimate efficiency scores in terms of technical efficiency, scale efficiency and pure technical efficiency. The empirical findings show that the average technical efficiency is about 32%, average pure technical efficiency was 52%, and scale

efficiency was 77%. Most firms are struggling with how to efficiently utilize their resources to maximize outputs. Smaller firms and larger firms seem to suffer from lack of economies of scale and diseconomies of scale respectively, while medium SACCOs experienced a significant increase in scale efficiency but a significant decrease in technical efficiency. Medium firms struggle with how to effectively manage and make effective decisions in resource allocation. Large SACCOs experienced high levels of technical efficiency but seemed to struggle with the scale problem. Large SACCOs may be exposed to a more competitive market space where they are forced to compete with large commercial banks. The majority of SACCOs (90%) were operating in the sub-optimal scale. About 28% and 64% of the SACCOs were operating at decreasing and increasing returns to scale respectively. This implies that about 28% of the SACCOs were too large to operate efficiently and about 64% of the SACCOs were too small to operate efficiently. Since only SACCOs with audited financial statements were included in our study, there is a possibility of self-selection bias, therefore our results may not be generalized to SACCOs without audited financial statements.

The policy implication of our findings is grouped into regulatory and management dimensions. The regulators (Bank of Tanzania, Ministry of Agriculture and Cooperatives, Cooperative Banks, Cooperatives Audit and Supervisory Corporation) and academia need to work closely with SACCOs to create a supporting environment for small SACCOs to increase their size and managerial capacity. This may include the design of an in-service certificate course in SACCO management and accounting to improve managerial capacity and competence, constant monitoring and supervision, technical support and wholesale lending to increase their size of operations. There is a great potential for recruiting potential managers from cooperative universities that have a diverse portfolio of programs for cooperatives and business studies.

In terms of SACCOs' management, they need to be more careful in the way they manage their inputs in producing the outputs. With a better usage of available resources there is room to improve technical efficiency by 68%. Small SACCOs operating in the increasing return to scale space may wish to merge with other smaller ones or with larger and efficient ones. With the introduction of mobile banking such as M-Pesa it should be easy to operate satellite offices virtually. Such technological innovations may be adopted by merged SACCOs to reduce overhead costs but still maintain accessibility. Large SACCOs may need to spin out (demerger) since they have grown too big for efficient operation. Another option is for large

SACCOs to merge with a commercial bank and operate as a microfinance satellite branch of a commercial bank.

Future studies may wish to upscale the study to widen both the geographical coverage and non-audited SACCOs. This will help to validate the study using more data. If data allows it may be important to analyze the performance over time to understand the dynamics within the industry.

CHAPTER 5

FINANCIAL SUSTAINABILITY OF TANZANIAN SAVING AND CREDIT COOPERATIVES⁶

5.1 Introduction

The poor, who constitute the majority of the population in developing countries, are always excluded from mainstream banking. Financial exclusion from the classical banking system in sub-Saharan Africa is about 88%, and for countries such as Tanzania it is about 90% (CGAP, 2013; FinScope, 2009). To bridge this financing gap, microfinance has emerged as a powerful tool for poverty alleviation through increased financial access to the poor. While the surge of microfinance institutions (MFIs) has been unprecedented in the past three decades, their performance and sustainability is still a contentious debate. Maybe the most authoritative statement during our time is that by Jonathan Morduch (2000) in his paper on microfinance, where he argues that less than 1% of MFIs are sustainable and no more than 5% will ever be. While the statement was issued in the context of NGOs and donor-funded MFIs, it shed some light on the challenges facing the industry in general. However, the empirical research done by Gonzalez (2005) using MIX market data shows that at least 50% of MFIs become sustainable after 5-10 years of operation. Based on this controversy in the literature, it is clear that more empirical work is needed to investigate the performance and sustainability of different microfinance schemes.

This chapter focuses on empirical estimation of financial sustainability and profitability of SACCOs in line with objective two as articulated in Section 1.6 and the need for multiple performance measurements as alluded in Section 3.3.2. The chapter employs the same dataset described in Section 4.3.2 (Chapter 4) to explore the profitability and sustainability of SACCOs and extend the existing empirical debate on the performance and sustainability of microfinance. SACCOs (credit unions) are a special type of microfinance institution which are governed by democratic principles: the members are the owners and users of the service. The interest in this group of microfinance is fourfold: first, the institutions have recorded explosive growth in the past two decades, which makes one wonder whether they are on the

⁶ This chapter has been accepted for publication as an empirical paper in the *International Journal of Social Economics* and Economic Research South Africa working paper series No: 529 available online at <http://www.econrsa.org/publications/working-papers/financial-sustainability-tanzanian-saving-and-credit-cooperatives>.

stairway to economic heaven or on the highway to financial crisis. In other words, is it a long-lived innovative growth in microfinance or a boom which is going to burst? Second, in the past the Tanzanian government exerted excessive political interference in the cooperative movement which dwarfed their performance and led to the collapse of the sector (Maghimbi, 2010; URT, 2002). However, since the 1990s a new wave of cooperatives, including SACCOs which are less subject to political pressure and intervention, has emerged, but there is a dearth of empirical literature on their performance. Third, the unique ownership and governance structure based on social capital within SACCOs is likely to moderate the behaviour of both borrowers and savers, which may in turn lead to a superior performance outcome compared to standard microfinance. Fourth, the empirical literature on the performance of financial cooperatives in Africa is scanty. Thus, the motive behind this study is to understand how SACCOs perform and whether they are sustainable. This chapter extends Chapter 4 by looking into another dimension of performance measures which look into the long-term longevity of the operations of financial cooperatives.

Understanding the performance and sustainability of SACCOs is important for two reasons: it is a necessary condition for institutional longevity and lasting services to the poor, and it is an important barometer for researchers, policy-makers, regulators and shareholders in guiding the industry in the desired direction. Therefore the objective of this study is to estimate profitability and financial sustainability of SACCOs in Tanzania.

This chapter is structured as follows. First it provides the context of the study focusing on the role of finance in economic growth and the existing credit market failure by a conventional banking system. Section 5.3 presents both a theoretical and empirical literature review on microfinance sustainability. The methodology is presented in Section 5.4, followed by the results and a discussion in Section 5.5. The conclusion and recommendations are presented in Section 5.6.

5.2 Context

It is acknowledged that access to finance plays a significant role in economic growth and development by efficiently channelling resources from the surplus unit to deficit units. More importantly, it plays a key role in the provision of the capital necessary for starting and expanding businesses, and innovating and reducing unnecessary transaction costs

(Marwa,2014b; King & Levine, 1993a,b; Arestis & Demetriades, 1997; Odedokun, 1998). Further literature shows that access to financial services can increase household welfare through the increased ability to accumulate assets, unlocking their productivity potential and an increasing capability to deal with risks (Akpanjar, Quartey & Abor, 2013; Dercon *et al.*, 2006; Wangwe, 2004). Yet the majority of the economically active population is excluded from mainstream financial services in most developing countries. In Tanzania about 90% of the population is excluded from the mainstream banking sector (FinScope, 2009).

Such market failure in the mainstream financial institutions can be explained partly by credit rationing (Stiglitz & Weiss, 1981; Luzzi & Webber, 2006; Mwakajumilo, 2011) and partly by inherently risky environments facing the poor. The major reasons for such exclusion advanced by mainstream financial institutions are high transaction cost per borrower, lack of collateral, information opacity, high risk of default, and low rate of cost recovery (Stiglitz & Weiss, 1981; Beck & Demirguc-Kunt, 2006; Mori, Richard, Isaack & Olomi, 2009; Beck, 2007; ACCA, 2009). As a result of such failure in financial markets there has been a financing void for the poor and their microenterprises in most developing countries.

In response to such financial market failure, microfinance institutions have emerged as an alternative solution by targeting the poor through innovative lending approaches, including group lending, progressive lending, regular repayment schedules, and collateral substitutes (Thapa, 2006). Tanzanian saving and credit cooperatives in particular have gained popularity recently as one of the fastest growing microfinance institutions. Despite the existing view that these institutions suffer from high transaction costs due to their small size and their exposure to relatively high risk clients, saving and credit cooperatives have recorded unprecedented growth during the past 15 years. Their growth in numbers has surged from 803 in 2000 to 5,400 during 2013, their membership increased by 584%, and savings increased by 1780% in the same period (BOT, 2013; MAFC, 2013). According to industry experts from Tanzania's Ministry of Cooperatives, the growth is a mixture of organic growth and the increased supply of loanable funds targeting SACCOs by pension funds, commercial banks and government agencies. Such a high growth rate, especially in the last 10 years, calls for rigorous scrutiny of their performance and sustainability.

SACCOs are owned and operated by members based on democratic principles. A typical SACCO in Tanzania has more than 20 members bonded together by community or occupational bonds. The service is offered only to members who usually start by saving before they are qualified to borrow. The current industry consensus is that a member is allowed to borrow up to three his/her total investments (through saving or/and shares) to the organization. Some SACCOs limit it to two times total investments. The main composition of their funding is from members saving, members' equity and loans from other financial services and pension funds. The unique ownership and governance model of these institutions exposes them to unique opportunities and challenges.

The opportunities which come along with this type of business model include information advantage and peer monitoring which help to mitigate the default risk. Because the members are the active participants and owners of the organization, the business is run like a family business which may lead to unique social structures which may have a positive impact on members' loyalty. On the other side, the key challenges are that growth of these institutions may be limited and jeopardize the potential gains from economies of scale. Small SACCOs may also be limited in terms of the talent diversity and managerial capacity to run the business properly (McKillop & Wilson, 2011).

5.3 Literature review and theoretical framework

5.3.1 Objectives of financial cooperatives

Cooperative organizations are member-based organizations governed by democratic principles. The members decide on a voluntary basis to join the organization of their choice with common goals of achieving both economic and social objectives. Normally the members are owners and users of the services with a common bond such as associational, professional or residential (Fried *et al.*, 1993). The implication of this model is that the objectives of a typical cooperative may not necessarily reflect the typical profit maximization objective under the neoclassical theory of the firm (Fried *et al.*, 1993). Since these members are owners and users of the service sharing a common bond, it is likely that they know each other and operate based on trust and social capital: they treat the business as a family business which dampens the problem of information asymmetry and moral hazard. Thus it is expected that transaction costs of financial cooperatives would be lower than in standard microfinance institutions. Normally, the members of SACCOs can only borrow between two and three times their

deposits, thus the loan offered is at least 33% secured which also reduces the credit risk significantly.

According to principle number 7 of the seven principles⁷ guiding cooperatives, these institutions are supposed to offer sustainable development services for their communities through the policies approved by the members (CDA, 2014), thus they focus on both economic and social development. This unique business model of financial cooperatives comes with both opportunities and challenges. Opportunities emanate from the common bond and common goals through shared values, understanding and social capital which make the members feel like insiders of the organization. According to Akerlof and Kranton (2000) in their work on identity economics, when members of the organizations feel that they belong to an organization and own part of the organization, as “insiders” they behave differently compared to “outsiders”. Behavioural economics predicts that “insiders” are likely to go the extra mile to protect and patronize the interest of the organization (Akerlof & Kranton, 2000). Based on this prediction we expect that *ceteris paribus* the performance of SACCOs is likely to be superior to that of standard microfinance organizations. However, SACCOs operate in an institutional context which is less favourable than standard MFIs in terms of size, client segments, transaction size, location, and management quality, which may impose extra costs and jeopardize performance and sustainability.

These organizational structures come with certain challenges: since they are joined by a common bond they may be excessively exposed to a systematic risk due to the homogeneity of the members. Also, the common bond may be a stumbling block toward further growth and may negatively affect the gains from economies of scale and their ability to garner a significant talent pool for management and oversight of the institution.

5.3.2 Sustainability concepts

Sustainability is defined as the ability of an entity to continue a defined behaviour indefinitely (Filene, 2011). In other words, it is the ability of an organization to meet its goals or target over the long term. In the context of financial institutions and for firms, this requires private

⁷ The seven principles of cooperatives are: 1. Voluntary and open membership, 2. Democratic member control, 3. Members' economic participation, 4. Autonomy and independence, 5. Education, training and information, 6. Cooperation among cooperatives, 7. Concern for community. See <https://www.ncba.coop/7-cooperative-principles> for details of these principles.

profitability: a return on equity (ROE), net of subsidy that exceeds the private opportunity cost of resources (Schreiner & Yaron, 1999). Self-sustainability can be measured in terms of both financial and economic sustainability. Financial sustainability means the smooth operation of financial institutions with the necessary profitability, having adequate liquidity to overcome any challenges of bankruptcy. In other words, financial sustainability means that the SACCO is able to cover all its present costs and the costs incurred in growth, if it expands. Economic sustainability can be gauged from an easily quantifiable proxy of the impact of microfinance on low income group financial intermediation in lieu of a full cost benefit analysis (Yaron, Benjamin & Charitonenko, 1998).

The term ‘sustainability’ has broad dimensions, including financial sustainability, institutional sustainability, mission sustainability, programme sustainability, human resource sustainability, market sustainability, legal policy environmental sustainability, and impact sustainability (Sa-Dhan, 2010). A concise and detailed explanation of these concepts is presented in Sa-Dhan (2010). Despite the importance of each component of sustainability, this study will focus on financial and operational sustainability of SACCOs due to data availability and the role which financial sustainability plays on other sustainability measures, at least in the short run (Sa-Dhan, 2010).

5.3.3 Sustainability of microfinance institutions

The contemporary debate on financial sustainability in microfinance institutions is dominated by the welfare and institutional schools of thought on whether it should be a performance indicator or not. The welfare proponents argue that microfinance was established to reduce poverty through empowering the poorest of the economically active poor (Nyamsogoro, 2010; Brau & Woller, 2004), therefore their success should be measured based on the depth of their outreach (how many poor clients they are able to reach). Thus, the proponents of the welfare approach put less emphasis on the financial sustainability of microfinance institutions. They argue that if more emphasis is devoted to financial sustainability it may lead to a trade-off on depth of outreach by serving richer and less risky clients and charging high interest rates. They suggest that the social objective should be a priority and if there is a loss made during operation, the government, social investors and the donor community should balance it (Woller, Dunford & Warner, 1999).

Based on this thinking, financial sustainability is not treated as one of the major goals. The critics of the approach argue that donor funds are volatile and unsustainable and that ignoring financial sustainability may erode the quality of the revolving fund and jeopardize the future availability of the service. The implication is that if financial sustainability is not one of the major goals, microfinance institutions may collapse in the long run: as Schreiner (2000:425) says, “unsustainable microfinance might help the poor now, but they will not help the poor in the future because they will be gone”.

Proponents of the institutional approach argue that the main objective of microfinance is to create sustainable financial intermediation for the poor. Their argument is founded on the understanding that sustainable microfinance will provide lasting services to the poor and deepen the financial system (Nyamsogoro, 2010; Brau & Woller, 2004; Woller *et al.*, 1999). But the critics of this approach argue that emphasizing financial sustainability may lead to mission drift by microfinance moving away from the social objective of poverty reduction (Aubert, Janvry & Sadoulet, 2009; Copestake, 2007).

Despite the disagreement between the two views on the success indicators of microfinance, recent debates are oriented towards financial sustainability and commercial viability of microfinance institutions (Nyamsogoro, 2010; Schreiner, 2000; Havers, 1996). The shift is driven by the fact that sustainable microfinance is able to attract funds from the markets, increase in size, enjoy economies of scale and widen their outreach. Also, if there is seed funding (initial capital) from donors and government initiatives, such seed can be guaranteed in terms of its future ability to revolve and the longevity of the services offered. The shift is further buttressed by the empirical observation that most of the microfinance which was operating based on a welfare approach has been relatively underperforming (Nyamsogoro, 2010). This underperformance has led to some prominent microfinance institutions, such as Grameen Bank, coming up with the Grameen II innovation which is more institutionalism-oriented (Nyamsogoro, 2010). The current study is informed by the institutional view that microfinance needs to be commercially viable and financially sustainable or working towards that goal.

In terms of profitability of financial institutions different ratios may be used. The commonly used ratios are ROA and ROE (Nyamsogoro, 2010; Tucker & Miles, 2004). Due to data

limitation, the current study uses return on assets as a measure of performance and profitability. Return on assets (ROA) measures the overall profitability and reflects both the profit margin and how efficiently the institution is using the total assets to generate revenue (Sa-Dhan, 2013; Brealey *et al.*, 2006). ROA is calculated as the ratio of the net revenue to the total assets. We acknowledge that using ROA as the single measure of profitability of social enterprises has its own limitations. Most social enterprises have dual objectives that are socio-economic development of the community on one side and financial viability on the other side (URT, 2002; McKillop & Wilson, 2011; Rixon, 2013). Thus, focusing on the profitability dimension alone may lead to biased conclusions on the actual performance of these enterprises.

5.3.4 Empirical literature on financial sustainability and performance of microfinance

Despite the fast-growing trend of different variants of local microfinance, especially in Africa, there is little empirical literature on the sustainability of microfinance institutions. The available empirical work is limited to relatively large and/or international microfinance, where data is accessible from the online microfinance database (MIX Market).

The existing literature on the profitability and sustainability of microfinance offers mixed results. For example, findings from Namibia concluded that almost all microfinance operations are not sustainable (Adongo & Stork, 2005). A study on Nepal showed that most rural microfinance institutions are not sustainable (Acharya & Acharya, 2006). Using MIX dataset, Thapa (2006) found that MFI in all the developing regions except Africa were sustainable. Further analysis by Thapa (2006) showed that MFIs from South East Asia are fairly sustainable while the South Asian MFIs are not. Nyamsogoro (2010) found that, of 424 observations, 80.2% of the rural microfinance institutions in Tanzania were financially sustainable. Using data from 47 MFIs from Kenya and Tanzania, Mori and Olomi (2012) found that the average sustainability of MFIs was 98% and concluded that on average these MFIs are working towards achieving the sustainability goal. Most of these studies use the data from large MFI reported in MIX market. Our study extends this literature by adding empirical evidence on financial cooperatives which are not normally reported in major databases such as MIX Market and are less explored in empirical studies. Our study extends Nyamsogoro (2010) who focused only on financial sustainability of rural microfinance by exploring both efficiency and sustainability using rural and urban SACCOs.

Based on these results it appears that the microfinance sector in Tanzania is relatively promising. However, the overall trend in empirical literature in sub-Saharan Africa has limited coverage of SACCOs. The current study will add to the limited empirical literature in this area by exploring the financial sustainability of saving and credit cooperatives. These institutions are unique in their structure, governance and ownership. Most of them are positioned towards the lower end of the financial system continuum which might expose them to different operational challenges. For example most of them are quite small, servicing homogeneous clients with relatively high risk and low income compared to conventional financial institutions, including larger MFIs. Such heterogeneity across financial service providers might limit the extent to which the empirical results might be compared across financial institutions. The plausible scenario would be to perform a comparative analysis of our results across similar studies using SACCOs. But due to limited empirical literature on SACCOs, intra-industry comparison is challenging. Hence, most of the comparison will be across the microfinance industry with acknowledgement of the potential heterogeneity across the industry.

5.3.5 The determinants of sustainability

Previous studies have broadly categorized the determinants of financial sustainability into institutional characteristics, agency cost, environmental/governance and business strategy (Aveh, 2013; Aveh, Krah & Dadzie, 2013a; Kinde, 2012; Nyamsogoro, 2010). Institutional characteristics include efficiency, capital structure, age, size, and interest rate charged. Organizational cost includes sources of finance, subsidy dependence, branches, enforcement procedures, and lender-borrower relationship. Business strategy includes screening mechanism, group or individual collateral, dealing with default rates, and peer monitoring. Environmental and governance factors include geographical location, gender of the borrower, job creation, competition, quality of board of directors, quality of staff and regulatory framework (Aveh, Krah & Dadzie, 2013b; Kinde, 2012; Nyamsogoro, 2010; Woller, 2000; Gonzalez-Vega, 1998; CGAP, 1996). Detailed discussion of these factors and their impact on performance is articulated in the next two paragraphs.

More efficient financial institutions tend to have relatively lower expenditure and higher revenue generated per unit. In other words, efficiency affects sustainability positively through two channels: cost reduction and revenue increase (Nyamsogoro, 2010). SACCOs with high

leverage ratios are relatively less sustainable because of the increased cost of capital and the likelihood of ex-post moral hazard (Kinde, 2012; Bogan, 2012; Nyamsogoro, 2010). Age has been mentioned as an important factor because of the accrued incremental learning through trial and error in business, overhead costs, learning curve and relationship building. According to Gonzalez (2005), on average it takes about five years for at least 50% of microfinance to become sustainable (based on the MIX Market dataset).

Effective screening methods and rigid group collateral, including forcing the group to pay on behalf of the borrowers, has shown a positive impact in reducing moral hazard and improving the repayment rate (Richman & Fred, 2010). Some studies have shown that the gender of borrowers is important. Women are generally believed to have a higher repayment rate than men because of their skills in budgeting and handling household cash (D'Espallier, Guérin & Mersland, 2009). However, some empirical studies from Ghana reported that men are less likely to default than women (Richman & Fred, 2010). Other factors, such as increased competition, group-based lending, high quality of staff members and board of directors, have also been documented to have a significant positive effect on financial sustainability (Aveh, 2013). Cost per loan portfolio has been reported to be an important factor. According to ACCION (2004) a cost per loan portfolio greater than 20% should be a matter of concern (Rai & Rai, 2012).

In summary, previous empirical and theoretical studies have suggested different sets of important determinants of financial sustainability for microfinance institutions. Different studies have used different variables depending on the research question(s) asked and the data availability. The current study uses return on assets, technical efficiency scores, loan size and deposit mobilization, and cost per loan portfolio as independent variables due to the data limitation.

5.4. Methodology

5.4.1 Estimation of sustainability

The study used secondary data from annual audited financial statements as documented in Section 4.3.2 (Chapter 4). Financial sustainability is measured according to UNCDF (2002) where institutional sustainability is measured in terms of operational self-sufficiency (OSS) and financial self-sufficiency (FSS). OSS measures the extent to which the institution is able

to cover its operating expenses with its operating income, and FSS measures the extent to which operating profits cover an institution’s costs. When calculating OSS the expenses include all cash and non-cash expenses from the income statement, such as depreciation and loan loss provision expenses, as well as any costs of funds, such as interest and fees paid on debts or to savers with voluntary deposits (UNCDF, 2002). For comparative purposes a different version of OSS, which excludes the cash cost of funds from total operating expenses, may be preferred. The latter approach mitigates the penalty imposed on an institution by the first formulation due to the differential access to commercial financial markets and interest structure.

$$OSS = \frac{Total\ Revenues}{Total\ Expenses} \dots\dots\dots(5.1)$$

FSS is given as the ratio of adjusted operating income and adjusted operating expenses. The adjustment is crucial to show how the financial picture of an institution would look on an unsubsidized basis, where funds would be raised on the commercial market, rather than through donor grants or subsidized capital. Customer deposits and debt must also be adjusted to reflect market rates on loans and deposits. Since the inflation rate erodes the value of equity, financial equity balances must be adjusted to account for inflation. Other income, such as subsidies and in-kind cash, is also adjusted. FSS is computed as follows:

$$FSS = \frac{Adjusted\ Operating\ Revenues}{Adjusted\ Operating\ Expenses} \dots\dots\dots(5.2)$$

Since our data was cross-sectional, the current study did not adjust for inflation but took loan loss provision into account. The original data did not include loan loss provision. We adopted a conservative value of 5% of the total loan portfolio as the rate of loss provision. The 5% loan loss was selected based on discussion with a subject matter specialist from Tanzania cooperative auditing and supervisory committee. The figure is close to the industry average in microfinance as reported in Micro-Rate⁸.

A regression model is used to explore the effect of efficiency scores, return on assets, deposit mobilization and loan size on financial sustainability. Other key variables, such as age, governance, interest rate charged and others (see Section 5.3.5) could play a significant role but were not included due to data limitation. Efficiency scores are borrowed from Chapter 4. In summary, technical efficiency, which is a measure of the effectiveness of transformation of

⁸ Performance Indicators for Microfinance Institutions by Micro Rate:
http://media.microfinancelessons.com/resources/tech_guide_IADB_portfolio_quality.pdf.

inputs into outputs, was estimated using data envelopment analysis (DEA)⁹. Since technical efficiency is the product of the two and provides a more comprehensive measure of efficiency, it will be used as a proxy for efficiency measure in this chapter. The remaining variables are defined in Table 5.1.

Following Nyamsogoro (2010), who investigated financial sustainability of rural microfinance in Tanzania, the current study uses a linear regression model which follows the general form below:

$$Y = \beta X + \varepsilon \dots\dots\dots(5.3)$$

where Y represents financial sustainability scores, B is a vector of regression parameters, X is a vector of control variables, and ε is the error term. The estimation was done sequentially. In the first step, a bivariate regression was fitted by regressing financial sustainability scores against each of the following: return on assets, TE scores, loan size and deposit mobilization, and cost per loan portfolio. Loan size was transformed into a logarithmic scale because of the difference scale. It was not possible to do a log transformation of RoA because of the existence of negative values. Both, the classic regression coefficients and standardized regression coefficients were reported in multivariate regression analysis. The standardized regression coefficient was used to ascertain the most influential variable in the model (Gujarati, 2012).

The IMTEST test and residual plots were used to check for normality assumption. Studentized residuals were used to check for outlier observations. As rule of the thumb, any residual with a value higher than two was further investigated using Cook's distance to check the overall influence on regression results. A cutoff point of $4/n$ was used for Cook's distance to eliminate influential observations. Five observations were eliminated because they were found to exhibit extreme values with a significant influence on the regression results. Therefore 98 observations out of 103 observations were used for the final regression analysis. The variance inflation factor (VIF) test was used to check for the presence of multicollinearity. All the VIF values were less than 2, which is far less than the standard cut-off of 10. IMTET, developed by Cameron and Trivedi (2009), was used to check for normality and

⁹ Both constant returns to scale and variable returns to scale were employed to estimate the technical and pure technical scale efficiencies respectively. Following input oriented DEA and intermediation approach (deposit, total cost and total fixed assets) were treated as inputs and (total loan and total revenue) were treated as outputs. More details and theoretical debate around this is presented in Chapter 4.

homogeneity of variance. While the normality assumptions were violated, the histogram plot for residual seems well-behaved, which implies that the deviation is not far from normal and may be a problem of small sample size (see figure A.5.3 for additional diagnostic plots). We used robust standard errors to take the problem of heteroscedasticity into account. The test for omitted variables was significant, implying that there are some important variable(s) missing in our model. One possible solution is to use instrumental variable regression. As we could not get the appropriate instruments to control for this problem, the field work was done to complement the evidence on the key drivers of performance in Chapter 7.

Table 5.1 demonstrates the variables used in the current study, their definitions and measurements and their *a priori* expectations based on theory and previous empirical evidence.

Table 5.1: Summary of the variables

Variable Name	Definition/measurement	Variable Code	Expected effect of FSS
Financial Sustainability	<u>Total Revenue</u>	FSS	NA
	Total expenses + Loan Loss Provision		
Technical Efficiency	Relative efficiency scores computed using data envelopment analysis*	TE	+
Return on Assets	<u>Net Income</u>	RoA	+
	Total Asset		
Size	Total loan portfolio	Size	+
Deposit Mobilization	<u>Total Deposit</u>	Deposit	+
	Total loan portfolio		

* For details see Chapter 4.

5.5 Results and discussion

Table 5.2 presents the key descriptive statistics for return on assets, financial sustainability, technical efficiency and deposit mobilization. The first half of the table shows the entire dataset and the second half of the table presents the results for 98 observations (after excluding the outlying observations). On average the ROA ranges between -1.79 to 0.86 and -0.18 to 0.86, with and without outlying observations respectively, and the average return on assets is 6% and 7% respectively. Generally the ROA reported here is almost twice the figure reported by Nyamsogoro (2010) for rural-based microfinance in Tanzania. The difference

might be explained by the fact that the majority of SACCOs included in our study (the ones with audited financial statements) are urban-based. Given the heterogeneity in institutional thickness and support system between rural and urban SACCOs, the later might enjoy reduced transaction costs and a superior support system.

According to ACCION (2004), the optimal range for return on assets in microfinance is 3% and above. Based on this benchmark, on average the SACCOs included in our study are doing well in terms of profitability. The mean financial sustainability is 133% and 127% respectively. Compared to the recommended minimum threshold (100%), our results indicate that on average the SACCOs included in the study are sustainable. However, the findings are slightly lower than those reported by Nyamsogoro (2010) for rural microfinance in Tanzania where he found an average financial sustainability of 156%. The average technical efficiency and deposit mobilization (a ratio of total savings and deposits to total loans) after excluding extreme values are 32% and 79% respectively. This implies that on average many SACCOs are relatively less efficient and about 21% of their funding is financed from external sources. It is important to note as mentioned earlier that our sample data may suffer from self-selection bias, because only SACCOs with audited financial statements were included in the study. They may have submitted their records for auditing because of current or future expectation for seeking external funding.

The summary statistics indicated that lowest quartiles (bottom 25%) had an average of 26% in deposit mobilization, implying that about 74% of their loans are externally funded, whereas the subsequent average deposit mobilization were 60%, 81% and 114% for the second, third and fourth quartiles respectively. Deposit mobilization for the top 25% was 114%, and 60% and 81% for the middle lower and middle upper 25% SACCOs respectively. When compared with loan size, larger SACCOs had lowest deposit mobilization compared to small ones. This could be explained by the economies of scale and potential effect of diversified membership in terms of savings and borrowing requirement. However the observed low rate of deposit mobilization for the lowest 25% should be a concern as a high level of leverage could lead to exposure of these institutions to a localized systemic default risk.

Table 5.2: Descriptive statistics

103 Observations					98 Observations (excluding Outliers)				
Variable	Mean	Std. Dev.	Min	Max	Variable	Mean	Std. Dev.	Min	Max
RoA	0.06	0.23	-1.79	0.86	RoA	0.07	0.11	-0.18	0.86
FSS	1.33	1.12	0.02	9.77	FSS	1.27	0.74	0.03	5.14
TE	0.32	0.20	0.00	0.74	TE	0.32	0.20	0.07	0.74
DM	1.23	4.50	0.02	45.71	DM	0.79	0.81	0.02	7.51

Note: RoA: Return on Assets; FSS: Financial Sustainability Score; TE: Bias corrected Technical Efficiency; DM: Deposit mobilization

About 84% of SACCOs had an operational cost to loan portfolio of less than 20% which is the recommended threshold according to international best practices (ACCION, 2004). When financial sustainability scores are plotted against loan size (as proxy of firm size) as demonstrated in Figure 5.1, financial sustainability seems to exhibit a non-linear relationship. Firms whose loan size was between TZS 1.8 billion and TZS 4.7 billion had the highest sustainability scores. The smallest firms and largest firms had lower financial sustainability scores. The results are consistent with what we found in Chapter 4 when analyzing efficiency. The practical implication of the observed behaviour could be explained by the effect of fixed cost and high cost of operation due to the small size of operation which constrains them from enjoying economies of scale. On the other side, with large SACCOs it is likely that they are too large and are likely to suffer the economies of scale and be exposed to stiff competition with commercial banks. The results from the box plot show that there are more variations in financial sustainability in smaller SACCOs (Quartile 1) than medium and larger SACCOs. The SACCOs with loan size in the range of quartiles 2-4 seem to have less variation in their financial sustainability scores. However, the average median sustainability scores seem to be similar across SACCOs of different sizes as demonstrated by the right hand side panel of Figure 5.1. The median is indicated by a horizontal line crossing the central box in each quartile.

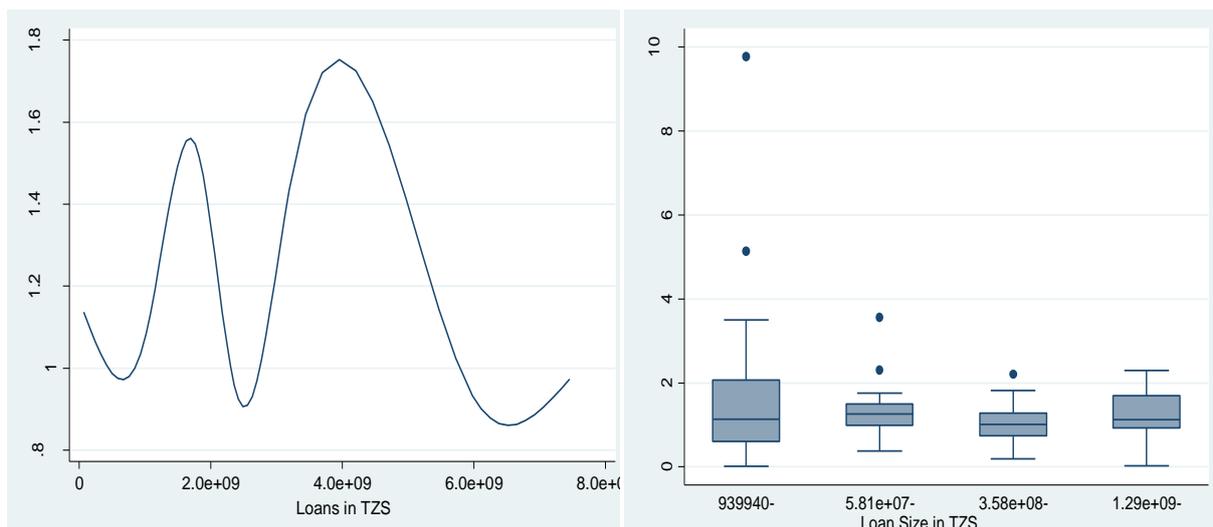


Figure 5.1: Left-hand panel: Financial sustainability and loan size
Right hand panel: Box plot for financial sustainability by loan quartiles

It appears that financial sustainability has a positive relationship with ROA. SACCOs with a negative ROA showed quite low financial sustainability scores, which suggests that their performance is quite low as they are not able to produce enough profit to cover their costs. They are generally performing poorly, hence they cannot cover their operational costs and their efficiency in transforming inputs at their disposal to outputs is relatively low. It might be that these organizations are relatively new to the business and they are trying to find their way. Also it may be that these SACCOs have invested excessively in long-term investments such as real estate which may take longer to realize returns on investment. It is important to note that once ROA approaches a positive territory, the corresponding values of financial sustainability scores increase sharply, with a turning point around 4.7% (indicated by the red line in Figure 5.2). As observed in the distribution of financial sustainability, the return on assets across quartiles seems to have similar patterns. The smaller SACCOs have a higher level of variation of ROA than larger SACCOs.

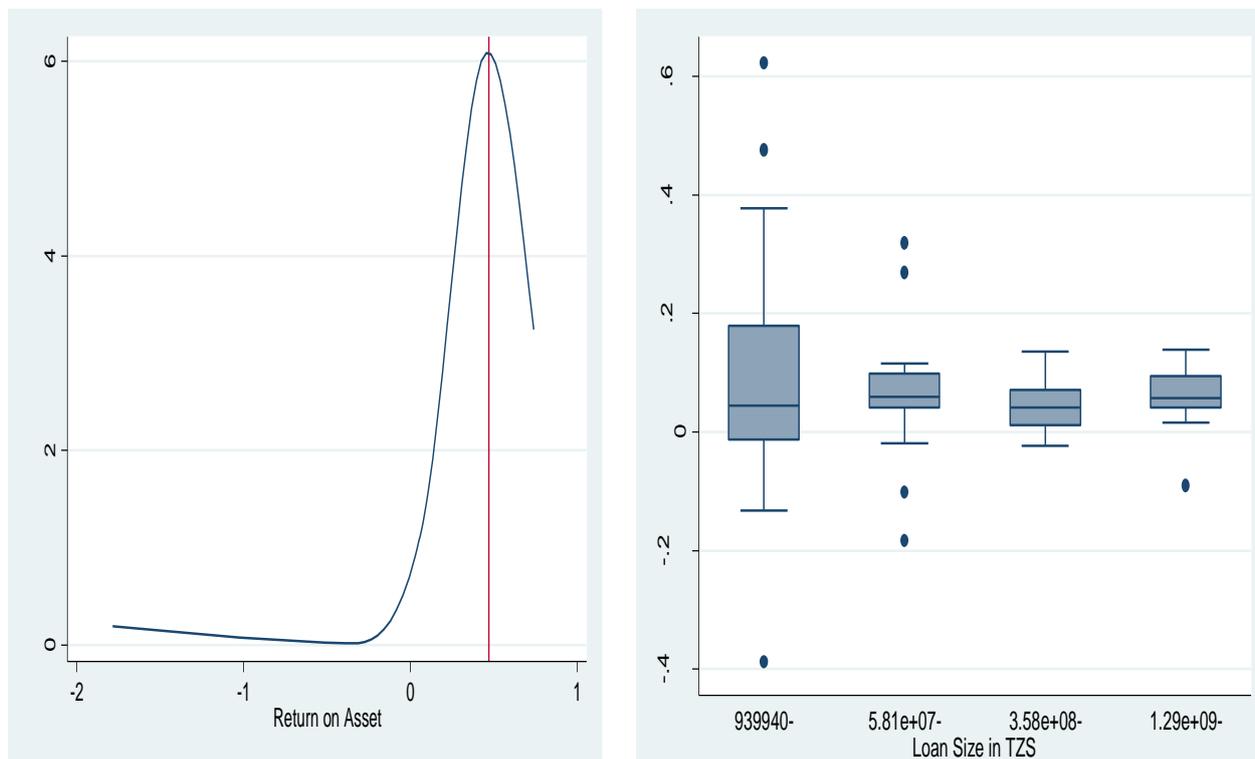


Figure 5.2: Left hand panel: Financial sustainability and return on assets
Right hand panel: Box plot for return on assets by loan quartiles

Table 5.3 presents the results of five different bivariate regressions. Based on the bivariate regression results for each independent variable against financial sustainability, the findings show that ROA, technical efficiency, deposit mobilization, cost per loan and loan size had a statistically significant positive influence on the sustainability of SACCOs. ROA is the single most important variable, explaining about 71% of the variation in financial sustainability alone. Based on R^2 , technical efficiency is also an important variable. The magnitudes of regression parameters for the two variables mentioned (ROA and technical efficiency) are relatively large compared to other parameters. ROA and technical efficiency have a positive sign, implying that they have a positive influence, as would be expected in theory. Cost per loan portfolio has a negative sign as predicted by theory. The implication of these results is that in order for the firms to improve their financial sustainability they must reduce their cost per loan and increase their net income. These results are in line with the theory and support the findings from Nyamsogoro (2010) and Kinde (2012).

Table 5.3: Bivariate regression analysis results on financial sustainability **

	Financial Sustainability	Financial Sustainability	Financial Sustainability	Financial Sustainability	Financial Sustainability
Return on Asset	6.55(7.78)				
Deposit Mobilization		0.05(0.64)			
Technical Efficiency*			1.56(4.27)		
Log (Loans)				-0.03(-0.69)	
Cost per loan					-0.21(-1.08)
Intercept	0.83 (17.54)	1.19(12.02)	0.74(7.89)	1.77(2.17)	1.26(17.87)
N	98	98	98	98	98
R Square	0.71	0.00	0.23	0.01	0.01
Residual diagnostics***	Kurtosis = 8.58 (Pvalue =0.00) Heteroskadasticity = 46.76 (Pvalue= 0.00)	Kurtosis = 2.35 (Pvalue =0.12)** Heteroskadasticity = 2.90 (Pvalue= 0.23)	Kurtosis = 2.8 (Pvalue =0.13)** Heteroskadasticity = 14 (Pvalue= 0.00)	Kurtosis = 2.17 (Pvalue =0.14)** Heteroskadasticity = 4 (Pvalue= 0.13)	Kurtosis = 2.33 (Pvalue =0.12)** Heteroskadasticity = 0.42 (Pvalue= 0.81)

*Bias corrected technical efficiency

** Regression parameters with *t* statistics in the brackets

*** The residual diagnostic are derived from IMTEST. The results show that the model in the first column and third column suffers from Heteroskadasticity problem. Robust standard was used to control this problem. Normality is not problem for most of the models except the model presented in column one. Further residual plot revealed that the distribution of the residual is relative well behaving (see figure A.5.4).

Table 5.4 shows the multiple regression results for the factors explaining financial sustainability of SACCOs. The variables included in the models explain about 75% of the total variation in financial sustainability scores, which is a reasonably good fit. After controlling for deposit mobilization, technical efficiency and cost per loan, the results still show that ROA is consistently the most significant factor determining financial sustainability. This is further echoed by its largest value of standardized regression coefficient as indicated in table 5.4. The influence of technical efficiency is also statistically significant in a multiple regression model. This confirms the theoretical expectation that, high efficient firms are more likely to have higher score of financial sustainability due to cost savings and higher level of profits in their operations (Nyamsogoro, 2010). In addition, we expect a positive relationship between return on assets and efficiency, which means that firms with a higher ROA are more likely to be efficient as indicated by the significant positive association between the two variables (see Table A.5.1 in the Appendix for more details).

Surprisingly, deposit mobilization influences financial sustainability scores negatively. In theory it would be expected that high deposit mobilization would lead to lower cost of capital and hence a high level of financial sustainability, but the empirical evidence suggests otherwise. The observed discrepancy may be explained by the possibility that SACCOs with

high deposit mobilization might be situated in the areas where there is a low level of institutional thickness, adverse operating environment and low linkages with other financial institutions which might lead to high transaction cost. Alternatively this may be due to the relative weight of savers/borrowers which leads to a low borrowing rate resulting in low income. The cost per loan portfolio has a negative influence on financial sustainability but not statistically significant. The literature recommends that the SACCOs whose cost per loan portfolio is above 20% needs to design innovative solutions to cut costs based on their operating environment (ACCION, 2004).

Table 5.4: Multiple regression analysis results on financial sustainability

FSS	Coef.	Standardized Coefficient	Robust Std. Err.	t	P>t	[95% CI]	
Return on Asset	6.73	0.85	0.76	8.88	0.00	5.12	8.43
Deposit Mobilization	-0.13	-0.15	0.06	-2.29	0.02	-0.25	-0.03
Technical Efficiency*	0.26	0.08	0.15	1.70	0.09	-0.21	0.43
Cost per unit loan	-0.00	0.00	0.31	-0.00	0.99	-0.60	0.60
Constant	0.81		0.06	12.55	0.00	0.76	1.00
N	98						
R Square	0.75						
Kurtosis = 9.6 (Pvalue =0.00)**		Heteroskadasticity = 56 (Pvalue= 0.00) ***					

Note: * Bias corrected technical efficiency

** Kurtosis chi square test statistics for normality derived from IMTEST that the residual is not normally distributed but the histogram plot (see figure A.5.3 in appendix) shows that the distribution is by large extent what well behaving. The non-normality can be attributed by the small sample size problem.

Test for Heteroskadasticity based on IMTEST show that our residual suffer from Heteroskadasticity problem. We used robust standard error to control for this problem.

It is important to note that some important control variables, such as age and interest rate charged, are missing, and this may lead to omitted variable bias. The empirical test for omitted variable bias was significant at 5%, which implies that our parameter estimates should be interpreted with caution. Previous studies have shown that younger microfinance operations are less sustainable than those which have been in operation for longer. Based on the MIX market data, this time is estimated to be between 5-10 years. Other variables such as age, geographical location, business model, and portfolio at risk (> 30 days) might have an important influence on performance. However the data for these factors were not easily

accessible during the study period. It is important to have a follow-up study which includes them.

5.6 Conclusion

Microfinance, including saving and credit cooperatives, plays a significant role in mitigating the credit market failure by providing financial services to the poor and low income earners. However, offering such a service to the poor is associated with high transaction costs, relatively high risk and a low rate of return. Based on these challenges it is imperative to investigate and monitor the financial sustainability of these institutions. In an effort to contribute to the current debates on sustainability of microfinance, this study investigated the financial sustainability of the fast-growing saving and credit cooperatives in Tanzania. Understanding the performance and sustainability of these institutions is important for two reasons: it is a necessary condition for institutional longevity and lasting services to the poor, and it is an important barometer for researchers, policy-makers, regulators and shareholders in guiding the industry in the desired direction.

Based on our sample, the results show that average return on assets is 7% and average financial sustainability is 127%. Overall the performance is satisfactory compared to international standards. The optimal return on assets for microfinance based on international best practice is 3% and above, the recommended operational sustainability is 100% and the recommended financial sustainability is 110%. In both measures, our sampled SACCOs are doing relatively well. Based on our data, the key determinants of financial sustainability are return on assets, deposit mobilization and technical efficiency. Of 103 SACCOs included in the study 61% were operationally sustainable and only 51% were both operationally and financially sustainable. Our results demonstrate that the financial cooperative model may yield better results than standard microfinance.

It is important to acknowledge that the sample used in this study may lead to upward bias in the estimation because only audited SACCOs were included. Future studies may wish to include non-audited SACCOs and data on other key variables such as age, portfolio at risk and geographical location.

CHAPTER 6

EFFICIENCY AND PROFITABILITY OF TANZANIAN SAVING AND CREDIT COOPERATIVES: WHO IS A STAR?¹⁰

6.1 Introduction

During the past three decades, Tanzania has witnessed a surge in the growth of Savings and Credit Cooperatives (SACCOs). They have increased in number by 565% between 2000 and 2013 (MAFC, 2013; BOT, 2013). These institutions play an important role in economic growth and development by bridging the existing financing gap due to market failure in the mainstream financial market. To put it into context, in Tanzania about 90% of the population is excluded from the mainstream financial system (FinScope, 2009). Despite the significant role which SACCOs might play in the economy, the performance and viability of the emerging industry remains unexplored. The smaller size and relatively risky operating environment of these institutions in terms of client composition and type of businesses supported may affect the profitability, efficiency and sustainability of these institutions, which in turn might affect the overall viability of the industry.

On the other side, since SACCOs are member-owned and -controlled mutual organizations, it might become easier to control the information asymmetry problem, lower the cost of screening and monitoring, and reduce transaction cost through peer pressure and monitoring (McKillop & Wilson, 2011). As a result, the combination of these factors may help to dampen the moral hazard problem, and instill an organizational culture which holds members accountable and prudent as to how they manage and use the financial resources. If this behaviour dominates, then these organizations may become efficient and commercially viable. However, which force may dominate remains an empirical question. In extending findings from Chapters 4 and 5, this chapter evaluates and classifies the performance of SACCOs through joint analysis of efficiency and profitability dimensions.

Specifically, the study employs the efficiency and profitability matrix to characterize the performance of SACCOs based on efficiency and profitability scores. The matrix linking the

¹⁰ This chapter has been published as an empirical paper in the *Journal of Economics and Behavioral Studies*, 2014, 6(8):658-669.

two performance dimensions is intended to capture the complex nature of organizational performance and help to develop the best performers (stars) and hence potential candidates for industry best practice. The findings from this study will provide insights into performance management and policy strategies for managers, regulators and policy makers. Moreover, the study provides a contribution to the empirical literature about the performance of financial cooperatives in a developing country context. This chapter combines the results from Chapters 4 and 5 to develop a multiple dimension performance index by using efficiency profitability matrix. This approach combine the strength of each of the two approaches and identify the SACCOs which are performing better in both dimension and which could be used as industry best practices.

The rest of the chapter is organized as follows: Section 6.2 presents the literature review, Section 6.3 presents the methodology, and the results and conclusion are presented in Sections 6.4 and 6.5 respectively.

6.2 Literature review

6.2.1 Definition of profitability and performance evaluation based on profitability analysis

Measuring profitability is the most important measure of the success of the business because a business that is not profitable cannot survive (Hofstrand, 2009). Profitability can be measured either from accounting perspectives or from economic perspectives. According to accounting perspectives, profit is measured as excess revenue over expenses for a transaction (Stickney & Weil, 2000; Edmonds, McNair, Millam & Olds, 2000). In other words, the accounting definition of profit can be defined as net income gained for a given transaction. It can be further expressed as ratio of net income over total financial revenue. Others studies have used more informative measures by using net income over assets, also known as return on assets (ROA). Depending on the objective of the research and the context, the net income to equity ratio is sometimes also used as a measure of profitability (Nyamsogoro, 2010). According to an economic perspective, profit is viewed as a net income after transactions plus the opportunity cost of the resources used to generate it (Bodie, Merton & Cleeton, 2009). Since we are using the data from audited financial statements, it is difficult to implement economic profit because it can be challenging to quantify the opportunity cost of resources; therefore the accounting profit approach is adopted.

Within the accounting approach we could use ROA or ROE or both. However, since some of the SACCOs are funded mainly by external loans and others are funded mainly by equity, this study will use ROA as a measure of profitability to avoid over-compensating the SACCOs with favourable access to external financing. In theory, financial institutions including microfinance generate revenue from loans, non-interest fees and other services such as insurance, money transmission, investing and factoring services (Nyamsogoro, 2010). Due to the nascent nature of the SACCOs industry, the major sources of income come from interest income and non-interest income. Other services such as insurance, money transfer and money market investments are limited or virtually non-existent.

From a management perspective, understanding the profitability patterns of SACCOs and microfinance is increasingly becoming an important endeavour since it is a crucial part of the sustainability equation of the industry. Also such information is important for industry regulators and shareholders for monitoring and evaluation of the industry performance.

6.2.2 Efficiency and performance evaluation

According to the classic definition, efficiency is the ability to produce the maximum output possible at a given level of input (Coelli, Rao, O'Donnell & Battese, 2005). It is measured as the ratio of output to input in a simple production setting in which a high ratio implies high efficiency levels. In a more general setting, where multiple inputs and multiple outputs are concerned, the efficiency becomes a scalar derived as a ratio of weighted sum of outputs and inputs (Vincent 1968 cited in Daraio & Simar, 2007; Lovell, 1993). The problem with the classic definition of efficiency is that it fails to distinguish between efficiency and productivity, which is also measured as a ratio between outputs and inputs (Daraio & Simar, 2007). In fact some authors have used the two concepts as synonymous without making any difference between the two (Sengupta, 1995; Cooper, Seiford & Tone, 2000). Daraio and Simar (2007) define efficiency as the distance between the quantity of inputs and outputs of a given firm compared to the distance of inputs and outputs for peer firms along the best possible frontier.

The current study will adopt Lovell's (1993) definition of efficiency in which efficiency is defined as the difference between the observed inputs and outputs for a given firm as compared to optimal values of its inputs and outputs. In our case, since we have multiple

inputs and outputs, efficiency is defined as a ratio of the weighted distance between outputs and inputs as compared to the best practice frontier. The best practice frontier is constructed as a locus of the scalar of weighted inputs and outputs of the best performers.

According to the theoretical and empirical literature, efficiency comes in different variations each capturing a specific dimension. These variations include technical efficiency, pure technical efficiency, scale efficiency, profit efficiency, cost efficiency, revenue efficiency, economic efficiency, and allocative efficiency (Coelli *et al*, 2005; Daraio & Simar, 2007). Despite variations in types of efficiency, they measure the performance of a firm using the extent to which it deviates from the best practice frontier given a specific dimension (cost, inputs, output or profit). Therefore the first step is to establish the best practice frontier using the high performing peer group and then compare all other firms' performance to the best practice. Once this is established the difference lies in whether the focus is on input minimization or output maximization as the way to technical efficiency. When the focus is on the optimal scale of operation it leads to scale efficiency, whereas cost minimization leads to cost efficiency, profit maximization leads to profit efficiency, and optimal resource allocation based on the price of inputs leads to allocative efficiency. In some instances, both allocative efficiency and technical efficiency are evaluated, which leads to economic efficiency. Further details about different types of efficiency are presented in Coelli *et al.* (2005) and Daraio and Simar (2007).

The choice of the type of efficiency to be estimated is influenced by the objective of the study and the data availability. The existing empirical studies show a mixed application: some use just one variation of efficiency, some use combinations of two or more of the approaches but it is rare to find studies combining all the variations of efficiency dimensions. Given the fact that most of SACCOs are small and are managed by managers with limited experience, educational background and training, it is imperative to investigate the extent to which SACCOs are effective in transforming the assets and other inputs at their disposal into outputs. Thus this study focuses mainly on the technical and profitability ratio in a framework of an efficiency-profitability matrix (see the next section for details) to map profiles of the different emerging performance patterns in the SACCOs' industry. Technical efficiency has been selected based on the availability of data. Also, since it is a comprehensive measure of both scale and pure technical efficiency, it captures both the effect of scale and management efficiency of the operation of each SACCO. Technical efficiency is estimated using bias

corrected Data Envelopment Analysis: this approach has been selected because of its flexibility in accommodating multiple input and multiple outputs (Coelli, 2005; Daraio & Simar, 2007; Zhu, 2014). More details about the estimation process of DEA are presented in Chapter 4.

6.2.3 Performance evaluation based on efficiency-profitability matrix

The literature on performance evaluation in the banking sector and other auxiliary financial service sectors including microfinance is divided into three strands. The first strand of literature focuses on the application of financial ratios in analyzing the performance of financial institutions (Tucker & Miles 2004; Yeh, 1996). The commonly used financial ratios include capital adequacy, profitability, assets utilization and liquidity (Yeh, 1996). Depending on the objective of the study and data availability some studies use different combinations of ratios among the four sub-categories or just focus on ROA and ROE. While this approach is useful in providing a snapshot of financial stability and profitability of financial institutions analyzed, it has been criticized for failing to capture the multiple dimensional natures of financial institutions (Athanassopoulos & Thanassoulis, 1995; Keramidou, Mimis, Fotinopoulou & Tassis, 2013).

As a result, most of the recent studies have focused on using a weighted index performance measure using data envelopment analysis. This strand of literature argues that most financial institutions use multiple inputs to produce multiple outputs. Therefore, a comprehensive approach which accounts for the multi-dimensional nature of the inputs and outputs is important for a more realistic measure of performance. This has led to the increasing popularity of DEA in performance evaluation of the banking sector in the past three decades. However, most of the studies taking this route have focused on technical efficiency and scale efficiency (Ho & Zhu, 2004; Aikaeli, 2008; Kamau, 2011; Moffat, 2008; Eken & Kale, 2011), while some of them have focused on cost efficiency (Casu, 2002; Berger & Humphrey, 1997). Another emerging strand of literature argues that standard measures of banking performance based on profitability ratios capture only one dimension of the performance which may be different from efficiency (Athanassopoulos & Thanassoulis, 1995; Kumar, 2008; Frimpong, 2010; Keramidou *et al*, 2013). They further argue that, while efficiency captures the multiple dimensional natures of the financial institutions, it does not capture all the factors which are important in the performance of financial institutions.

A third strand of literature argues conclusively that the performance of financial institutions is far more complex, which makes it difficult to capture using a single approach. As a solution, the literature proposes using the efficiency-profitability matrix developed by Boussofiane, Dyson and Thanassoulis (1991) to combine efficiency and profitability. This approach offers a more comprehensive assessment of the performance of financial institutions. The approach has been applied by some empirical researchers in evaluating the performance of the banking sector in Portugal, Cyprus and Ghana (Camanho & Dyson, 1999; Soteriou & Zenios, 1999; Frimpong, 2010). The proposed efficiency-profitability matrix provides an important and useful tool for analyzing and categorizing the best performers as “Stars” in the efficiency-profitability space.

Furthermore, the matrix identifies potential candidates whose efficiency and/or profitability needs to be improved as well as candidates for divestiture. The matrix is divided into four quadrants as illustrated in Figure 6.1 below. The first quadrant represents firms whose profitability is high but efficiency is low. These firms are called “Sleepers”, implying that they are not exploiting their full potential: they could become even more profitable by increasing efficiency. The second quadrant represents the best performers – “Stars”: these firms are characterized by a high level of efficiency and a high level of profitability. This group of firms is a good candidate for performance benchmarking and developing industrial best practice which takes into account the local context and operating environment.

Profitability Index	Sleepers I	Stars II
	Question Mark (?) III	Dogs IV
	Efficiency Index	

Figure 6.1: Efficiency-profitability matrix

Source: Adapted from Camanho and Dyson (1999)

The third quadrant (“Question mark”) represents firms with low efficiency and low profitability. These are potential candidates for further growth and improvement; they may

wish to borrow some of the good practices from the firms located in quadrant II. It is important to acknowledge that the performance of an organization is complex and is influenced by several factors, some of which the efficiency and profitability index may not be able to capture. Therefore, a detailed institutional investigation might be required to uncover the key challenges facing a specific organization. Despite such challenges, an organization in quadrant III may move into quadrant I, quadrant II or quadrant IV. Any quadrant apart from quadrant II is economically pareto inferior. In other words, if a firm graduates into any quadrant other than quadrant II it is still under-utilizing its potential for improvement. Therefore, the managers, policy makers and regulators are supposed to help the firms in all other quadrants to move towards quadrant II. This requires striking a balance between improved efficiency and profitability.

Firms in the fourth quadrant are termed “dogs”. These firms have high efficiency but a low profitability level. Such behaviour could be explained by an unfavourable operating environment, such as a high level of competition or low business potential catchment areas (Camanho & Dyson, 1999). These firms are good candidates for divestiture or strategic turnaround of their business model and operations. A long-term policy to increase business potential, including public investments in institutions such as schools and colleges, may also be possible solutions to revitalize the business potential.

The major challenge of using the efficiency-profitability matrix framework for comprehensive evaluation of the performance of financial institutions lies in setting the boundaries (Athanassopoulos & Thanassoulis, 1995). The precise boundary position between quadrants has remained subjective. For example Frimpong (2010) and Soteriou and Zenios (1999) used the arithmetic average of the efficiency index and profitability index, while Camanho and Dyson (1999) used a subjective boundary which is more skewed towards the top 10% of the efficiency score and about the top 25% of the profitability score. The current studies used the top 25% in both efficiency and profitability indices as the cut-off point. Since our efficiency data were skewed to the left, the choice of the cut-off was selected to avoid over-representation of the poor performers in the star quadrants which may have a dilution effect on the value of best practices to be derived from the benchmarks.

6.3 Methodology

6.3.1 Efficiency and profitability matrix construction

The profitability ratio has been estimated using the return on assets ratio (ROA). According to Joo, Nixon and Stoeberl (2011) ROA is the most popular profitability ratio which is used for relative comparison within a firm over time or across firms. It is a more comprehensive measure than ROE because it captures the overall performance of the institution's intermediations of total loanable funds including borrowed funds. In the case of SACCOs this measure is useful because it captures both shareholders equity and funds borrowed from other sources such as pension funds. The ROA is estimated as demonstrated in Equation 6.1 below:

$$\text{Return on Assets (RoA)} = \frac{\text{Net Income}}{\text{Total Assets}} \dots\dots\dots(6.1)$$

Using the results of bias corrected technical efficiency from Chapter 4, the efficiency-profitability matrix was constructed using the top 25 best performers in both technical efficiency and profitability ratios. The TE ratio was preferred to SE because it is a more comprehensive measure of both PTE and SE. The resulting matrix was used to identify the firms in each corresponding category. The data used to compute ROA is documented in Section 4.3.2 (Chapter 4).

6.4 Results and discussions

6.4.1 Profitability and efficiency results of all SACCOs, Top 25%

Profitability was measured using ROA. Efficiency was estimated using TE. Further decomposition of TE into PTE and SE for each SACCO was done using variable return to scale option. The aggregate results have been categorized into two groups: all SACCOs, and top 25% high performing SACCOs. All SACCO results report the overall average performance of SACCOs with respect to profitability and efficiency measures. The top 25% represents the results of the top 25% SACCOs in each dimension of profitability and TE.

The presence of technical inefficiency may be due to excessive utilization of inputs (too much wastage) or operating below or above the optimal scale of operation (PTE measures the former dimension while SE measures the latter). Similar results are presented for the top 25% high performing SACCOs in each of the four measures (ROA, TE, PTE, and SE). The

average estimate for ROA assets, TE, PTE and SE for all the three categories of SACCOs are presented in Table 6.1 below.

Table 6.1: Efficiency and profitability results

Variable	Overall mean (N=103)	Top 25% Mean (n=26)
RoA	0.07	0.19
Bias Corrected TE	0.32	0.49
Bias Corrected PTE	0.43	0.71
Bias Corrected SCALE	0.77	1.0

Note: ROA is return on assets, TE is technical efficiency, PTE is pure technical efficiency, and SE is scale efficiency.

Based on our data, the average ROA was 7% for all SACCOs and 19% for the top 25%. The reported ROA is relatively high compared to the international benchmark of 3% ROA for best practice in microfinance (ACCION, 2004). In fact the ROA in our study is higher than the 3% ROA reported in the commercial bank sector in East Africa region by EIB (2013). When comparing ROA figures across the sub-groups, the top 25% have the highest ROA (19%) compared to the overall average (7%).

Another important variable is technical efficiency (TE), followed by pure technical efficiency (PTE). Figure 6.1 demonstrates the emerging performance partner across the three performance indicators between the top 25% average and overall average. When looking across difference performance measures, the discrepancy among the two categories (all firms and top 25%) is sharper in ROA and TE. The implication from these results is that TE and ROA may have an important role in classifying SACCOs into top performers and low performers.

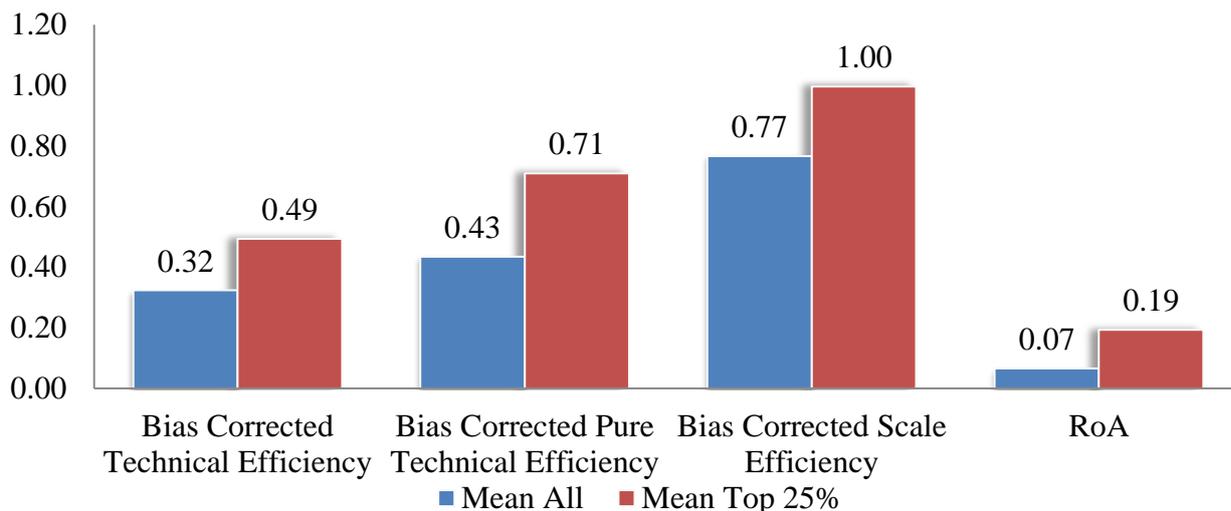


Figure 5.2: Return on assets, technical, pure technical and scale efficiency of all SACCOS and top 25%

6.4.2 Efficiency-profitability matrix classification

The classification results are demonstrated in Figure 6.3 and presented in detail in Table 6.2. Only 12 out of 103 SACCOS were found to be among the top 25% performers in both TE and profitability dimensions. These SACCOS are the industry leaders and can be used to develop the industry best practices. Figure 6.3 below presents the scatter plot of the distribution of all 103 SACCOS across different quartiles based on their individual performance score. Based on the observed patterns it is clear that most of SACCOS (61%) are in the question mark quadrant, implying that they are struggling in both dimensions of efficiency and profitability.

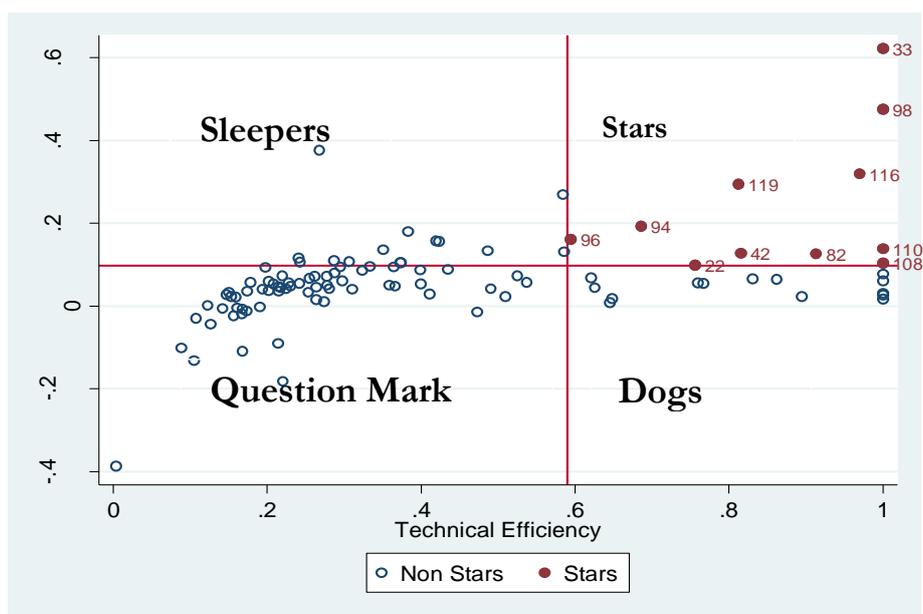


Figure 6.3: The distribution of SACCOS among the four quadrants

These groups of SACCOS raises a serious concern and their management should become more innovative in designing workable strategies to foster their cost reduction and profitability potential. These could be achieved by designing effective strategies to improve both efficiency and profitability. Such strategies may include reducing the wastage of resources during the intermediation process and other profit management strategies.

Table 6.2: Efficiency–profitability classification of SACCOS

Quadrant	Classification	Frequency	Percentage
I	Sleepers	14	14%
II	Stars	12	12%
III	Question Mark	63	61%
IV	Dogs	14	14%

About 14 other SACCOS were classified as sleepers: they are among the top 25% in terms of profitability but they lag behind in the efficiency dimension. A closer look at this group reveals that, on average, they have high average loan portfolios compared to SACCOS in the other quadrants. The leverage effect might explain high profit but low efficiency. There is a significant potential to increase the performance of these organizations by reducing the wastage of resources along the intermediation process. This is demonstrated by the low TE scores as reported in Chapter 4. Another group of 14 SACCOS was found to have high efficiency but low profit. These firms might be experiencing stiff competitive pressure or they might be operating in a low business catchment zone. They are potential candidates for divestiture or merging with other firms in quadrant II.

6.5 Conclusions and recommendations

The objective of this chapter was to evaluate and benchmark the performance of SACCOS in Tanzania based on efficiency and profitability measures. We developed a classification matrix based on four categories: one category comprised the best performers in both dimensions while the other three categories comprised underperformers in different dimensions. The underperformers included those firms struggling in both dimensions and those which struggle in either the efficiency dimension or the profitability dimension. Such a classification tool provides important information for monitoring, evaluating and improving the performance and profitability of organizations, and such evidence is useful in guiding policy makers, regulators and managers in steering the industry in the right direction.

Our results reveals curious classification patterns. About 61% of the SACCOs are classified as underperforming in both efficiency and profitability dimensions. These groups need an urgent turn around strategy which focuses on wastage reduction during the intermediation process and increasing profitability. Another group of firms (28%) is required to improve either their profitability or efficiency strategy depending on whether they are in quadrant IV or I respectively. Only 12% of the SACCOs were classified as best performers. These could be used to develop an industry best practice for struggling firms to learn from. We acknowledge that it may be unrealistic to expect about 25% or 26 SACCOs to be among the top performers based on 25% cutoff, however 12 of SACCOs out of expected 26 SACCOs is definitely a sign of poor performance in the industry.

The observed poor performance in the industry is more worrying given the fact that the SACCOs included in the study are likely to be among the top performers in their own region. This implies that an urgent turnaround strategy is required in the industry. Learning the best practices from the best performers in the country and elsewhere may offer some useful insights to the struggling SACCOs. These findings show important insights for the regulators, academia, and managers of the SACCOs. From the perspective of regulators, a close watch and monitoring of the industry is required. This should be complemented with a supporting environment in nurturing and steering the industry in the right direction. Such action is important given the recent surge in growth of this industry and the recorded poor performance which may signal a future performance crisis.

CHAPTER 7

WHAT DRIVES PERFORMANCE AMONG TANZANIAN SAVINGS AND CREDIT COOPERATIVES? MULTIPLE CASE STUDY APPROACH¹¹

7.1 Introduction

The Savings and Credit Cooperatives (SACCOs) model (also known as credit unions in North America) has been widely spread around the world, especially North America and Europe. However, sub-Saharan Africa, and Tanzania in particular, have lagged behind in adopting and spreading the model except in the past three decades or so. After a significant time lag in adoption of the model in Tanzania, the country has witnessed a surge of SACCOs during the past 15 years. The industry grew by 565% in terms of membership between 2000 and 2013 (MAFC, 2013; BOT, 2013). Such explosive growth within a short time is a concern that motivates this study. Thus, the question this research seeks to elucidate is **“how healthy is this industry?”** Part I of the project focused on the quantitative aspect of measuring performance in terms of efficiency and sustainability of these institutions. Overall, the performance of the institutions showed mixed results which affirm our concerns about the observed explosive growth. More specifically, our results in Chapter 6 revealed that there are few “well-performing” SACCOs (in terms of efficiency, sustainability and profitability) and many struggling SACCOs^{12,13}. This part of the project set out to use a case study research approach to obtain an in-depth understanding of what drives performance among SACCOs and explore if there are any discernible patterns between the top performers and low performers. The knowledge garnered will complement our empirical findings and provide a more nuanced understanding of how to manage and regulate the industry in the right direction.

To close the loop, this chapter completes the three quantitative essays by using multiple case studies to discern what the key drivers of performance among SACCOs are.

7.2 A survey of literature on drivers of performance in SACCOs

According to economic theory large firms are expected to perform better because of the economies of scale and scope, while small firms may suffer from high fixed costs (Nicholson

¹¹ This chapter has been submitted for review as an empirical paper to the *Journal of African Economies*.

¹² The details on this can be found in Chapter 4.

¹³ The details on this can be found in Chapters 5 and 6.

& Sydner, 2011; Varian, 1992). Apart from general economic theory about size, empirically large credit unions have been documented to have a higher ability to attract diverse membership and a high skill pool of members. This enables them to be able to choose a governance team to run the organization, in contrast to small credit unions with homogeneous membership (McKillop & Wilson, 2011; Goddard, McKillop & Wilson, 2008) and expertise. However, credit unions that are too large may lead to diseconomies of scale, agency problems such as empire building, and dilution of cooperative values, which in turn may affect the performance of the organization (Nicholson & Sydner, 2011; Birchall, 2005; McKillop & Wilson, 2011; Goddard *et al.*, 2008). Therefore, size is one of the key variables investigated. Quality of leadership and governance plays a significant role both in making and implementing strategic decisions and overseeing the day-to-day operations of the organization (CMEF, 2012; Adams, Hermalin & Weisbach, 2010; Bassem, 2009; Pearce & Helms, 2001). It is argued that good governance and leadership plays a critical role in organizational survival and prosperity (CMEF, 2012; McKillop & Wilson, 2011; Bond, Carter & Sexton, 2009; Mannion, Davies & Marshall, 2005). Also a good board will have high intensity of monitoring, diversity in the skills set and gender composition, training of the board members and effective research management (Strøm, D'Espallier & Mersland, 2014; Garza-Garcia 2011; Gallego-Álvarez, García-Sánchez & Rodríguez-Dominguez, 2010; Adams & Ferreira, 2007, 2009; Mersland & Strøm, 2009; Francoeur, Labelle & Sinclair-Desgagné, 2008; Farrell & Hersch, 2005).

Another important dimension in the performance of SACCOs is cooperative principles. Cooperative principles and values have been developed based on international best practices to uniquely define the identity of cooperatives and differentiate them from other forms of enterprises. More important, they are supposed to be used as a guide for keeping active membership and control of the technocratic power of their managers as they become large (Rixon, 2013; Birchall, 2005). The key cooperative values and seven principles are summarised in Table 7.1 below. The first column lists key values, the second column lists principles and the third column has the proxies for how the key values and principles are operationalised in practice (Birchall, 2005; Beaubien & Rixon, 2012; Rixon, 2013). We hypothesise that better performing institutions have a higher intensity of integrating or using the seven cooperative principles in their governance and management practices than low performing SACCOs. This implies that high performing SACCOs are more democratic in making decisions such as choosing board members, setting interest rates for lending and

borrowing, active participation of members in annual general meetings, dividend payouts to members, and community dividends such as school contributions and hospital financing. Also they are more likely to have a low level of debt, more equity and active involvement in cooperative federation and vertical collaboration with other financial institutions and cooperatives. Thus questions probing implementation of the seven core principles were explored.

Table 7.1: The key values and seven principles of cooperatives

First Order Values	Second Order Values	Principles	Co-operative Practices
<i>Political values:</i>	Democracy	Voluntary/open membership	Member recruitment strategy
Liberty	Equity		
Equality	Self-help	Democratic member control	Director education and training
Solidarity	Self-reliance		
<i>Ethical values:</i>		Member economic participation	Members 'Dividend' cards
Honesty		Autonomy and independence	Internal capital raising
Openness		Education, training and information	Marketing the 'Co-op difference'
Social responsibility		Co-operation among co-ops	Support for federation
Caring for others		Concern for community	Community 'dividend'

Source: Adapted from Birchall (2005)

Other factors which have been mentioned in the literature to affect performance include operating environment (rural or urban), technology, regulations and macroeconomic conditions (Sharma, Sharma & Barua, 2012; Oteng-Abiyie, Amanor & Frimpong, 2011; Relampagos, Lamberte & Grahan, 1990; Sufian and Noor, 2009; Worthington, 1998). Apart from these factors, open-ended questions were included to probe other emerging concerns and opportunities from the management and governance perspectives and experiences. These open-ended questions helped to capture context-specific concerns which are unique or not widely reported in the literature, including social, ethical, economic and administrative issues.

7.3 Methodological approach

We used a multiple case study research design in which a total of 19 cases were selected for the study. Out of the 19 cases, 17 cases were selected based on the performance index reported in Chapter 6. Two extra cases (not in our original sample) were included because they were highly recommended by the subject matter specialists during the field work. According to the experts in the field the two additional cases are regarded as high performing SACCOs countrywide. Out of the 19 SACCOs six were low performing (that is, belonged to the dog quadrant), two were medium performing (belonged to either question mark or sleepers' quadrant) and eleven were high performing SACCOs (belonged to the star quadrant). In terms of a common bond 10 were workers-based SACCOs and nine were community-based SACCOs. Because of the ethical reasons no actual names of SACCOs have been used in reporting, instead we randomly assigned them name 1 through 19.

The performance index which was used for classification was based on efficiency, sustainability and profitability based on our previous empirical work in Chapter 6 was used. The selection was done on a two-step approach. In the first step, a cluster of low and high performing SACCOs were selected based on the results from the classification matrix in figure 6.3 of Chapter 6. In the second step, an effort was made to control for the diversity of SACCOs in terms of size, membership composition or common bond (eg workers vs non-workers) within low performing and high performing SACCOs. The high performing SACCOs were slightly oversampled (11 out of 19) in order to have a better knowledge of what makes better SACCOs.

We used a combination of diverse and most different case selection strategy based on performance indicators. Seawright and Gerring (2008) argue that the combination of the two strategies could provide the strongest basis of generalization. In addition, by focusing on either ends of the performance spectrum (high and low performers) offers a sharper contrast in terms of management, governance and experiences among SACCOs which might provide more valuable insights and perspectives than the sample of the middle performers (Mannion *et al.*, 2005). A causal process tracing case study approach was used to explore what made the observed performance the outcome possible as recommended by Blatter (2015). The sample SACCOs were drawn from three regions: Dar Es Salaam, Arusha and Mwanza. The fourth region, Kilimanjaro, was not included because it had few reported SACCOs and did not have

a diversity of high performing and low performing to choose from. All of the SACCOs in the region were either low performing or middling but none was identified as high performing.

A multiple case study approach was chosen to enable comparative analysis of top performers and low performers. An instrumental case study design was used rather than intrinsic, meaning that we expected to collect information which might lead to some “generalization” (Yin, 2009; Remenyi; 2013; Harvard, 2013). Our approach was pragmatic rather than naturalistic, implying that it was guided by focused semi-structured questions which were refined iteratively through engagement with the cases (Yin, 2009).

The study unit comprised SACCOs which were represented by management (board chair and manager). The data collection approach involved visiting the selected SACCOs where detailed in-depth interviews with managers and board members were conducted. Initially we planned to include members but it was technically not feasible given the time limitation and their geographical dispersion. We had a meeting which lasted between 60-120 minutes at each SACCO. In each SACCOs the meeting included at least a board chairman and/or a manager. Where possible the board chairman, manager and loan officers participated jointly in the in-depth interview. Table 7.2 provides breakdown of the participants from each SACCO. The data source was triangulated by having two interviewers (the researcher and a trained master’s student) who was recording the research and summarizing the results independently before combining them. Initially we planned to collect data from archival sources and from the members but it were not possible practically due to the fragmented nature or non-existence of proper record-keeping among SACCOs.

The interview was guided by a semi-structured questionnaire (see Appendix A.7.3) to ensure that the key themes reported in the literature are explored and provide reliable and comparable data across SACCOs. The research focused on the following themes: historical background and strategic mission; key drivers of SACCOs’ performance; seven principles of cooperatives and how they are being applied in running SACCOs; quality of governance; quality of management; incidence of mismanagement of funds; political interference; and other emerging concerns. Depending on availability, data from secondary sources (annual financial and performance reports, company policy) were also collected. The major questions to be answered were:

- i. Do larger firms perform better than small firms?
- ii. Do quality of management and governance matter?
- iii. Do firms which effectively follow cooperative principles in their operation perform better than those which do not?
- iv. What else is affecting the performance of your SACCO? (social, political, ethical, and administrative)

The information collected was analyzed using content analysis. The coding and grouping were done manually to identify the emerging common themes. Further detailed analysis was done to compare workers' SACCOs and community-based SACCOs. Such comparison is useful in identifying unique challenges based on the type of common bonds. The emerging themes and concerns were discussed in relation to existing theoretical and empirical literature with a focus on what distinguishes high performing from low performing SACCOs.

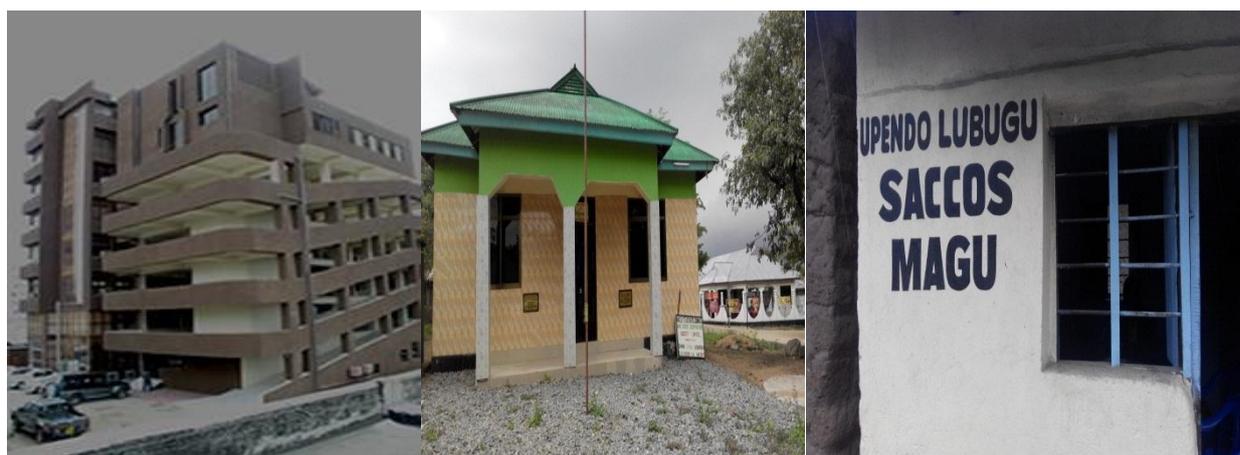
Table 7.2: The breakdown of the participants from each SACCO

SACCO Name	Board Chair	Manager	Loan Officer	Total Participants
1	X	X	X	3
2		X	X	2
3	X	X		2
4	X	X		2
5		X		1
6	X	X		2
7		X		1
8		X		1
9	X	X		2
10	X	X	X	3
11		X		1
12		X		1
13	X	X		2
14	X	X	X	3
15		X		1
16	X			1
17	X			1
18	X	X		2
19		X		1

7.4 Results and discussion

The SACCOs visited were diverse in terms of asset ownership, operating environment and type of common bond among members. Figure 7.1 illustrates the offices of some of the top performers in the sample. The first office and parking complex (to the left) belongs to one of the leading and largest SACCOs in the country. The second building is owned by a medium sized high performing SACCO located in the northeast of Mwanza region. The third picture (right) is the office rented by one of the rural SACCOs in Mwanza region. Based on the diversity as shown in the pictures in Figure 7.1 and in our field experience it became apparent that the three SACCOs are operating in distinctly different environments, and are exposed to different opportunities and access to resources. Yet according to our performance matrix all of them were categorised as high performing SACCOs. The first two SACCOs built their own offices while the third SACCO is renting from a local landlord. All these three SACCOs were categorized as high performing in terms of efficiency, sustainability and profitability.

We used the three pictures for conciseness but each represents a sample cluster of the operating environment of SACCOs in our study population. More importantly, the key lesson which emerges here is that, even though size is important and urban SACCOs enjoy more advantages in terms of population density and other infrastructure, small and rural-based SACCOs can still thrive and stand on their own feet. More specifically, they can afford to offer superior financial services without compromising on their sustainability.



SACCO 1 (Urban)

SACCO 7 (Town)

SACCO 9 (Rural)

Figure 7.1: Offices of some of selected top performers

After in-depth studies of the high performing and low performing SACCOs, several concerns emerged as setbacks of performance in SACCOs. We categorised these concerns

(opportunities) into four major themes: common concerns (opportunities), worker-based SACCOs concerns (opportunities), community-based concerns (opportunities), unique but pressing concerns. The common concerns cluster includes all the opportunities and challenges which affect the performance of SACCOs across the board. The worker-based SACCOs concerns focused on worker-specific challenges and opportunities. The community-based SACCOs concerns focused on non-workers (street/community) specific challenges and opportunities. The rest of the section will discuss common concerns (opportunities), workers concerns (opportunities), community concerns (opportunities) and unique concerns.

7.4.1 Common emerging concerns (opportunities) on SACCOs performance

i) Being closer to the community and financial exclusion from mainstream banking

The respondents from all SACCOS visited revealed that SACCOs visited were formed to address the financial exclusion problem and empower their members through offering savings and loan products for consumption smoothing and investments. This is in line with the debate on financial market failure and credit rationing by mainstream banking in Tanzania, where more than 90% of the population is excluded from the formal financial system (FinScope, 2009). The potential market is still huge and most of the banks are reluctant to operate in the lower income space, which gives SACCOs a unique advantage in terms of potential market. Since SACCOs are a type of community-initiated micro banking, there is a close relationship between SACCOs' officers and their members. In most cases the management team also comes from within the community, which makes it easy to monitor borrowers. It also makes it easy for members to monitor the behaviour of their managers and board members in managing their hard-earned savings. All in all, being close to the community offers the members and management an information advantage over what the mainstream bank could not feasibly have access to. Such information advantage helps to mitigate the traditional problem of information asymmetry, especially the problem of adverse selection among borrowers. For example, it opens up room for other forms of non-traditional collateral (soft collateral) and screening mechanisms such as social networks and community trustworthiness of the borrowers. This is demonstrated by the following quotations from the manager and a member from SACCO 14.

This is a bank of the people by the people. We live with our clients which enables us to understand their behaviour and social economic activities which make our work easier. (Manager – SACCO 14)

This is our bank, we live and work with our leaders and by the end of the year we receive dividends contrary to major banks which will never recognise you because you are too poor for them. (A member of SACCO 14)

However, it is instructive to note that the information advantage and peer monitoring is effective for small group/communities, but it becomes less effective once the SACCOs grow bigger and relax their common bond. For example SACCO 18 in Mwanza region was supported and founded by donors with a major focus on outreach. In order to maximize the impact on outreach they opened up a common bond to accept any person in the middle to lower income bracket who lives or works in Mwanza city. Yes indeed, they grew exponentially in terms of membership but they lost members' cohesion, and peer monitoring and cooperative identity became weak. They were seen as a safe haven for strategic defaulters who joined the SACCO with the intention of taking a loan and disappearing. The default rate increased significantly and the transaction cost of monitoring and loan recovery exploded. As of now the SACCO has suspended its operation for two years and is undergoing a resuscitation programme by Equity Bank¹⁴. The SACCO is bleeding financially due to membership dropout as demonstrated in Figure 7.2. The management is working to get a turnaround strategy including narrowing the open common bond to a stricter and more manageable common bond.

¹⁴ Equity Bank is a Kenyan-based bank offering retail banking, microfinance and related services. Recently it has opened its doors to other East African countries including Tanzania, Uganda, Rwanda and South Sudan.

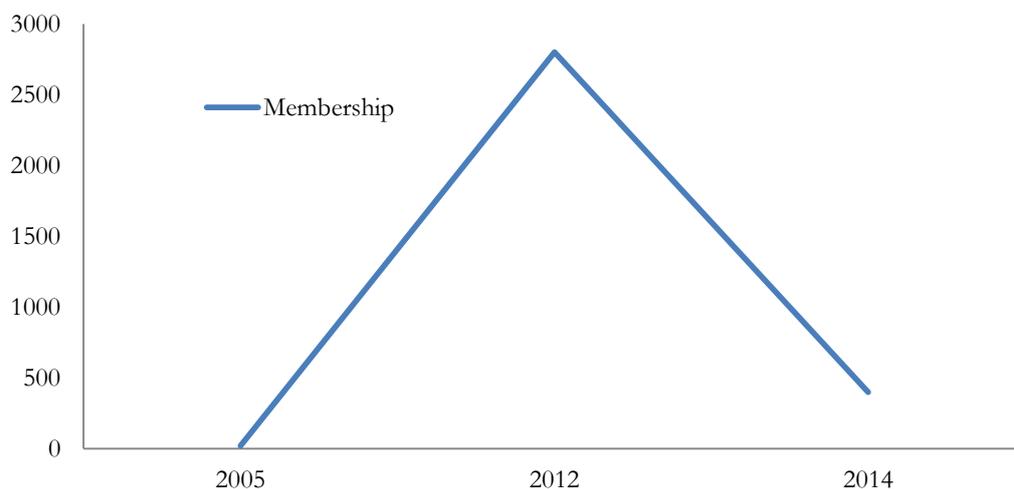


Figure 7.2: Membership growth over time for SACCO 18

I think we opened up our door too wide. Many people “good” and “bad” flocked in, we lost internal control since we didn’t know each other well. Our business is mainly hinged on trust, once it is broken the business vanishes. (Manager from SACCO 18)

We would love to serve all the women in Dar Es Salaam but some women are crooks and have evil intentions. Before lending, you need to know your client history better. But with wide geographical coverage it is very difficult to know your clients closely. We have resorted into use of collateral. But members are still letting us down. For example we have a case going on in the court where one of our members gave us a title deed of her house as collateral for TZS 45 million loan but also clandestinely borrowed using the same house from a commercial bank where she surrendered the initial purchase contract. By the time she defaulted our loan, we wanted to repossess the house just to realise that the bank had already sold the house due to a default of 6 million TZS she took from them. Untrustworthiness, lack of financial responsibility and multiple loans is a drug in our business. (Manager – SACCO 2)

In sum, being a community-initiated micro bank, owned by the community and working for the community offers unique advantages to SACCOs which increase their members’ loyalty and patronage to services and survival. But such unique advantages are eroded once the institutions open up their common bond and become open to different communities, and when

the members perceive that the management is not running the institutions responsibly. High performing SACCOs have a relatively well defined and “closed” common bond which helps to create the strong identify and “we” feeling among the members and amplify the patronage and responsible behaviour among members. Deviant members can be easily detected and dealt with collectively in contrast to flexible bond SACCOs which easily succumb to the standard problem of free-riding in peer monitoring and strategic defaulting.

ii) Diversification of income-earning activities

Most top-performing SACCOs have diversified income sources in contrast to those which depend only on fees and interest income. For example, SACCO 3 in Arusha is one of the most diversified SACCOs in our sample and had the highest sustainability score. It generates total annual revenue which is three times higher than total expenses. SACCO 3 assumed a conservative growth strategy and a very strict common bond. It started with 87 members during 2008 and by the end of 2015 had only 80 members but they were very active. Their capital is diversified into the milk distribution business which is the major source of income and they have their own shops which service their members as well as outsiders. Also they have a meat shop which offers services to members and general public. When combined with interest income and fees from SACCO’s operation, their annual net income is outstanding and it is one of the most sustainable SACCOs in the sample.

Other top-performing SACCOs which have adopted income diversification opportunities are SACCO 1, SACCO 10 and SACCO 13. These SACCOs adopted different strategies of income diversification: some invested in real estate and land development, some invested in stock markets, and some invested in small business. For example SACCO 1 has invested in two eight storey buildings (see the picture on the left in Figure 7.1) in Dar Es Salaam central business district. One building is for the office complex and the other is for parking. The SACCOs operations use part of the office complex to run their operations, the rest of the building is rented out to other businesses. Apart from the buildings, they also buy large tracts of land in areas where there is potential for growth: they survey the land, process the title deeds and sell surveyed plots to their members with a profit margin. The real estate sector in major cities in Tanzania is booming given the high rate of rural-urban influx and population growth. They have also invested in different companies through the Dar Es Salaam stock

exchange. The narratives below demonstrate the experiences of management on diversification.

Our diversification strategy has helped us in many ways. First of all it has enabled us to empower our members by selling the plots which are fully surveyed with title deeds albeit the bureaucracy in the land departments. Also we have managed to make some sizable income from stock market. For example we bought CRDB Bank shares @ 120 TZS about two years ago and now we sold them @ 500 TZS which gave us a reasonable margin towards our net income. (Board Chairperson – SACCO 1)

We bought land for development about two years ago for 45 million TZS and we later sold it for 75 million TZS recently. It was not a bad margin. Since we have excess funds we are trying to extend loans for other SACCOs, however we don't know how to effectively do it. At the moment we are offering wholesale loans based on our previous relations with specific SACCOs. (Board Chairman – SACCO 13)

Our core business is tomato brokering but along the way we sell products and services related to tomato business like new and used crates for tomato packaging, fee collection and other related businesses. The SACCO is there to offer saving facility and complementary financial and investment services. We have committed ourselves to religiously contribute 10% of our daily sales into our SACCOs. As of now we have excess funds which are more than loan demand but may not be enough for our future strategic investment including real estate and office complex. (Deputy Chairman of the BoD – SACCO 10)

All in all, most well-performing SACCOs were more innovative and proactive in generating extra income sources beyond traditional fees and interest income. Some of them, such as SACCO 3, have extra management structures in place such as a business committee responsible for alternative investment decisions. When viewed from a broader perspective these SACCOs are adopting a multipurpose cooperative strategy with both investment services and retail services. This category of SACCO enjoys both the inherent advantages of

diversification and the economies of scope, especially when the projects are housed within the same location as the SACCOs and/or can use the same resources. However, there are other high-performing SACCOs, such as SACCO 7, which survive on interest and fee income, but their relative performance lags behind those SACCOs which adopted diversification strategies. Conversely, low performing SACCOs had limited or no income diversification strategy and relied mainly on interest income to run their operations. With low volume and frequency of transactions and a relatively low interest rate on loans (12-24%) compared to commercial lending (18-30%) it is difficult to accumulate extra revenue to run the business sustainably.

iii) Good governance and quality management

Corporate governance and effective leadership play a key role in high performing firms. By law, most SACCOs have a board of directors composed of nine members and at least two committees, a steering committee and an audit committee, while some SACCOs may have more if they so wish. What emerges as a distinguishing factor for high performing SACCOs is the dedication and responsiveness of the board members in carrying out their duties. Board members of high performing firms met regularly, at least four times a year, and have effective oversight on the management and financial affairs of the organization. In addition board members in high performing SACCOs are treated like any other member should they wish to use the financial services such as borrowing. They have clear procedures and rules guiding the loan disbursement, repayment and follow up of nonperforming loans. For example SACCO 2, which was the best SACCO during National Credit Union day in 2014, is strict and clear on its loan procedures. For them, if you are a board member and you default, your membership will be revoked and necessary action for recovery of the loan is taken as per procedure. They believe that leaders should lead by being good examples in managing their loans and financial affairs.

At face value, an assessment of the quality of governance and management based on the composition and structure of the board members and manager's education shows no systematic difference between low and high performing SACCOs, as demonstrated in Table A.7.2. This is not surprising because according to regulations imposed on them through cooperative acts they need to comply with minimum criteria. What really distinguishes the high performing from low performing SACCOs is more of organization culture on how to

implement and stay impartial during the oversight and intermediation process by the board members and management.

The education of the board members was heterogeneous but at least all of them could read and write. By law (URT, 2013), all board members are supposed to have a minimum of secondary school education but for rural areas this can be relaxed into the ability to read and write due to the shortage of qualified people. For bigger SACCOs, having board members with extensive financial education and experience gave them an extra advantage. For example the board chair of SACCO 14 is an accountant and the accountant of SACCO 1 has an MBA and is a CPA holder. Some board members from small rural SACCOs argue that advanced financial education and experience are not essential but they need a person who is committed and trustworthy and who can read and interpret financial statements. A good example is SACCO 9, which is a well performing SACCO but is being managed and governed by the local villages mostly with primary education and hardly any secondary education. But they are very committed to cutting down expenses and increasing their revenue. They control expenses and are vigilant in considering alternative sources of revenue. They had a very bad experience with a trained accountant which is evident in their negative attitude towards the educated as demonstrated by the quote below.

We were doing quite well but about two years ago we hired an educated accountant. He was extravagant and he used to play around with numbers. He almost pushed us to a bottomless pit. As board chair after realising this I had to make the difficult choice with my fellow board members of firing him. He was not happy with my decision and he took me to court but I am happy that at least I rescued our SACCO and our legacy. We are so afraid of educated elite and they will never be given administrative or leadership position in our SACCO. They are just clever evils (robbers) who can steal in daylight without being noticed but they are welcome to become members. (Board Chair – SACCO 9)

According to the perceptions of the respondents, an effective board should have committed dedicated and informed members who are trustworthy, proactive, and good at conflict resolution and decision making. The respondents also reported that board members must be willing and ready to serve the community. Likewise, the manager and other staff members

must have relevant cooperatives and financial education, be trustworthy and willing and ready to serve the community. In sum, high performing SACCOs had active and responsible board members and relatively well-trained managers who are highly committed and dedicated to make a positive impact on the community. Most of the poor performing SACCOs had either less committed board members and/or managers who were too busy with other activities to devote meaningful time to cooperative affairs.

iv) Capital constraints

Of the 19 SACCOs visited 17 complained about significant capital constraints. Members have high appetite for borrowing but SACCOs do not have enough money to lend. As a matter of practice, members are allowed to borrow up to three times their saving; this makes it difficult to have enough internal capital to meet the members' demand. Borrowing money from local and international financial markets is prohibitively costly and leaves them with little margin. Most of the SACCOs visited charge interest rates between 14% and 24% Annual Percentage Rate (APR). However, most of the local commercial banks extend wholesale loans at an interest rate of 17–23% APR, and there are international players such as Oiko Credit¹⁵ which extends a loan with a flexible interest between 12%–23%. Given the high interest rates charged by the wholesale lenders it is technically difficult for a SACCO to take a loan and have extra margin after operation costs. This was described by a frustrated board member below.

We took a loan of about 600m Tshs from Oiko Credit four years ago. We serviced the loan religiously without missing any payment dates. We finished with a clean record and were rated among the top performing SACCOs by Oiko Credit in East Africa. This year (2014) the officers from Oiko Credit were here begging us to take another loan but we chased them away. Our experiences in the previous loan taught us the best (worst) lesson. When we signed a loan contract Oiko Credit linked the interest with the Treasury bill but capped to 12% APR should the Treasury bill drop beyond that threshold. Unfortunately we could not foresee the upward swing and we left it open. As macroeconomic fundamentals deteriorated, the Tanzanian government borrowed more from the local financial market, the

¹⁵ Oiko Credit (Ecumenical Development Cooperative Society) is among the world's largest financier of microfinance institutions. It is a Dutch-based cooperative society that offers loans or investment capital for microfinance institutions, cooperatives and small and medium-sized enterprises in developing countries.

treasury bills skyrocketed to 23%. We ended up paying interest of 23% on a dollar denominated loan. Also our Tanzanian shillings kept depreciating and we lost a huge sum in exchanges rate.

It was our first international finance transaction. We never knew how to hedge against exchange rate or interest rate. The story was further complicated by most of our members who borrowed the very same money and invested in pyramid schemes which collapsed later and led to systemic default. Overnight, a very successful SACCO was turned upside down. We changed from being a top leading SACCO in Tanzania to a futureless SACCO. We are now changing our strategy and start investing more on internal capital generation. We are very positive that we are back on track. For the first year after the crisis we have made a positive profit of 46 million TZS. But we are still struggling on how to raise enough capital to meet our demand. However at the current market interest we think external borrowing is a no go area. (Board Chair – SACCO 14)

There are couple of wholesale lenders, mostly local commercial banks, including CRDB Bank, NMB Bank, Equity Bank and pension funds such as NSSF and PPF. In addition there is a government agency called SELF which is mandated to provide wholesale financing to SACCOs. Among these the most affordable player is SELF, which extends wholesale loans at 11%. But there is a general perception that it is an extension of a political party rather than an independent financial institution. The clients perceive it to be more politically motivated in its decisions rather than based on business factors. The narration below demonstrates their feelings about SELF.

About a year ago we applied for 100 million TZS loan from SELF. They sent their officer and we sat together and went through a due diligence exercise. Later we were invited to their headquarter office in Dar es Salaam and we gave them all the necessary documents they needed from us. They told us our loan will be approved. We gave the feedback to our members and the promised amount was included in our next budget. Surprisingly after some time, we were told that they have approved our loan to the tune of 5 million. We were very shocked to hear that especially after all the effort and promises we made to our members. We

rejected 5 million because it was too small for the purpose. We asked them to explain in writing as to why we did not qualify for 100 million. They have never replied to date. They messed up our reputation and respect we have built between governance team and our members for years. We hope at least one day they will tell us what went wrong. (Board Chair – SACCO 3)

Due to prohibitive interest rates many SACCOs are realising the importance of raising capital internally and the need to incentivise the members to save more. However they say that cooperative education and financial literacy education among the members is too low and needs significant investment. Most of the SACCOs are struggling to survive, let alone funding members' training and education. But some proactive SACCOs have started paying interest of about 8% APR on savings and deposit accounts to encourage savings. However, for effective implementation of such a strategy financial software may be required to increase precision and efficiency in computation of monthly interest rates, but the financial software is too expensive for most of them. Nevertheless, many SACCOs are starting to look for capital accumulation as demonstrated below.

We need to do something different to raise capital. Over the years I have learned that banks are not a friend of the poor. Taking the money from commercial banks is modern form of slavery. They give you the money at a high interest rate. They sit in fancy offices enjoying the air conditioning. We do all the hard work of forcing borrowers to pay back the money with our own meagre resources. But during the time to harvest they take all the harvest and we are left with the reject loans which we are not even sure will ever be recovered. (Manager – SACCO 11)

We are not planning to take external loans and we have never taken one because we had learned from our fellow SACCOs how disastrous is the external loan on SACCOs' financial affairs. (Manager – SACCO 5)

The problem of capital constraint requires action to be taken. While there might be no single solution, a combination of internal capital mobilization and some sort of government support in terms of a SACCO credit guarantee scheme may help to mitigate the problem. The SACCOs can adopt an aggressive strategy towards savings mobilization through members'

education and paying reasonable rates on medium to long term savings accounts. To complement this strategy the government can create a special credit guarantee scheme in which commercial banks could extend an affordable credit line to SACCOs as a form of external finance.

v) Competition with commercial banks and other microfinance and multiple loan providers

Competition from other financial institutions has been cited as a problem, especially for the urban SACCOs. The major concerns are on cherry-picking of the premium clients by commercial banks, emergence of multiple loans, and difficulties in recruitment of new members. Most urban SACCOs, especially those which are capital constrained, lamented that premium customers are very sensitive to service quality and are less likely to tolerate service delay in matters such as disbursement of loans. When such clients are dissatisfied, they move to commercial banks and become inactive in the SACCOs. It is even trickier now because banks have been aggressive in downscaling and competing with SACCOs by using community-based bank agencies. The observed loss of premium clients due to declining service quality is in line with the theoretical predication of Hirschman. According to his theory, loyalty is the dominant factor guiding the interaction between voice and exit among members. He argues that when there is a service quality decline, less loyal clients will exit but loyal clients will stay and make effective use of their voice with an option to exit should the SACCO fail to rectify the service quality. Thus, the very fact that, despite the loss of the premium members, these organizations still thrive supports the dimension of the same theory which emphasises that more loyal clients will postpone their exit and use their voice more effectively with the possibility of an exit in the future should the voice option not work (Hirschman, 1970).

Another concern which emerged among the urban SACCOs was multiple loans from different institutions. Because of the increased competition among lenders, the lack of a coordinated effort among lending institutions, and the lack of credit bureau institutions has created an avenue for opportunistic borrowers to take advantage by borrowing from more than one institution (double/multiple dipping) which ultimately increases the chances of default. Once such a client defaults, the effect becomes contagious across the exposed SACCOs. This is demonstrated by the field experience from one of the SACCO managers cited in the previous quotes.

We have just lost one of our clients who died from heart attack. A week before his death I went to visit him for debt collection purposes. I found him in bed and he told me he was suffering from heart attack, anxiety and stress because the business had collapsed and had multiple loans. While he is busy thinking how the family will get the next meal he receives threat of asset repossession from more than three financial institutions. He was immersed in a financial crisis. I am sorry for his life and the family he left behind. (Manager – SACCO 2)

vi) Agency problem (board, managers, accountant)

The agency problem featured in some SACCOs where the board, managers and accountant colluded and pursued their self-interest at the expense of the institutions they are supposed to protect. This behaviour has been prevalent in large SACCOs with excess funds or when the SACCOs receive external funding as either a loan or a government grant. In the presence of the external funds and weak oversight from the members the management (board and management) collude and allocate a large proportion of the money into their own accounts, crowding out the service to the members and inflating the non-performing loans and cost of running the SACCOs. When this happens, management becomes hostile towards inquisitive members, the auditing authority and other external oversight entities. By and large, however, high performing SACCOs are run by a committed board and management who adhere to the budget procedure which ensures that all expected external funding in the future is communicated to members and its subsequent use is approved by the members at the annual general meeting. A good example is demonstrated by the following narration from the one of the cooperative officers.

Last year we visited one of the saving and credit cooperatives with the intention of doing auditing and performance monitoring as per usual procedures as specified in our job description and Tanzania cooperative act. Our initiative was probed by the complaints from some of the members of the cooperative that there is misuse of the fund by the top echelons in the SACCOs. When we arrived there, the management refused to grant us access into the premises and denied us the accounting books and financial records. We invoked the power vested onto us by the cooperative law and used the state power, arrested them and put them in police lock up. Within four hours the head of the custodian police station received

a phone call from one of the top politicians directing that the culprits should be released immediately.

We made a follow up to re-arrest them but the police did not cooperate. We took aggressive measures to educate the minister what we are trying to do and he apologised for not being informed and gave us the go ahead. After a series of tireless efforts we managed to get access to the SACCOs. After our auditing and inspection, we later came to learn that they have stolen over 300 million TZS which was shared among the people in their geopolitical network including the police officers and some of the key politically connected persons who was used as a bridge to be granted a bail from the top politicians.

Apart from the above narration from the cooperative officer, the past board of SACCO 14 and SACCO 18 was also cited to have engaged in financial misconduct by some sort of collusion among the board and management which contributed towards underperformance of their organizations. The observed behaviour is in line with the prediction of George Stigler's (1971) theory of regulatory capture. According to this theory, the regulatory agency (in this case the board) eventually becomes dominated by the very industry or industries it is charged with regulating. In other words, it is a gamekeeper-turned-poacher situation. In doing so, instead of serving the interest of the members, the board and management are concentrating their effort on serving their own interest instead of the interest of the members, making a fallacy of the agency framework in corporate governance. The central concern with the agency theory is about the question famously coined as "*But who will guard the guardians?*" (Hurwicz,2008). The possible solution to this could be an increased level of transparency, frequent oversight by the external auditing agency and the need to have a random team among the members to do a frequent random reality check on the system. It could also be useful to educate the members to be more active players in overseeing the SACCO's affairs.

vii) Inadequate cooperative education, financial literacy and entrepreneurship among members

The problem of the low level of cooperative education, financial literacy and entrepreneurial skills have featured across all SACCOs regardless of whether they are high performing or low performing. Surprisingly, the problem is not specific to members only, for example the

cooperative officers complained that high ranking government officials and politicians have a limited or vague understanding of cooperatives, which makes the implementation and support of the cooperative extension services very difficult. From management and board perspectives they feel frustrated due to the limited knowledge of cooperatives and limited financial literacy, which makes it difficult to help the members effectively. This is manifested especially in the management of development loans extended by SACCOs to their members. Normally development loans are higher in value and have a long-term repayment period. The major problem is that most of the time such loans are used in nonproductive assets, non-viable business projects or for unplanned consumption. Once any such use happens it escalates the risk of default and consequently affects the loan portfolio quality of the SACCOs and thus the performance of the respective SACCOs.

Some of the high performing SACCOs, such as SACCO 1, have taken an aggressive strategy to educate members and staff on cooperative education, financial literacy and entrepreneurship. Other SACCOs, such as SACCO 14, offer compulsory entrepreneurship and prudential investment training prior to the disbursement of the loan. The model works perfectly for them because they have specific loan application cycles which mean that all the clients who apply for a loan facility in a specific period are approved almost at the same time and can attend joint training at the same time. Regardless of the individual SACCOs' efforts to tackle the problem of cooperative, entrepreneurial and financial literacy education among members, all SACCOs complained that it is a very expensive venture and is a lifelong process. They are of the opinion that there is a need for the government, donor agencies and academic institutions to put in place a training framework to help fill the gap. Such an intervention could be feasible if cooperative education, entrepreneurship skills and financial literacy are integrated into the education curriculum. Such innovation could start by designing a suitable curriculum starting from primary education to higher education institutions. Also some short-term training and a support system for adult learners and members should be in place.

viii) Tax burden

The tax burden has been cited by the larger SACCOs as a major setback. According to the manager of SACCO 1, the SACCOs work within a very tight margin to keep up with the competition, improve members' welfare and at the same time guarantee sustainability.

However, given its national coverage and large membership base, its annual turnover is well over 50 million TZS which is the minimum threshold beyond which an entity attracts corporate tax and so they have to pay corporate tax of 30%.

This is unfair practice. I wish they could use the net profit to establish a tax threshold and not turnover because the turnover may look huge but the actual margin is quite thin. (Board Chairman – SACCO 1).

The general sentiment among the SACCOs is that they should be exempted from taxes given the very role of helping to uplift the poor through making financial services available to them. Taxation adds an extra burden, reduces the lending ability and drives financial cooperatives from the market. Whether the argument should be maintained needs in-depth investigation including the international comparison and best practice in the industry, which goes beyond the scope of this chapter. Our opinion is that these institutions need to be exempted from taxation due to their social and development roles like any other development finance institutions.

ix) Political interference

Generally political interference in SACCO's operation at micro level was very limited. To a large extent the surveyed SACCOs claimed a significant degree of independence and detachment from political interference, especially after the new cooperative act of 2013. According to this act board members and managers of SACCOs cannot be politically active while holding office. This decision was taken to ensure that political activities and interference did not become entangled with cooperative operations. This is a remarkable improvement of cooperative movement independence from political interference compared to the historical past as demonstrated in Birchall and Simmons (2010). However at the macro-level, political interference was reported to be omnipresent. It manifests itself through two channels. The first channel is when the government decides to extend a loan/grant to SACCOs. Once this happens the politicians start influencing how the money should be distributed to cater for their interests. Such behaviour jeopardises the integrity of the entire lending process and increases the risk of default. On the members' side, once they know that the money comes from government they treat the money as gift/grant from government and

become reluctant to pay it back, which leads to strategic default. In short, allowing government or politically connected money to flow into a SACCO is like mixing poison with the food while preparing a meal for your family. This is demonstrated by one of the narratives from the cooperative supervisor below.

We have decided to put a moratorium on government fund/grants from flowing to SACCOs if any. We took this decision because government grant/loan makes more harm to SACCOs than helping them. They came with clear written conditions but behind, there is a compulsory unwritten condition which is poisonous. For example you get a soft loan of 10 million TZS from the government. Before it arrives a memo is sent to the cooperative officer to make sure that about 20% of the money is remitted back as a commission to the source via a private bank account. As if that is not enough, by the time the residual money arrive at SACCOs, the councillors, and other politically connected people send their relatives and friends with memo that they should be given a priority because they influenced the SACCOs to get the money. Once this happens the entire beneficiary will always default and you can't have enough discretion to pursue them because they are politically shielded with political authority. The end result is that the target clients who are members of SACCOs never benefit but they end up paying the debt which they never enjoyed in the first place. (Cooperative Officer)

Another political interference which was predominantly mentioned by the cooperatives officers and some board members is the tendency of the government to frustrate cooperative development. They perceive that this has been the trend since the time of the founding president who later closed the entire cooperative sector in the 1970s. The central reason behind the frustration from the government is hinged on a power struggle. Politicians are discouraging the cooperative development because it empowers the people, and once people are empowered they are likely to make choices which may jeopardise their political entrenchment. This becomes more threatening if the current regime is not delivering to the expectation of the citizens, which gives a wedge to position political parties to use the cooperative movement to their advantage. This power conflict and political influence is complex to deal with because it is entrenched within the political economy of power relations among different actors of the state.

x) Other emerging concerns

Other emerging issues were as follows: high cost of financial software and lack of local technical support; difficulty in recruiting and retaining well-trained and talented financial experts due to increased competition from the formal banking sector; high transaction costs for collecting bad debts (chronic debt); inadequate support from Cooperative Officers (limited capacity and resources). These concerns were common across the board regardless of whether SACCOs were high performing or low performing. The rest of the section provides a detailed discussion of each of the concerns mentioned.

As a cooperative grows in size of operation and increases the product portfolio, it becomes difficult to reconcile their records and accounting. The need for automated financial software becomes imperative. However, the current cost of financial software (15 million TZS) is extremely expensive relative to SACCOs' revenue. Even when the SACCOs squeeze their meagre income to buy the software, the technical support is too expensive. There is no local qualified supply of this type of expertise; they have to rely on experts from India, Kenya and Uganda who inflate the cost of operations. Thus while the software might increase the efficiency of intermediation, the high product cost might outweigh the benefits accrued from efficiency gains. There is a need for the government through the Ministry of Cooperatives to work jointly with local and international academic institutions to build local capacity in the domain of financial engineering.

Recruitment of well-trained financial experts with a first degree or more is very difficult because of the weak financial capacity of SACCOs and what they can afford to pay their employees. One SACCO manager shared his frustration in relation to recruitment challenges as follows:

We have decided to focus on recruitment of people with certificate and diploma in cooperatives, accounting and finance. We simply can't afford the degree graduates. We have burnt our hand long enough such that now we know the way to go. If you recruit degree graduates, you train them after six months they are poached by commercial banks, you try again you end up on the same pit. They simply make you their springboard towards greener pastures. Their expectation is too high and they are always on the constant move. (Board Chair – SACCO 2)

Among the challenges, dealing with problematic loans and chronic loans was mentioned as one of the painful experiences there could be in the operation of SACCOs. The major challenges start with the fact that most of the SACCOs are community-based, thus members and SACCOs management and board members mingle in different socio-economic pursuits ranging from work place, drinking place, residential neighbourhood and worship centres etc. Such close relationships build special “emotional” and “family” attachments. The resulting socio-emotional ties among the community make it difficult to use coercive methods in the process of recovery of bad loans by the internal staff. This is demonstrated by some of the narratives below.

It is very difficult to worship with a fellow today and tomorrow you go by his door, declare him bankrupt, take all his belongs including the bed and leave him and his family in a weird situation because he defaulted. The next day you learn that his/her kids can't even afford the next meal and don't have somewhere to sleep and start begging and pass in your house begging. It is emotionally torturing and it messes up relationships and breaks social ties. It basically makes you the enemy of the people and subjects you to a constant emotional guilt.

One of the major challenges is that we are dealing with the poorest of the poor. When someone defaults and you visit for asset repossession, you feel pity for his/her situation even before you take anything from her because her life is already in a big mess. Sometimes it is beyond imagination what his/her life would be after taking his last asset from him. Imagine taking a bed and sofa set in the brink of the night while he toiled to accrue them over the span of ten years of hard work and saving. It is real a tough situation for any human being to be. But yet we need to do our job and protect the money of our clients. We are not a charity organization. Initially I used to cry with them and become frozen. My decision to confiscate any valuable assets to recover the loan used to run into a comma. But I have had enough of these cases and now I have become immune to that. I just do my job. When a defaulter comes crying, begging and narrating how life has been unfair to him. I always tell them just cry, tell all the stories but when you are done just tell me one thing i.e. how do we get our money back, full stop. (Manager – SACCO 2)

The alternative solution to circumvent the emotional ties between SACCOs management and defaulters is to use a third party such as a court broker or private auction mart. However this strategy has been tried by several SACCOs but has consistently failed in almost all cases. The major reasons for failure are the collusion of the third party with the debtors. The debtors bribe the auction mart agent, thus crippling his debt recovery effort. Another reason advanced was that the value recovered from debtors is too small, that once the auction marts deduct their operation cost and fees, little is left for the SACCO. Most of the SACCOs now have changed to an internal strategy where they have a special committee to follow up the collection of bad loans. The committee is composed of members, board members and representatives from the management. This proved successful: although it takes time, they mainly use trust building and soft collection methods but it is at least better than using a third party. In sum, following up bad debt significantly inflates the cost of operation for SACCOs and adds transaction costs to financial intermediation.

7.4.2 Workers based SACCOs' concerns (opportunities)

Apart from the general opportunities and challenges discussed in the previous subsection, workers SACCOs face unique opportunities and challenges. Ten worker-based SACCOs were included. In all ten SACCOs it emerged that unique advantage they enjoy is the lower cost of collection of debt and intermediations because of automatic payroll deductions. Thus the default rate is reduced significantly. However, the major challenge facing almost all workers' SACCOs in our sample was the delayed remittance from the employers after automatic deduction. The employers deduct the payment at the end of each month but use the money for their own operations for two or more months. When they decide to remit to the respective SACCOs, they remit only a small fraction. This starves the SACCOs and makes their operation almost impossible. Many SACCOs are losing members due to this problem and it increases financial charges on external loans due to late servicing of their debts by SACCOs. The following narratives demonstrate the impact of delayed payment.

Since the inception of our SACCO about 15 years ago it has consistently been offering premium financial services to its members. We recorded a surge in membership from 21 during 1999 to about 1,630 during 2006. However for the last seven years our success turned to be our greatest enemy. Our employer once realised that we have a sizable saving on monthly basis turned from being

gamekeeper into a poacher. Now he uses our money as he wishes without consulting. He deducts our money and stays with the deduction for over three months or more. When he remits, he does so in small bits. He has basically crippled down our operation. We are now experiencing the membership haemorrhage into commercial banks and it has been very difficult to recruit new members because of bad word of mouth about our ability to offer the reliable financial services. But the problem is really beyond our control as management. The government is really frustrating the cooperative operation by misusing our monies. Figure 7.3 demonstrates the loss of our membership due to the said behaviour. Unfortunately those who leave are the prime clients. (Membership trends in SACCO 2)

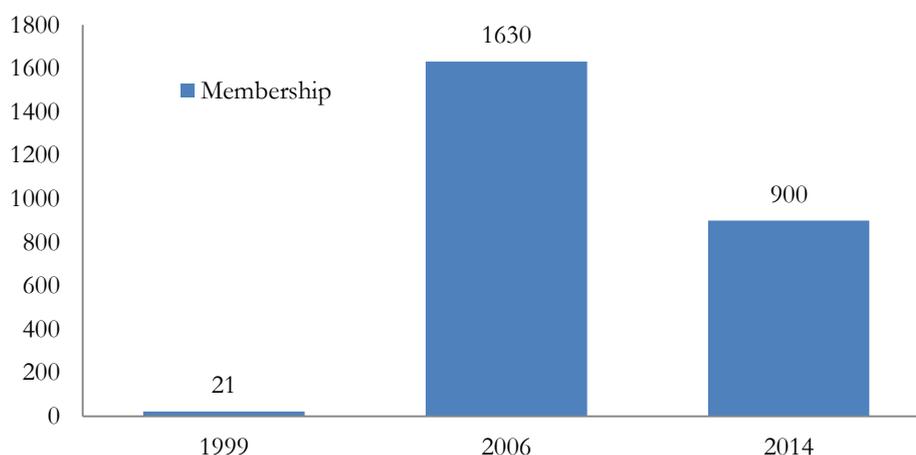


Figure 7.3: SACCO membership numbers in SACCO 2

Our employer deducts 75 million TZS every month which he is supposed to remit to SACCOs immediately. Unfortunately without any consultation with the SACCOs he decided to use the money for his own operation and remits only 8 million after every other month. We have external loan of about 1.5 billion from pension fund. We need at least 45 million per month to service the loan. Any delay beyond 14 days attracts 5% late payment penalty. Our cost of operation has been escalated by the unacceptable behaviour of our employer. A SACCO which was dreaming to be the best in the industry has been sterilised to be the worst in the industry. We are pursuing the case in the court; hopefully we will make it. (Board Chairman – SACCO 16)

As an alternative solution, some SACCOs, such as SACCO 2 Women, has entered a joint venture with Equity Bank to resuscitate the situation and signed a contract of a special agency with the Ministry of Finance for invoice discounting services at the rate of 2% per month but they are guaranteed that they will get the money on time which will at least keep their members happy.

Another challenge was the introduction of the new policy which requires that the employees should retain at least a third of their gross salary. The problem is that this was not communicated in advance and many members who had a loan carry-over from previous years cannot now service their loan due to this policy because automatic deductions cannot be made once the one-third threshold has been reached. This problem is aggravated by the practice of multiple loans from different institutions.

7.4.3 Community based SACCOs' concerns (opportunities)

The non-workers SACCOs have serious problems of erratic and unpredictable cash flow, and high rates of default due to unstable and unpredictable income streams from the members. Out of the nine community-based SACCOs included in the study only one SACCO was not affected by this problem because of its very selective and tight niche of membership base and diversified portfolio. Other problems include high transaction costs and monitoring costs in debt servicing and recovery processes. This is escalated by mobile clients who make it difficult for their loan to be tracked on default. The narrative below demonstrates this.

It is extremely difficult dealing with a mobile client who does not have a permanent place of domicile. You have this client who joins the SACCO and makes all necessary contribution and takes a loan. After some time he defaults, when you go to visit them the landlord informs you that he left about two months ago and his room has been rented out to someone else. (Loan officer – SACCO 2)

This type of problem could be mitigated by adopting a mixture of strategies of using both borrower savings as partial guarantee and members' co-guarantee. This will shift the lending model towards quasi-group guarantee rather purely individual guarantee.

7.5 Conclusion and recommendations

The objective of this chapter was to explore the performance drivers (setbacks) among Tanzanian Saving and Credit Cooperatives using a multiple case study approach. Our results reveal that good governance, effective management, and income diversification plays a critical catalytic role in boosting performance. However, capital constraint was identified as a major stumbling block for performance of credit unions along with cooperative education, financial literacy and entrepreneurship education. These concerns seem to go beyond the capacity of the nascent SACCOs and might need a well-thought out government intervention to redress them.

A possible solution to credit constraints is to develop a specialised loan guarantee scheme to SACCOs through a public private partnership. In this arrangement the government can enter into an agreement with commercial banks and private financiers to provide wholesale financing products at an affordable interest rate. Many SACCOs visited think they can operate with reasonable margins if they can secure a line of credit at 8-10% APR. The education and training on entrepreneurship and financial literacy is more of a long-term investment than something which can be dealt with immediately. However, with a well thought out plan the problem can be resolved. A suggestion is to create a training consortium which involves the private sector, academic institutions, and government support among cooperative members. In the long term, integrating cooperative education, financial literacy and entrepreneurship in the mainstream academic curriculum could help to mitigate the problem.

Other important challenges were agency problems, weak governance and poor managerial skills. This can be addressed case by case as the need arises, but the cooperative officer of a district can enrich training programmes on effective governance and management skills of SACCOs. Some SACCOs are already doing this by including at least two hours training for all members during their annual general meeting and specific training sessions for board members and managers. Other SACCOs require a manager to have cooperative-related education before being hired. Once training is addressed another necessary issue that must be addressed is the agency problem, where board and members collude in their own self-interests. Stringent penalties for such members and regular audits and close supervision and monitoring of SACCOs by government agencies can help to reduce the prevalence of this

problem. However the respective government agencies are underfunded and understaffed which this handicaps their capacity to deliver as explained in Chapter 2.

The problem of multiple loans and strategic default behaviour associated with shifting the place of domicile after securing a loan can be addressed by implementation of a unique identification system such as a national identification system. Once there is a unique identifier and all financial transactions are linked to this identifier, including job/business history, this can help to mitigate the problem. The challenge is that it has taken a very long time for the system to be in place countrywide even though some significant effort has been made. The recent registration of credit bureaus may also help to some extent. The only concern about the credit bureaus is whether they are user-friendly and affordable for the financial institutions offering their service to the people at the bottom of the income pyramid.

The problem of delayed payment in worker-based SACCOs needs a strong regulatory requirement to be implemented with immediate effect. Policy instruments to hold employers accountable and responsible for delayed disbursement to respective SACCOs should be developed and enacted with urgency.

CHAPTER 8

SUMMARY, CONCLUSION AND IMPLICATIONS OF KEY FINDINGS

8.1 Summary

Globally, there is an increasing interest in microfinance as a tool for poverty reduction, especially in developing countries. The interest is further enhanced by the success of the microfinance initiative of the Nobel Laureate Muhammad Yunus, which later transformed into Grameen Bank in Bangladesh. The growing interest in the microfinance movement is in response to the existing credit market failure in most of developing economies. In their seminal paper of 1981, Stiglitz and Weiss clearly articulated a theoretical explanation for the existence of such a market failure which is hinged on informational asymmetry. The main argument is that, due to imperfect information, banks tend to ration credit which denies the majority of the poor from accessing financial services (Stiglitz & Weiss, 1981). As a result 88% of the adult population (CGAP, 2013) are excluded from mainstream financial services in sub-Saharan Africa and about 90% of the population are excluded in Tanzania (Finscope, 2009). The existing credit market failure has created a financing gap which has opened opportunities for innovative microfinance. Microfinance institutions use innovative social collateral and peer monitoring mechanisms to circumvent the problem of information asymmetry. As result they can operate in the areas where banks cannot operate.

Despite the growing interest in microfinance (including community-based micro-banking such as Saving and Credit Cooperatives) globally as a solution to redress the financing gap among the poor, the performance of these institutions remains mixed. Specifically, the question of whether these institutions can operate efficiently and sustainably in a competitive market given their exposure to a risky segment of the financial markets and small scale operations remains contentious and context-specific. Thus this research empirically explored the performance of SACCOs in terms of efficiency, financial sustainability and underlying performance drivers. Understanding the performance of these institutions plays an important role for the effective regulation and monitoring of these institutions to ensure their long-term continuity of financial services. More specifically, efficiency and sustainability measures are important managerial aspects for performance measurement and monitoring in the financial sector.

Apart from the question of the performance of microfinance being uncertain, most of the existing literature has relied on secondary data available in MIX market database. This has led to a systematic under-exploration of emerging community-based microfinance institutions which are not reported in MIX market because they are either too new or too small to be reported in MIX market. Taking this limitation into account, the current study used newly available data from SACCOs, which are fast-growing community-based microfinance operations in the Tanzanian context, to analyze their performance.

The performance (measured using efficiency and sustainability), reflects a sound intermediation process of financial institutions and hence their due contribution to economic growth and continuity of service delivery (Aikaeli, 2008). Thus, for institutions such as SACCOs, which are predominantly small in their scale of operation and work mainly with poor and high risk clients, it is important to understand their efficiency and sustainability for effective management and regulation of the industry.

Efficiency analysis was decomposed into three dimensions to explore possible sources of inefficiency. The first dimension was technical efficiency, which explored the overall effectiveness of transforming the productive inputs into desired outputs compared to the data-driven frontier of best practice. The second dimension was pure technical efficiency, which captured managerial efficiency in the intermediation process. The third dimension was scale efficiency, which explored whether firms were operating in an optimal scale of operation: sustainability and profitability were explored using standard accounting ratios.

The study employed methodological triangulation to empirically investigate the performance of SACCOs and what drives performance among SACCOs. Both descriptive statistics, such as simple ratios and averages, as well as graphical methods and econometric models were used to measure the level of performance among SACCOs and explore possible performance drivers. Bearing in mind the limitations of previous studies which used standard data envelopment analysis to estimate efficiency, the bias-corrected efficiency scores were estimated using Data Envelopment Analysis with bootstrap for Technical, Scale and Pure Technical efficiency scores. Financial Sustainability was measured as a ratio of total revenue to total cost plus loan loss provision. Return on Asset was used as a proxy for profitability. In addition an efficiency-profitability matrix approach was used to classify SACCOs into

different performance categories to account for the multifaceted nature of performance. To understand the drivers of the performance among SACCOs a case study approach was used to explore what drives performance among high and low performing SACCOs.

The purpose of this chapter is threefold. First, it provides a general summary of the key findings of this study focusing on evidence presented in Chapters 4, 5, 6 and 7. Secondly, it highlights the policy implication of the findings. Finally, it offers some policy recommendations.

8.2 Key findings, discussions and policy implications

This section summarizes key findings regarding level of performance of SACCOs in Tanzania and factors driving performance among SACCOs. The section also discusses possible implications of the results.

8.2.1 Efficiency among SACCOs and possible source of inefficiencies

The evidence from efficiency analysis demonstrated that the major source of inefficiency is attributed to managerial inefficiency, which accounts for 57% of inefficiency, followed by scale inefficiency, which is estimated to be 23% after correcting for bias. The level of overall inefficiency, which is about 68% is relatively low, but comparable with previous empirical studies in developing countries. The performance is by large constrained by the managerial ineffectiveness in resource utilization. The high level of managerial inefficiency could be explained by the small nature of the SACCOs and lack of sophistication in the financial intermediation process. Smaller SACCOs are more likely to be constrained by the quality of the personnel they are able to recruit and retain. Also they are likely to be suffering from a limited pool of talent to recruit volunteers who are capable board members with diverse skills set to oversee the organization. This could be improved through dedicated efforts to upscale managerial competency to redress the problem of managerial inefficiency including on-the-job training or merging with high performing SACCOs to leverage managerial competency.

In terms of scale efficiency, improvements can be achieved through organic growth of the membership base, or through strategic growth using a mixture of aggressive marketing campaigns to attract and retain more net savers and attracting external capital to boost the

scale of operations. Another plausible option is to merge the smaller SACCOs into the nearest high performing SACCOs. A merger is expected to improve efficiency through the increase of the scale of operation while maintaining financial inclusion and visibility at the local level through a satellite operation using mobile phone banking technology such as M-Pesa.

8.2.2 Financial sustainability and profitability of SACCOs

When viewed from sustainability and profitability dimensions, our findings present modestly promising results compared to the current pessimistic view of the industry as demonstrated in Morduch (2000) and Adongo and Stork (2005). The overall financial sustainability results suggest that a financial cooperative business model may be a sustainable alternative form of financing the poor. However, it is instructive to note that about 49% of the sample SACCOs were not sustainable, which indicates that there is a sizable divide between high performing and poor performing SACCOs. The average profitable was above the minimum threshold of 3% recommended by the industry's best practice. If this level of profitability could be maintained over a period of time it would demonstrate that under good management the industry can be profitable.

8.2.3 Efficiency and profitability classification

To gain insights from both profitability and efficiency dimensions, an efficiency-profitability matrix was employed and found that the majority of the firms (61%) were classified in the low efficiency low profitability category, while only 14% of the SACCOs were identified as best performers in both dimensions. This demonstrates that when efficiency and profitability are analyzed together the emerging evidence is less optimistic than when compared to efficiency or sustainability alone. As argued by Boussofiane *et al.* (1991) and Camanho and Dyson (1990), the performance of financial organizations is a complex and multi-faceted phenomenon which needs to be analyzed from several dimensions. This approach brings more insights into the analysis including the possibility of the existence of low efficiency but highly profitable firms because of the existence of a quasi-monopoly. Underperformance could also be a result of structural problem, for example a highly efficient firm which is operating in a low business catchment zone.

Alternatively firms could be struggling in both dimensions which was the case for the majority of the SACCOs in the study. The high proportion of firms with low efficiency and

profitability levels could be explained by a combination of factors including the nascent nature of the industry, managerial inefficiency and scale of operation as demonstrated in Section 8.2.2. Also the level of poverty and recent trends in macroeconomic instability in the country, including the high level of inflation, may play a role. The findings call for continuous monitoring and performance improvement strategies to be implemented by the industry and regulators.

8.2.4 Performance drivers among SACCOs

The emerging evidence from multiple case studies suggest that income diversification, quality of governance, quality of management, capital availability and members' cooperative education are the top drivers of performance across the industry. Delayed disbursement of members' automatic payroll deduction by employers,, sporadic and unpredictable payments, multiple loans, tax burdens, high transaction costs, high rate of intra- and inter-regional mobility of members, and high default rates were cited as major setbacks among SACCOs.

The high performing SACCOs were more proactive in income diversification and are managed by committed and strict board members, especially when it comes to the financial affairs of the organizations. In addition they tended to devote time and resources in educating their members on general principles of cooperative, effective and prudential financial management before loan disbursement. When categorized into workers- and community-based SACCOs, there was a clear systematic trend that almost all workers' SACCOs suffered from late disbursement of the employee automatic payroll reduction from employers. Many SACCOs complained that their employers are increasingly using the SACCO funds for other expenditures without the permission of the SACCOs, thereby crippling the operations of the SACCOs. The community-based SACCOs are significantly constrained by unpredictable and sporadic cash flow which affects their planned activities and high transaction costs for monitoring and debt collection. Overall, the industry is capital-constrained, suffering from weak governance, and exposed to a risky (lower income) segment of the population. If these problems, especially capital constraints, education of the members and responsibility and accountability among employers, are not addressed with urgency, the performance of industry will remain a problem.

8.2.5 Synthesis, implication of the findings and recommendations

The results of this study highlight some areas that the authorities would need to focus on, to improve the performance of SACCOs in the country and enhance their contribution to economic growth. Similarly the results further highlight where performance seems to present challenges which those in authority will have to address to prevent further negative effects. The major aspects of the finding which stand out are managerial inefficiency, scale inefficiency, capital constraints, inadequate cooperative education, delayed remittances by employers, multiple loans and strategic default. The rest of this subsection discusses these aspects in detail.

Managerial inefficiency is a complex issue to address because most of the SACCOs are run by volunteer managers and are too small to afford competent managers: this problem is normally not serious for larger SACCOs. As demonstrated in Chapter 7, the smaller SACCOs are frustrated by high employee turnover rates due to more lucrative pay in the formal banking sector. This means that in current market conditions getting graduate managers to run the small SACCOs will remain a challenge. The policy which is geared towards development of short-term financial management at the community level may help to redress the problem. Both the government and SACCOs could contribute toward the cost of capacity-building at the community level. If this is carried out effectively it will help to reduce wastage in the intermediation process through effective resource utilization. Such intervention may include the design of in-service certificate courses in SACCO management and accounting to improve local managerial capacity and competence, constant monitoring and supervision. Also provision of necessary technical support is important.

Scale inefficiency among SACCOs is attributed to the small scale of operations. This challenge could be addressed by a combination of strategies, especially scale-increasing strategies. Since most SACCOs suffer from an upward growth ceiling due to the localization of their operations, it might limit the possibility of increasing the number of members in certain locations in the short run, which may constrain increasing the scale of operations through growth of the membership base. The most plausible option is the use of a mobile banking platform such as M-Pesa to open satellite offices and merge inefficient SACCOs with more efficient SACCOs. This might help smaller SACCOs to reduce unnecessary overhead costs but still remain accessible to members. This could be used as both profit-increasing and

efficiency-increasing strategies by SACCOs' management. The implementation of this strategy is feasible given the recent surge in mobile banking technological development and wide acceptance in Tanzania and other member countries in East Africa.

Capital constraints were mentioned by almost all visited SACCOs and seem to significantly affect the scale of operation and client satisfaction due to loan amounts and waiting time. This problem could be partially addressed by focusing on internal capital growth mechanisms through a combination of approaches, especially income diversification and carefully designed saving incentives. However, the existing policy which allows each member to borrow up to three times his own saving adds additional capital requirements. That means that at any time the SACCOs should have preferably three times the total savings and deposits from members. The remaining balance can be mitigated by external borrowing; unfortunately either the current market rate is too expensive or lending conditions are very restrictive. The private sector extends loans to the SACCOs, however the price charged by taking risk into account is prohibitive. This constraint could be relaxed by the government playing an active role in guaranteeing part of the risk incurred by the private sector to reduce the interest charged on the wholesale lending to credit cooperative. Specifically, this problem could be addressed by careful government intervention which could be in the form of credit guarantee schemes on SACCOs based on their previous performance record.

The problems of **multiple loans and strategic default** are higher order problems which need a nationwide policy which enforces unique identification of every resident to be implemented. This will facilitate traceability of defaulters and will work well if it goes in tandem with the development of a comprehensive credit cross-reference facility (credit bureau).

Inadequate education of both cooperative and entrepreneurship has been mentioned as a challenge among SACCO members, board members, management and regulators. This problem can be addressed by aggressive education and training of members and effective oversight of management to be implemented by regulators and other stakeholders in the industry. It would help if cooperative and entrepreneurship education is incorporated in the standard education curriculum.

8.3 Contribution of the study

This research contributes to the research on the current debate about the role of microfinance and their viability in extending financial services to the poor. Specifically knowledge generated from the empirical evidence presented in Chapters 4 through 7 make an addition to the extant literature and practice in three ways. First, it contributes towards the scanty empirical literature on the performance of saving and credit cooperatives in developing countries in general and in Tanzania in particular. Second, it casts provocative evidence which appears to modestly contradict earlier and more pessimistic accounts on the performance of co-operatives and other microfinance institutions in developing countries (see Mori & Olomi, 2012; Acharya & Acharya, 2006; Adongo & Stork, 2005; Modurch, 2000). Third, the findings from this study also provide a better understanding of the *status quo* in terms of productive efficiency and evidence needed for making informed policies and decisions in microfinance sectors.

While the current study has filled some gaps in the literature, it also has some limitations. One such limitation is that the study focused on four regions in Tanzania and only SACCOs with audited financial statements were included. Thus the conclusion is limited to SACCOs with similar characteristics. Future work might consider extending the analysis to include SACCOs with non-audited financial statements and to track the performance dynamics over time. The biggest challenges for such studies will be how to get appropriate data to implement the study. Another limitation was the inadequate data to track the performance dynamics over time which could be resolved in the future as more data are made available.

8.4 Concluding remarks

In summary there is some glimmer of hope on the performance of SACCOs compared to the current pessimistic view of the industry. However, still there are some performance challenges affecting the prosperity of the industry which need to be addressed. These challenges call for a collective intervention by working jointly with the government, SACCOs' management, members and private financiers. The study suggests close monitoring and continuous performance evaluation coupled with an enabling environment for performance improvement of the SACCO industry in Tanzania.

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APPENDICES

Table A.4.1: Conventional and Bias Corrected Efficiency Estimates

DMU	TE _{xrvs}	TE _{xnirs}	TE _{xcrs}	bcTE _{xrvs}	bcTE _{xnirs}	bcTE _{xcrs}	UB _{xrvs}	LB _{xrvs}
1	1.00	0.72	0.72	0.81	0.61	0.61	0.70	0.47
2	1.00	1.00	0.90	0.71	0.66	0.74	0.87	0.52
3	0.35	0.35	0.35	0.27	0.25	0.28	0.33	0.17
4	0.53	0.53	0.49	0.43	0.40	0.41	0.46	0.31
5	1.00	1.00	1.00	0.71	0.72	0.73	0.89	0.47
6	0.36	0.34	0.34	0.27	0.24	0.25	0.32	0.13
7	0.49	0.43	0.43	0.38	0.34	0.35	0.40	0.25
8	0.47	0.33	0.33	0.38	0.25	0.25	0.30	0.16
9	0.96	0.17	0.17	0.72	0.12	0.12	0.15	0.06
10	0.27	0.25	0.25	0.22	0.20	0.21	0.24	0.16
11	1.00	0.77	0.77	0.70	0.62	0.62	0.72	0.44
12	0.70	0.16	0.16	0.56	0.13	0.13	0.15	0.08
13	0.94	0.27	0.27	0.73	0.21	0.21	0.24	0.15
14	0.45	0.41	0.41	0.34	0.29	0.30	0.38	0.14
15	0.84	0.79	0.79	0.66	0.62	0.64	0.74	0.45
16	1.00	0.15	0.15	0.74	0.12	0.12	0.14	0.09
17	0.28	0.20	0.20	0.23	0.16	0.16	0.19	0.11
18	0.33	0.33	0.26	0.24	0.22	0.21	0.24	0.15
19	0.18	0.16	0.16	0.14	0.11	0.12	0.15	0.07
20	0.70	0.64	0.64	0.53	0.45	0.45	0.59	0.22
21	0.76	0.76	0.76	0.63	0.58	0.61	0.72	0.43
22	0.82	0.61	0.61	0.67	0.51	0.51	0.58	0.40
23	0.63	0.63	0.20	0.47	0.44	0.17	0.19	0.12
24	0.35	0.27	0.27	0.29	0.22	0.22	0.26	0.17
25	0.91	0.91	0.83	0.72	0.67	0.63	0.77	0.42
26	0.17	0.17	0.17	0.12	0.11	0.13	0.15	0.08
27	0.31	0.20	0.20	0.26	0.16	0.16	0.19	0.11
28	0.79	0.38	0.38	0.59	0.27	0.27	0.36	0.11
29	1.00	1.00	0.62	0.66	0.62	0.47	0.59	0.27
30	0.24	0.24	0.22	0.20	0.19	0.17	0.20	0.13
31	0.20	0.15	0.15	0.16	0.12	0.12	0.14	0.09
32	1.00	0.11	0.11	0.70	0.08	0.08	0.10	0.04
33	1.00	1.00	1.00	0.72	0.70	0.69	0.90	0.29
34	0.16	0.16	0.16	0.13	0.12	0.13	0.15	0.09
35	0.22	0.22	0.22	0.16	0.15	0.16	0.20	0.07
36	0.49	0.26	0.26	0.39	0.21	0.21	0.25	0.15
37	0.59	0.59	0.39	0.43	0.39	0.28	0.36	0.15
38	0.41	0.33	0.33	0.32	0.24	0.25	0.31	0.15
39	0.24	0.24	0.24	0.18	0.17	0.18	0.23	0.11
40	0.53	0.53	0.52	0.41	0.38	0.38	0.48	0.25
41	0.22	0.20	0.20	0.18	0.14	0.14	0.18	0.07
42	0.86	0.86	0.86	0.64	0.59	0.62	0.81	0.38
43	0.29	0.29	0.28	0.24	0.22	0.24	0.27	0.18
44	1.00	1.00	0.41	0.72	0.67	0.35	0.39	0.26
45	0.50	0.11	0.11	0.40	0.09	0.08	0.10	0.06
46	0.13	0.09	0.09	0.11	0.07	0.07	0.08	0.05
47	0.24	0.24	0.23	0.18	0.17	0.19	0.21	0.14
48	0.69	0.69	0.61	0.55	0.51	0.49	0.57	0.35
49	0.48	0.48	0.48	0.37	0.34	0.35	0.45	0.20
50	0.28	0.23	0.23	0.23	0.17	0.18	0.22	0.11
51	1.00	1.00	1.00	0.67	0.62	0.64	0.70	0.47

Table A.4.1: Conventional and Bias Corrected Efficiency Estimates (continued)

DMU	TE _{xvrs}	TE _{xnirs}	TE _{xcrs}	bcTE _{xvrs}	bcTE _{xnirs}	bcTE _{xcrs}	UB _{xvrs}	LB _{xvrs}
52	1.00	1.00	0.64	0.67	0.62	0.52	0.91	0.22
53	0.40	0.39	0.39	0.34	0.31	0.32	0.60	0.36
54	0.21	0.20	0.20	0.17	0.15	0.16	0.37	0.24
55	0.40	0.28	0.28	0.31	0.23	0.23	0.19	0.10
56	1.00	1.00	1.00	0.69	0.65	0.67	0.26	0.17
57	0.96	0.96	0.49	0.69	0.64	0.35	0.91	0.26
58	0.79	0.74	0.74	0.64	0.59	0.61	0.44	0.16
59	0.32	0.31	0.31	0.27	0.25	0.26	0.71	0.44
60	0.25	0.17	0.17	0.19	0.13	0.13	0.30	0.20
61	0.25	0.24	0.24	0.21	0.20	0.20	0.16	0.07
62	0.34	0.30	0.30	0.28	0.24	0.24	0.23	0.15
63	0.20	0.17	0.17	0.16	0.14	0.14	0.28	0.18
64	0.66	0.40	0.40	0.49	0.28	0.28	0.16	0.10
65	1.00	1.00	1.00	0.73	0.69	0.71	0.37	0.14
66	1.00	1.00	1.00	0.66	0.62	0.64	0.89	0.44
67	0.06	0.00	0.00	0.04	0.00	0.00	0.90	0.19
68	0.41	0.41	0.41	0.33	0.31	0.33	0.00	0.00
69	0.30	0.14	0.14	0.24	0.11	0.12	0.38	0.23
70	1.00	1.00	1.00	0.67	0.62	0.68	0.14	0.08
71	0.71	0.71	0.29	0.52	0.48	0.22	0.91	0.38
72	0.85	0.85	0.83	0.62	0.57	0.59	0.28	0.13
73	0.50	0.50	0.50	0.40	0.38	0.40	0.76	0.26
74	1.00	1.00	1.00	0.76	0.72	0.74	0.46	0.29
75	0.37	0.36	0.36	0.31	0.28	0.30	0.90	0.49
76	1.00	1.00	0.81	0.73	0.68	0.68	0.34	0.22
77	0.62	0.62	0.62	0.50	0.46	0.50	0.78	0.49
78	1.00	1.00	0.22	0.66	0.61	0.17	0.59	0.34
79	1.00	1.00	0.67	0.67	0.62	0.46	0.21	0.11
80	0.33	0.22	0.22	0.27	0.17	0.17	0.61	0.21
81	0.24	0.24	0.24	0.18	0.17	0.18	0.20	0.12
82	1.00	0.29	0.29	0.68	0.23	0.23	0.23	0.10
83	0.23	0.22	0.22	0.19	0.16	0.17	0.26	0.16
84	0.40	0.32	0.32	0.32	0.23	0.23	0.20	0.12
85	0.17	0.17	0.17	0.14	0.14	0.14	0.30	0.12
86	0.12	0.12	0.12	0.10	0.10	0.10	0.16	0.11
87	0.29	0.29	0.25	0.21	0.20	0.18	0.12	0.08
88	0.29	0.21	0.21	0.24	0.16	0.16	0.23	0.10
89	1.00	0.13	0.13	0.72	0.10	0.10	0.19	0.10
90	1.00	0.97	0.97	0.73	0.67	0.70	0.12	0.06
91	0.38	0.17	0.17	0.30	0.13	0.13	0.90	0.36
92	0.31	0.19	0.19	0.26	0.15	0.15	0.16	0.09
93	0.40	0.39	0.39	0.31	0.29	0.30	0.18	0.10
94	0.62	0.41	0.41	0.52	0.33	0.33	0.37	0.19
95	0.52	0.36	0.36	0.43	0.29	0.29	0.39	0.22
96	0.85	0.85	0.30	0.64	0.59	0.24	0.34	0.20
97	0.37	0.37	0.37	0.29	0.27	0.30	0.28	0.18
98	0.17	0.15	0.15	0.14	0.12	0.12	0.35	0.22
99	0.53	0.53	0.29	0.41	0.38	0.24	0.14	0.08
100	1.00	0.81	0.81	0.74	0.65	0.66	0.28	0.19
101	1.00	1.00	1.00	0.68	0.63	0.68	0.77	0.49
102	1.00	1.00	1.00	0.67	0.62	0.65	0.91	0.33
103	0.52	0.26	0.26	0.44	0.20	0.20	0.92	0.27

Note: TE_{xvrs} TE_{xnirs} TE_{xcrs} stand for conventional technical efficiency under variables returns to scale, non-increasing returns to scale, and constant return to scale respectively. bcTE_{xvrs} bcTE_{xnirs} bcTE_{xcrs} stand for bias-corrected technical efficiency under variables returns to scale, non-increasing returns to scale, and constant return to scale respectively. UB_{xcrs}, LB_{xcrs} stand for upper bound and lower bound of technical efficiency and constant returns to scale.

Table A.4.2: Correlation analysis between conventional efficiency scores and bias corrected technical efficiency scores

	TE	TE*
TE*	0.9	
TE*		1

Note: TE: Conventional technical efficiency scores
TE*: Bias corrected efficiency scores

Table A.5.1: Correlation analysis

	FSS	RoA	DM	TE	CPL
FSS	1				
RoA	0.51*	1			
DM	-0.08	-0.15	1		
TE	0.44*	0.29*	-0.18	1	
CPL	-0.136	-0.39*	0.92*	-0.13	1

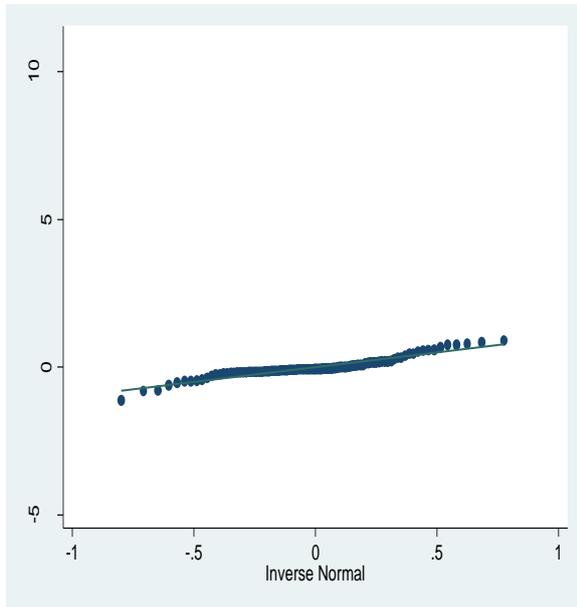
Note: FSS: Financial Sustainability score
RoA: Return on Asset
DM: Deposit Mobilization
TE: Technical Efficiency
CPS: cost per loan portfolio

Table A.5.2: Selected linear regression diagnostics test

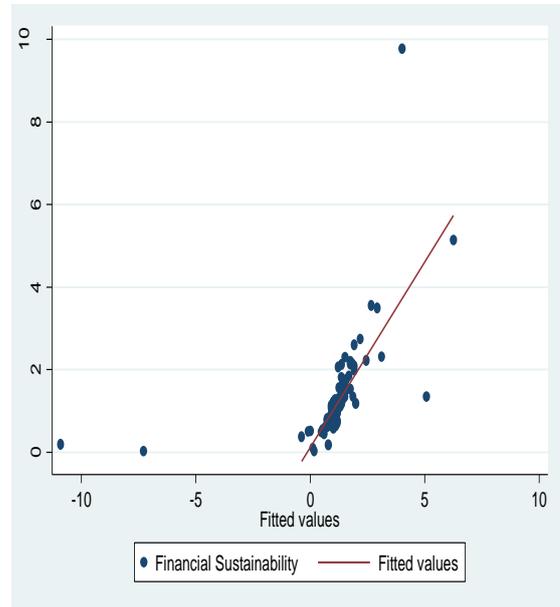
Diagnostics Results for Multicollinearity			Diagnostic Results for Heteroskedasticity and Normality			
Variable	VIF	1/VIF	Source	chi2	df	p
RoA	1.53	0.65	Heteroskedasticity	56.01	14	0.00
Technical efficiency	1.53	0.66	Skewness	8.42	4	0.08
Deposit mobilization	1.43	0.70	Kurtosis	9.58	1	0.00
Cost per unit loan	1.13	0.88	Total	74.02	19	0.00
Mean VIF	1.41					

Figure A.5.3: Selected Diagnostic Plots for multiple regression results

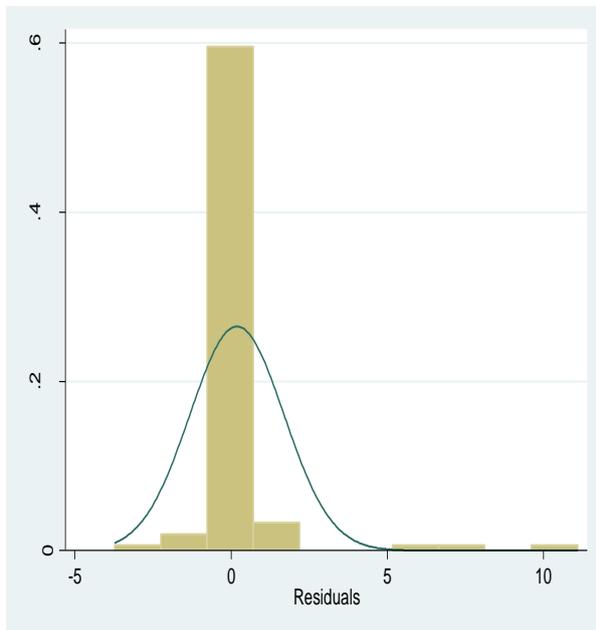
1. Q-Q plot



2. Actual versus fitted values



3. Residual distribution versus normal



4. Residual plot

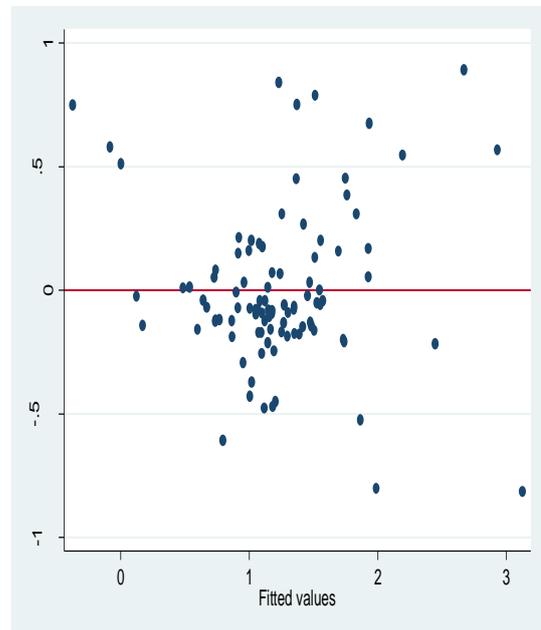


Figure A.5.4 Residual Plots for Bivariate Model $FSS = Constant + 6.55ROA$

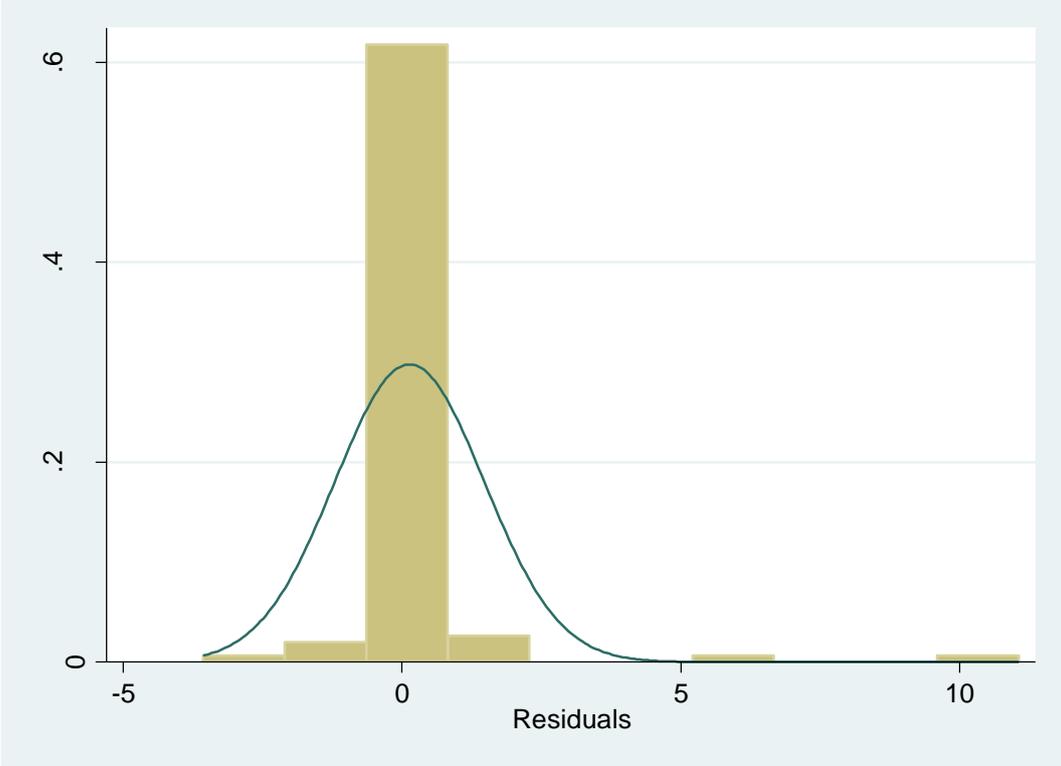


Table A.6.1: Estimates for Technical Efficiency (TE), Pure Technical Efficiency (PTE), Scale Efficiency and Returns to Scale

ID	Region	T	PTE	SE	RTS	Rank	ID	Region	TE	PT	SE	RTS	Rank
33	DSM	1	1	1	crs	1	20	DSM	0.3	0.3	0.87	irs	53
13	DSM	1	1	1	crs	2	121	MWZ	0.3	0.8	0.34	drs	54
46	DSM	1	1	1	crs	3	50	DSM	0.29	0.6	0.42	drs	55
98	AR	1	1	1	crs	3	120	MWZ	0.29	0.5	0.57	drs	56
48	DSM	1	1	1	crs	5	77	KLM	0.28	1	0.28	irs	57
110	MWZ	1	1	1	crs	5	43	DSM	0.28	0.4	0.69	irs	58
108	MWZ	1	1	1	irs	7	64	DSM	0.28	0.2	0.97	drs	59
56	DSM	1	1	1	irs	8	72	KLM	0.27	0.3	0.81	irs	60
41	DSM	1	1	1	crs	9	52	DSM	0.27	0.3	0.79	irs	61
116	MWZ	0.	1	0.97	irs	10	102	AR	0.26	0.3	0.77	drs	62
82	AR	0.	1	0.91	drs	11	19	DSM	0.26	0.4	0.54	irs	63
10	DSM	0.	0.97	0.93	drs	12	79	AR	0.26	0.9	0.28	irs	64
34	DSM	0.	1	0.86	irs	13	117	MWZ	0.26	0.5	0.49	irs	65
53	DSM	0.	0.83	1	irs	14	69	KLM	0.25	0.3	0.82	drs	66
42	DSM	0.	1	0.82	irs	15	93	AR	0.24	0.2	0.93	irs	67
119	MWZ	0.	1	0.81	irs	16	17	DSM	0.24	0.2	1	irs	68
95	AR	0.	0.83	0.95	irs	17	26	DSM	0.24	0.2	0.94	irs	69
84	AR	0.	0.77	0.99	irs	18	21	DSM	0.23	0.2	0.8	irs	70
101	AR	0.	1	0.76	irs	19	14	DSM	0.23	0.2	0.93	irs	71
22	DSM	0.	0.8	0.94	irs	20	76	KLM	0.22	0.3	0.67	irs	72
94	AR	0.	0.99	0.69	irs	21	11	DSM	0.22	0.2	0.98	irs	73
44	DSM	0.	1	0.65	drs	22	49	DSM	0.22	0.2	0.9	drs	74
63	DSM	0.	0.7	0.92	irs	23	58	DSM	0.22	1	0.22	irs	75
51	DSM	0.	1	0.63	irs	24	70	KLM	0.22	0.3	0.72	irs	76
39	DSM	0.	0.63	0.99	irs	25	73	KLM	0.21	0.2	0.94	irs	77
96	AR	0.	0.81	0.74	irs	26	68	KLM	0.21	0.2	0.98	irs	78
65	DSM	0.	1	0.59	drs	27	103	AR	0.21	0.2	0.76	irs	79
27	DSM	0.	0.65	0.89	drs	28	32	DSM	0.2	0.2	0.95	irs	80
90	AR	0.	0.57	0.94	irs	29	38	DSM	0.2	0.3	0.66	irs	81
47	DSM	0.	0.53	0.98	drs	30	35	DSM	0.2	0.6	0.32	irs	82
60	DSM	0.	0.51	1	drs	31	113	MWZ	0.19	0.3	0.62	irs	83
37	DSM	0.	0.97	0.51	irs	32	3	DSM	0.19	0.2	0.89	irs	84
83	AR	0.	0.53	0.91	irs	33	71	KLM	0.18	0.1	1	irs	85
59	DSM	0.	0.48	0.99	irs	34	36	DSM	0.17	0.2	0.85	irs	86
9	DSM	0.	1	0.43	irs	35	106	MWZ	0.17	0.3	0.45	irs	87
112	MWZ	0.	0.64	0.67	irs	36	25	DSM	0.17	0.1	1	irs	88
87	AR	0.	0.48	0.87	irs	37	91	AR	0.17	0.9	0.18	irs	89
100	AR	0.	0.45	0.91	irs	38	18	DSM	0.17	0.2	0.69	irs	90
15	DSM	0.	0.4	0.99	irs	39	85	AR	0.16	0.7	0.23	irs	91
109	MWZ	0.	0.41	0.98	irs	40	86	AR	0.16	0.1	0.9	irs	92
29	DSM	0.	0.78	0.5	irs	41	61	DSM	0.16	0.1	0.98	irs	93
16	DSM	0.	0.65	0.59	irs	42	118	MWZ	0.15	0.1	0.9	irs	94
105	MWZ	0.	0.37	1	irs	43	5	DSM	0.15	0.2	0.77	irs	95
4	DSM	0.	0.39	0.96	irs	44	99	AR	0.15	1	0.15	irs	96
2	DSM	0.	0.38	0.98	irs	45	57	DSM	0.14	0.3	0.47	irs	97
111	MWZ	0.	0.52	0.7	irs	46	74	KLM	0.13	1	0.13	irs	98
23	DSM	0.	0.6	0.6	drs	47	75	KLM	0.12	0.1	0.99	drs	99
81	AR	0.	0.35	0.99	irs	48	62	DSM	0.11	0.5	0.21	irs	100
45	DSM	0.	0.41	0.81	irs	49	7	DSM	0.1	1	0.1	irs	101
88	AR	0.	0.47	0.69	irs	50	55	DSM	0.09	0.1	0.67	irs	102
80	AR	0.	0.32	0.96	irs	51	12	DSM	0	0.0	0.06	irs	103
31	DSM	0.	0.31	0.97	irs	52							

Note: AR (Arusha); MWZ (Mwanza); DSM (Dar Es Salaam); KLM (Kilimanjaro); ID (SACCOs' ID); TE (Technical Efficiency); PTE (Pure Technical Efficiency).

Appendix A.7.1: Selected cases and their key performance variables

Name	Region	Loans	Fixed Assets	Deposit	Revenue	Expenditure	CRS TE	VRS TE	SCALE	RTS	Rank	Income	FSS	RoA	Quadrant
SACCO 19	AR	1.40E+09	2.30E+07	8.80E+08	1.50E+08	9.10E+07	0.31	0.32	0.96	irs	51	1.02E+09	0.92	0.04	3
SACCO 12	AR	8.10E+08	5.20E+07	4.80E+08	2.20E+08	1.00E+08	0.35	0.35	0.99	irs	48	7.00E+08	1.53	0.14	1
SACCO 4	AR	2.00E+09	5.20E+07	5.20E+08	3.00E+08	3.90E+07	0.91	1	0.91	drs	11	8.20E+08	2.14	0.13	2
SACCO 10	AR	3.50E+06	1.70E+07	1.20E+07	2.20E+07	4.10E+06	0.79	0.83	0.95	irs	17	3.36E+07	5.14	0.86	2
SACCO 3	AR	9.10E+06	2.40E+07	1.20E+07	1.70E+07	1.30E+06	1	1	1	crs	3	2.89E+07	9.77	0.48	2
SACCO 13	AR	2.50E+09	5.00E+08	2.70E+09	1.70E+08	1.20E+08	0.26	0.34	0.77	drs	62	2.82E+09	0.68	0.02	3
SACCO 6	AR	4.60E+07	4.30E+06	3.10E+07	1.20E+07	1.90E+06	0.69	0.99	0.69	irs	21	4.20E+07	2.74	0.19	2
SACCO 14	DSM	1.00E+09	2.40E+08	6.70E+08	2.80E+08	2.90E+08	0.17	0.17	1	irs	88	9.47E+08	0.82	-0.01	3
SACCO 5	DSM	6.00E+06	1.30E+07	5.00E+06	4.50E+07	3.30E+07	1	1	1	crs	1	5.02E+07	1.34	0.62	2
SACCO 15	DSM	1.20E+09	3.80E+08	1.80E+09	4.90E+08	3.40E+08	0.2	0.61	0.32	irs	82	2.29E+09	1.21	0.09	3
SACCO 16	DSM	1.10E+09	2.10E+07	3.30E+08	1.60E+07	3.30E+07	0.47	0.48	0.99	irs	34	3.42E+08	0.19	-0.01	3
SACCO 11	DSM	2.40E+09	7.20E+07	4.40E+07	1.40E+08	6.90E+07	1	1	1	crs	2	1.87E+08	0.75	0.03	4
SACCO 7	MWZ	2.00E+09	1.30E+07	2.30E+08	2.40E+08	2.90E+07	1	1	1	irs	7	4.66E+08	1.85	0.10	2
SACCO 8	MWZ	1.80E+09	5.30E+07	6.00E+07	3.10E+08	6.10E+07	1	1	1	crs	5	3.71E+08	2.09	0.14	2
SACCO 17	MWZ	1.20E+08	1.20E+07	8.90E+07	1.40E+07	8.70E+06	0.19	0.31	0.62	irs	83	1.03E+08	0.95	0.04	3
SACCO 18	MWZ	2.50E+08	3.30E+07	2.50E+08	4.60E+07	4.00E+07	0.15	0.17	0.9	irs	94	2.95E+08	0.89	0.02	3
SACCOS 9	MWZ	1.90E+07	5.70E+06	5.30E+06	8.80E+06	1.60E+06	0.81	1	0.81	irs	16	1.40E+07	3.50	0.29	2
Average (N=103)		8.72E+08	1.26E+08	5.55E+08	1.16E+08	6.12E+07	0.4203	0.5757	0.763		52	6.72E+08	1.33	0.06	

Appendix A.7.2: A summary of perceived existence (nonexistence) of the key performance drivers among the visited SACCOs

Case	Performance	Governance	Capital Constraints	Diversification	Manager's Education	Agency Problem	Inadequate Coops Education	Political Interference	Tax Burdens	Unpredictable Cash Flow	Delayed Remittance
1	High	Strong	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes
2	High	Strong	Yes	No	Yes	Yes	Yes	No	Yes	Yes	NA
3	High	Strong	Yes	Yes	Yes	No	Yes	No	No	No	No
4	High	Strong(*)	Yes	No	Yes	No	Yes	No	No	No	Sometime
5	High	Strong	Yes	No	Yes	Yes	Yes	No	No	Sometime	NA
6	High	Strong	Yes	No	Yes	No	Yes	No	No	Some Time	Some Time
7	High	Strong	Yes	No	Yes	No	Yes	No	No	No	Yes
8	High	Strong	Yes	No	Yes	No	Yes	No	No	Some Time	Some Time
9	High	Strong	Yes	Some How	No	Yes	Yes	No	No	Some Time	NA
10	High	Strong	No	Yes	Yes	No	Yes	No	Yes	Some Time	NA
11	Medium	Strong(*)	Yes	Yes	Yes	No	Yes	No	No	No	Yes
12	Medium	Strong	Somehow	No	Yes	No	Yes	No	No	Some Time	NA
13	Low	Strong	No	Yes	Yes	No	Yes	No	Yes	No	No
14	Low	Strong	Yes	Some How	Yes	Yes	Yes	No	No	Some Time	NA
15	Low	Strong	Yes	No	Yes	No	Yes	No	No	Some Time	NA
16	Low	Strong	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
17	Low	Strong	Yes	No	Yes(**)	No	Yes	No	No	No	No
18	Low	Strong	Yes	No	Yes	No	Yes	No	No	No	No
19	Low	Moderate	Yes	No	Yes	No	Yes	No	No	No	Yes

Appendix A.7.3: A checklist: What drives performance of SACCOs in Tanzania?

General Questions

1. If you had all the capital you wanted, where would you like to see your organization in the next 5 years from now?
2. Let's talk about how you measure the performance of your organization in terms of profitability, efficiency and sustainability with your SACCOs. How does it usually perform?
3. What are stories you can share that illustrate the SACCOs strengths and weaknesses?
4. What are areas in which the SACCO doesn't seem to meet your particular expectation?
5. When you look back in time what would like to change about your organization to improve performance?
6. Is there any issue which affects your performance which we did not cover in our discussion?

Follow-Up Questions

A. SACCOs historical background and strategic mission (Manager and or Board Chair)

- a. What is the brief history of the institution?
- b. Who formed the SACCO? When and why?
- c. Do you think the current mission of the SACCO still reflects its initial objective?
- d. What are the SACCO's main activities?
- e. What do you think about the size of your SACCO (too large, too small, about right)? Why?
- f. How does it affect the performance?

B. Understanding of Seven Principles of Cooperatives and how they are applied in running SACCOs (Managers/Board)?

- a. How do you recruit your members?
- b. What type of training has been offered to board members, managers and members in the last five years? How often?
- c. How frequently do you give dividends to your members?
- d. How is the amount determined and how is it distributed?
- e. How do you raise capital? (Is it mainly internally or through external borrowing?)
- f. What type of linkage and relationship do you have with other financial institutions? Why?
- g. Which role do you play in your community? (eg. in education, environmental conservation, health service ?)
- h. What is your understanding of the seven principles of cooperatives? How are they implemented here?
- i. Which of the cooperatives principles (dis)advantage you over other financial service providers? Why?

C. Quality of Governance (Composition, Effective Board Process)

1. Board Composition and Diversity
 - a. What is the structure and composition of your board? (Size, Skills, Education, Age, Gender, Experience).
 - b. Can you explain the motivation behind this structure and how was it arrived at?
 - c. What is the duration of the board members term of office and can they be-elected?

- d. Who chairs the board? Is he/she different from a manager?
 - e. How many committees do you have and what is their role?
 - f. What are the major responsibilities and activities of the boards?
 - g. How often does the board meet in a year and are the meeting information/documents circulated in advance?
 - h. What reports and documents does the board normally receive from the committee, management and auditors?
 - i. Which strategies do you have in place to deal with bad debt and operational risks such as fraud?
 - j. What do you understand by the term 'transparency' in financial service provision and how is it being practiced here?
 - k. What is loan approval process? Does it differ depending on the size and type of applicant?
2. Decision making and handling challenges?
 - a. How are key decisions being made in this SACCO and why?
 - b. Which type of decision needs strictly board approval?
 - c. Is a board member allowed to borrow from the credit union?
 - d. Is it possible for board members to borrow more than recommended maximum? Who approves it?
 - e. How many members have used this facility in the last year?
 - f. Are there some members of the management/board who have carried over loans during the last year?
 3. Over life time what has been the major success stories?
 - a. What contributed to success?
 - b. Were they planned successes or did they happened by chance?
 - c. How was it achieved?
 - d. What are you doing to maintain success?
 4. What have been major challenges?
 - a. What contributed to the challenges?
 - b. Were they anticipated or did they come by surprise?
 - c. What steps have you taken to resolve the challenges?
 5. Description of the SUCCESS /Failure
 - a. How it all began
 - b. Who were the key players?
 - c. Who were the key supporters?
 - d. What lessons have you learned along the way?
- D. Quality of Management (Manager/Board)**
- a. How were you recruited for the position?
 - b. How did your education, skill set and experience help you to get the job?
 - c. How often to do you receive training?
 - d. What do you think about the performance of your organization in terms of efficiency and sustainability?
 - e. What factors constrain the operation of the SACCO?
 - f. Did you apply for a wholesale loan in the past 4 years? Why?
 - g. How was the loan distributed among the borrowers?

E. Embezzlement Incidence (Board/Manager/Member)

- a. During the past five years is there any unaccounted loss which has been reported in your SACCOs?
- b. What do you think could have caused it?
- c. What measures have been put in place to avoid the re-occurrence?

F. Political Interference (Manager/Board)

- a. How often do you receive funding from the government?
- b. Are there incidents when politicians or government technocrats have used their power to influence the management to take risk decisions which would not have been taken otherwise?

G. Operating Environment (Manager/Board)

- a. What is the type of the common bond among the members? (Closed based, flexible)?
- b. What is the major composition of socioeconomic profile of your members? Does it affect the performance of the SACCO?
- c. Can non-members use the SACCOs? What is the procedure?
- d. Does your SACCO use modern technology in lending? (ATM, M-Pesa etc)? Why?