



**CAPITAL STRUCTURE AND FINANCIAL SUSTAINABILITY OF MFIs
IN RWANDA, A COMPARATIVE STUDY OF MFIs Ltd AND SACCOs
(2013-2017)**

**A Dissertation Submitted to the University of Rwanda, College of Business
and Economics in Partial Fulfillment of the Requirements for the Award of a
Master Degree of Business Administration (Finance Option)**

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DECLARATION

I, Jean Marie Vianney RUTANGA, declare that this research entitled “**capital structure and financial sustainability in MFIs in Rwanda**” is my original work conducted under the supervision of Dr. Jonas BARAYANDEMA (Ph.D). therefore, full acknowledgements have been given in places where other people’s works have been cited or their view adopted. I further, to the best of my knowledge declare that, no part of this research project has either been presented in whole or in part to any other institution for any award.

DATE...../...../ 2018

SIGNATURE.....

Jean Marie Vianney RUTANGA

CERTIFICATION

This is to certify that the study entitled “CAPITAL STRUCTURE AND FINANCIAL SUSTAINABILITY IN MFIS IN RWANDA” was conducted and presented by Jean Marie Vianney RUTANGA under my guidance and supervision as partial fulfillment of the requirement for the award of a master’s degree in Business Administration (MBA) Finance option at University of Rwanda school of business, College of Business and Economics.

Supervisor: Dr. Jonas BARAYANDEMA (Ph.D)

Signed.....

Date.....

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ABSTRACT

Financial sustainability of MFIs has become an issue of discussion since 2008's microfinance crisis. Further, commercial source of capital, expansion of financial services and the emergence of cooperative financial institutions and SACCOs have also attracted the attention towards financial sustainability in microfinance sector. The aim of this study was to investigate the effect of capital structure on financial sustainability of MFIs in Rwanda; research data was obtained from Audited financial statements of 3 MFIs and 8 SACCOs, quantitative approach was employed to identify the factors that affect the financial sustainability of MFIs in Rwanda and multiple linear regression was used to analyze and test the relationship between dependent and independent variables of the study. Data was analyzed using multiple regression models and SPSS version 20 as the data analysis tool. Based on the findings the analysis of variance (ANOVA) the independent predictor variables influenced the dependent variable insignificantly at 5% significance level. Among the four independent variables; debt, deposits, retained earnings and ordinary share capital were statistically insignificant variable at 5% but at different magnitude in MFIs Ltd and SACCOs.

Findings in this study revealed that debt has not uniformly affected financial sustainability variables among MFIs Ltd and SACCOs between 2013 and 2017. In MFIs, debt negatively affected OSS, and ROA. However, it has been positively affected FSS. In SACCOs, debt has positively affected OSS and ROA while negatively affected FSS. The study found that between 2013 and 2017 In MFIs Ltd, deposits, insignificantly affected all indicators of financial sustainability i.e. OSS, FSS and ROA. In contrast however, in SACCOs, deposits have negatively affected OSS, FSS and ROA. Further, retained earnings significantly affected all indicators of financial sustainability i.e. OSS, FSS and ROA in MFIs; equally important, by the same period in SACCOs, retained earnings also negatively affected OSS, FSS and ROA. Thus the study concluded that the effect of debt, retained earnings, deposits and ordinary share capital on financial sustainability indicators, differ between MFIs Ltd and SACCOs and recommends that SACCOs should utilize any borrowing opportunity, while MFIs are encouraged to employ deposits.

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LIST OF ABBREVIATIONS

AT: agency theory

BNR: National Bank of Rwanda

FSS: Financial Self-Sufficiency

LCT: life cycle theory

MFI: Microfinance Institution

MFI: Microfinance Institution

NPO: Non for Profit Making Organizations

OSS: Operating Self Sufficiency

OSS: Operational Self-Sufficiency

PIT: profit incentive theory

ROA: Return on Assets

ROA: Return on Assets

ROE: Return on Equity

SACCOS: Savings and Credit Cooperative Organizations

SPSS: Statistical Package for Social Sciences

CHAPTER ONE: INTRODUCTION

1.0. General introduction

Recently, researchers in the field of microfinance have been put more attention on the long term aspect of microfinance. Provision of financial services generally saving and credit to low income population is in the central definition of microfinance. Thus, small scale financial services provided to people who usually operate micro enterprises, individuals and groups more especially in developing countries, need to be sustainable to reach the core mission of microfinance (Tehulu, 2013). Financial sustainability refers to the ability of MFI to be able to meet its operations expenses or continue with its operations even without grants and subsidies. MFI's financial sustainability is also defined as the ability to meet its expenses using its operating revenue and generating a margin that can be used to fund its growth. Thus, three relevant measures of financial sustainability i.e. OSS, FSS, and ROA are used in this research.

Furthermore, commercialization of MFIs has become an overriding strategy in most part of the world today. This is with the view of obtaining commercialized capital from investors to ensure large scale outreach to the world's poor population who still have no access to basic formal financial services. Recent, the microfinance industry in Sub Saharan Africa reported to have employed commercialized source of capita. Further, regulations have encouraged the creation of profit seeking MFIs with the capability to seek commercial capital such as deposit taking, equity and loans from investors (Darko, 2013). Thus, it has become an imperative for MFIs to remain sustainable so that they can survive the forces of competition and flourish in a changing global environment. In sight of this therefore, I have carried out this study with the main objective of examining the effect of capital structure on financial sustainability of MFIs in Rwanda. Moreover, I expected to investigate the effect of capital structure on financial sustainability of MFIs in Rwanda; and determine the extent on which capital structure affect financial sustainability of MFIs in Rwanda.

The remains of the study are structured as follows: The next section provides a background of the study, followed by the problem statement; and the literature on capital structure and financial sustainability of MFIs while the third section focus on research methodology employed for the study. The forth section provides the empirical results of the study and discussions there in; and lastly the study provides conclusion and recommendations.

1.1 BACKGROUND OF THE STUDY

Traditionally, MFIs were NPOs, social oriented and their capital was based on donations and subsidies. However, as the passage of time, commercial source of finance, expansion of financial services and the emergence of cooperative financial institutions as well as SACCOs are the emerging trends in microfinance sector. In this regards, recent commercialized source of capital, and withdraw of subsidized capital funds in MFIs are todays significant issues of debate (Bayai & Ikhide, 2016; V. Bogan, 2009; V. L. Bogan, 2012; Mwongeli & Ariemba, 2018; Siddik, Kabiraj, & Joghee, 2017). Therefore, the above mentioned trends in microfinance sector necessitate MFIs to be financially viable and sustainable to ensure the continuity of financial mission of MFIs and continue to answer the question of financial inclusion as it is on the fore front of the economic development strategies in developing countries (Abate, Borzaga, & Getnet, 2014).

Further, the current debate on source of capital revolves around a number of theories. However, it has its roots in 1950's when the irrelevant theory was firstly presented by Franco Modigliani and Merton Miller(1958) (Shahdila, Shahar, Shahzlinda, Shahar, & Bahari, 2015). In their study, Modigliani and Miller tried to explain the irrelevance of the capital structure on the value of the firm where the fundamental proposition of the theory assumes a fully efficient and perfectly competitive market, without transaction costs, bankruptcy costs, tax free and market environment without asymmetric information, however the irrelevance of capital structure assumed by Modigliani and Miller reported to be unrealistic in today's world of finance and more specifically in MFIs due to their uniqueness nature of "double bottom line" (serving the poor and being financially sustainable) (Ahmeti & Prenaj, 2015; Bayai, 2017; V. Bogan, 2009; V. L. Bogan, 2012; Heider et al., 2009)

The argument over the assumptions of MM theorem is also given by the tradeoff theory which states that with the incorporation of tax, the firm will acquire additional debts to the extent where the value of additional tax shields offset by the present value of assumed probability of financial distress (Shahdila et al., 2015). The theory asserts that by using debt, the firm should benefit from the increased value of the firm and decreased cost of capital; this is known as tax savings. Further, the theory argues that the firm should use its physical assets as collateral while acquiring debts, according to this theory, the value of levered firm is greater than the value of

unlevered. however, the tradeoff theory does not suggest a precise optimal capital structure that would sustain a firm from financial distress, rather the decision left in the hands of institutions' finance managers (Ho, 2009; Lislevand, 2012; Siddik et al., 2017).

Even though trade off theory explains the advantages of debt capital, the pecking order theory suggests the hierarchy for the capital decision by taking into consideration the relative costs of the various sources of capital funds. It states that firms should firstly employ its in-house funds, and when being exhausted, the firm then should go for external source starting with debts and finally raise equity if available debts are not sufficient for the remaining capital requirements (Lislevand, 2012; Siddik et al., 2017). Another popular theory in corporate finance is the agency cost theory. Agency theory attempts to demonstrate the role of debt in aligning the managers' performance to that of the owners.

Agency theory asserts that the use of debts in capital structure increase on profitability and enhance cost efficiency as well as reduces wasteful cash flows which might be a source of liquidation. Authors argue that the use debt puts pressure on managers to generate sufficient cash flows to enable the firm to service debt obligations including payment of interest on loans (Lislevand, 2012). However, it has been arguable in literature that an increase of costs associated with the monitoring of management activities could reduce on gains and these costs tend to be high in MFIs due to the lending nature of the sector (cost of micro loans is high) (Aasted, 2013; Bayai, 2017). However, the theory does not explicitly suggest how agency costs should be minimized in MFIs to enhance financial sustainability. Market timing theory is also among the theories in corporate finance and it is the more recent theory as it tries to tackle the current situations of capital market developments. The main idea behind this theory is that firms issue equity securities at a high price and repurchase them at a lower price. According to this theory, firms' capital structure assumed to be the results of managers' efforts and capacity to monitor the opportunities of capital market and the targeted capital structure is in long run (Muhammad & Iqbal, 2014; TUDOSE, 2012)

Other theories in microfinance include life cycle theory (LCT) and the profit incentive theory (PIT). Life Cycle Theory states that capital structure of MFIs changes with the change in phases of life cycle i.e. start-up phase, grow up and expansion phase, consolidation and as well as integration stage. Generally speaking, MFIs starts by grants in the start-up stage and full equity in their consolidation and integration stage. However, it has also argued that capital providers

imposes conditions that would not allow MFIs to choose from available sources of funds and limits the MFIs from available financing sources which increases risk (Bayai, 2017) Further, evidence of effect of Life Cycle on financial sustainability of MFIs is empirically unsupported (V. L. Bogan, 2012). By contrast, the profit incentive theory holds that, the use of commercial finding at any stage of evolution, enables MFIs to meet the microfinance objective as donor funding is limited and promotes dependence syndrome, commercialization of MFIs promotes self-sustainability (Bayai, 2017; V. L. Bogan, 2012).

It has been noted that recent trends in microfinance such as commercialized source of capital, competition, withdraw of grants and subsidies by donor providers and deposit mobilization bring forward the importance of linking sources of capital and financial sustainability of MFIs (V. L. Bogan, 2012; Njenga, 2014). existing studies have attempted to establish a model that explains the relationship between capital structure and financial sustainability of MFIs; However, their findings revealed that source of capital in MFIs are not uniformly distributed and vary due to differences in the nature of variables that determine these sources such as traditional patterns of saving and lending, and variations in financial development of individual nation and policies and regulations that prevail in the functioning of those financial markets (Abate et al., 2014; Bayai, 2017) thus, literature have not been able to establish a universal model that explains the effect of each source of capital on financial sustainability variables (Bayai & Ikhide, 2016; V. Bogan, Johnson, & Mhlanga, 2007; Mwongeli & Ariemba, 2018)

In addition to the above mentioned gap, most of existing studies in domain of capital structure in microfinance have focused on the effect of capital structure on performance of MFIs (Fredrick, 2013; Khachatryan, Hartarska, & Grigoryan, 2013; Kirk, Sc, Physics, & Duku, 2012; Osmond, 2011; Siddik et al., 2017), further; it is arguable that recent studies on sources of capital in developing economies have not been developed models of capital structure in MFIs that should be comparable to existing traditional models (Khanna, Srivastava, & Medury, 2014) furthermore, in context of this study, it has been evidenced that there is no exhaustively and up to date study that has been investigated the role of each component of capital structure on financial sustainability of MFIs, therefore, considering this knowledge gap, this study designed to develop a model that should explain the effect of source of capital on financial sustainability of MFI

1.2. PROBLEM STATEMENT

Theories such as MM theory, tradeoff theory; and pecking order theory, lifecycle theory, Agency theory and market timing theory were developed and have been deployed in corporate finance to explain how firms should construct their capital structure in a way that minimizes the average cost of capital, and try to maximize value of the firm through optimizing efficiency operations (Bayai & Ikhide, 2016). However, even though these theories play an important role in capital structure formation in various firms, they are not actually straight forward employed in banks and MFIs. Further, some of these theories for example MM theory have been challenged by contemporary researchers on ground arguing that the assumptions that a perfect capital structure, without taxes, and availability of equal opportunity to all investors, are built on an imaginable non-existent world of business (Ahmeti & Prenaj, 2015; V. Bogan, 2009). Furthermore, variables such as agency problem and asymmetric information are differently interpreted by the above mentioned theories since some of these theories focus on benefits while others focus on costs of various sources of capital (Muhammad & Iqbal, 2014)

Moreover, empirical studies on MFIs' source of capital and financial sustainability have attempted to explain the effect of sources of capital on financial sustainability of MFIs and assert that variables such as financial crisis, risk management objectives, and specific goals of MFIs affect the choice of capital structure which on the other hand positively and negatively affect financial sustainability of MFIs (Abate et al., 2014; V. Bogan, 2009; Yoshi Fukasawa & Schafer, 2011). Further, recent requirement of financial sustainability in microfinance sector, and the availability of commercial source of capital such as debts and deposits, reported to be critical determinants of capital structure in MFIs (Bayai, 2017; Darko, 2013). In addition, shifting from grants and other subsidized source of capital to commercialized microfinance has increased the need for sustainable MFIs so that their financial as well as social mission would be permanently accomplished (V. L. Bogan, 2012). However, empirical studies in domain are still scarce (Bayai, 2017), and existing studies have not been able to establish a comprehensive model that sufficiently explains the extent to which each source of capital affects the financial sustainability of MFIs.

It has been noted that financial sustainability is the key dimension and very important variable in MFI's total sustainability (Bayai, 2017; Kinde, 2012; Marwa & Aziakpono, 2015; Mwangi & Muturi, 2015). However, due to the above mentioned limitations in existing theories, it does not

make a sense to explain the effect of capital structure on financial sustainability of MFIs by employing only theories, further, recent empirical research have not exhaustively explained the extent to which capital structure affects financial sustainability of MFI. Therefore, due to the limitations in existing theories and insufficiency of empirical studies in domain, and considering this gap in the existing literature on capital structure and financial sustainability of MFIs, this study is designed to contribute on to the existing literature on capital structure in MFIs and its effect on financial sustainability by providing a model that explains the main sources of capital and the role of each source on financial sustainability variables in MFIs and extent to which the capital structure as whole affects the financial sustainability of MFIs.

1.3. RESEARCH OBJECTIVES

1.3.1. General Objective

The general objective of this study is to investigate the effect of capital structure on financial sustainability of MFIs in Rwanda.

1.3.2. Specific Objectives

- I. To assess the effect of capital structure on financial sustainability of MFIs in Rwanda.
- II. To determine the extent on which capital structure affect financial sustainability of MFIs in Rwanda.

1.3.3. Research Questions

- I. What is the effect of capital structure on financial sustainability of MFIs in Rwanda?
- II. To which extent the capital structure affects financial sustainability of MFIs in Rwanda?

1.4. Significance of the study

This study will benefit a number of stakeholders including managers in microfinance sector who may use the study findings to get more understanding on the effect of capital structure on financial sustainability of MFIs and help them to form a capital structure which should maximize their companies' value and foster benefits to the shareholders. The study will help financial analysts and consultants in microfinance sector to offer informed financial services to their clients; for example as to build optimal capital structure which should enable the firm to remain financially sustainable. The study should benefit concerned government officials while formulating relevant policies which would help in maximum contribution of MFIs to the economic growth of the country. Equally important, potential researchers in microfinance

including university students pursuing a career in the sector are also likely to benefit from this study. Finally the research will provide literature to the future researchers in the MFIs sector.

1.5. Scope of the study

This study focuses on capital structure and financial sustainability of MFIs in Rwanda. Geographically the research covers the whole country by considering MFIs in every Provence of the country; two MFIs in every Provence were randomly selected as a sample. In terms of content, it concerns the assessment of the effect of source of capital on financial sustainability where OSS, FSS and ROA have been taken as proxies of financial sustainability. However, the impact of external variables such as external regulations; and institutional variables such as life cycle of the MFI has been ignored. The factor that sampling was employed as only possible way, disadvantages of sampling is also to be considered. Further, Period of five years from 2012 to 2017 has also been elaborated means that while interpreting the results, time period should also be taken into consideration.

CHAPTER TWO: REVIEW OF LITERATURE

2.1. Introduction

Recent growth of research in the field of microfinance and more specifically in financial sustainability of MFIs can be traced back since the time when the need of long term/continuity aspect of microfinance in developing countries has been given more emphasis by economic development leaders (Tehulu, 2013). Moreover, traditional theories of corporate finance are the corner stone of today's research in domain (Muhammad & Iqbal, 2014). However, contemporary researchers have suggested the need of new theoretical framework on MFIs' financing structure due to the factor that the applicability of existing theories of capital structure are not straight forward applicable in microfinance sector (Bayai, 2017; V. Bogan, 2009; Zalina & Yusof, 2016) moreover, The capital structure of microfinance institutions has become an increasingly issue of concern in the world of corporate finance since the time of banking crisis, where the question of optimal capital structure become of more concern among scholars and concerned government agencies, (V. Bogan, 2009).

A lot of criticism have been made on the theories of capital structure mostly on the assumptions there in, further, empirical studies have been carried out in domain of corporate finance, both from which the purpose was to establish contemporary model that would answer the existing questions on capital structure and financial sustainability. Therefore, this chapter presents the summary of the theories of capital structure; it also tries to elaborate what has been written by previous researchers in the area of financial sustainability and MFIs, and the effect of capital structure on financial sustainability of MFIs, and finally the gap in existing literature is identified through critically reviewing the literature as the purpose of research is to fill such identified gap.

2.2. Capital structure Theory

2.2.1. The M.M. theory

Modigliani and Miller Proposition I: No tax. This is the greatest breakthrough in theory of capital structure; it states conditions under which capital structure is irrelevant. Simply, they assumed ideal but non-existent perfect market, which does not consider what capital structure a company uses to finance its operations. Modigliani and Miller put forward a theory that the market value of a firm doesn't depend on either distribution of dividends or source of capital; but determined by its earning power and by the risk of its underlying assets (CHEROTICH, 2013; Herczeg Adrienn, 1994; Muhammad & Iqbal, 2014)

Modigliani and Miller theorem proposition two: with taxes. In the real world, existence of taxes, transaction costs, bankruptcy costs, information asymmetry and so forth, affect business practice and earnings of corporations. The most important reason for using debt among firms is that earnings after interest payments are taxable. When the first imperfection was introduced: corporate taxes; Modigliani and Miller also corrected their work (Glickman & Glickman, 1994). Thus, MM proposition II recognizes the tax benefit from interest payments for example; issue of bonds effectively reduces the company's tax liability. By contrast however, payment of dividends on equity, does not. Actually, another way is that companies issue bonds at less than the nominal rate of interest because of the tax savings. Mathematically therefore, *the value of the levered firm is equal to the value of an unlevered firm plus the present value of the tax shield associated with debt* (Freeman, Harrison, Wicks, Parmar, & Colle, 2010; Herczeg Adrienn, 1994)

Modigliani and Miller theorem “irrelevancy theory” sparked the debate on the concept of capital structure or financing decision in corporate finance (Kamran, 2015). Prof. Franco Modigliani and Merton Miller’s irrelevancy theory is known as the first and one of the most important theories in the field of corporate finance. MM proposition I: without taxes, states that in the presence of a perfect capital market, firm’s value does not affect by the capital structure since there is no cost associated with borrowing; MM proposition II: with the inclusion of taxes in proposition one, the value of the firm is enhanced by the tax advantage due to the interest expenses deductibility for tax purposes, according to MM, under a certain condition, a firm’s capital structure should be perfectly composed by debts; therefore, this would give a chance to an institution using debt to benefit from tax shield hence financial sustainability (Ahmeti & Prenaj, 2015; V. Bogan, 2009; Shahdila et al., 2015)

Critical studies have concluded against the MM theorem on the ground that the world imagined by Modigliani and Miller is a controlled environment, created based on non-real market conditions which cannot be found anywhere in the real world, further, the assumptions of irrelevance theory has been criticized for being purely theoretical and no longer under discussion among business scholars and financial experts due to the lack of analytical clarity and remain irrelevant in explaining the funding structure of MFIs due to their business nature, furthermore, Modigliani and Miller have not been able to prove that the financial decisions are entirely irrelevant to the firm’s value (Ahmeti & Prenaj, 2015; Bayai & Ikhide, 2016; Herczeg Adrienn,

1994). Thus, MM theoretical assumptions inspired other theories that have been proposed the more reliable assumptions in market imperfections i.e. Tradeoff theory, Pecking Order theory, agency theory, life cycle theory, and market timing theory (Muhammad & Iqbal, 2014).

2.2.2. The trade-off theory

2.2.2.1. The Static Trade off Theory

Theories in capital structure suggest that there should be an optimal capital structure that maximizes the value of the firm. The argument is that this can be in balancing the costs and benefits of an additional unit of debt, which creates a tradeoff model. Further, to consider the optimal debt from various points of view; the trade-off model can be categorized into the models of trade-off connected to the bankruptcy costs and agency costs respectively (Ghazouani, 2013)

Bankruptcy cost generally means the costs incurred by financial distress. Debt has both advantages and disadvantages to companies. Benefits come from tax advantages as debts are tax deductible (allowable) expenses in corporate accounting; and disadvantages come from financial risk due to the increased probability of bankruptcy that exist in a company with higher debt as far as the cost of failure is increased. Thus, the idea behind the trade-off theory is that the optimal capital structure is reached at the point where balance between tax benefits and costs of debt exists, considering other variables not change. Therefore, according to this theory, companies could mix debt and equity to the extent that the value of the firm is maximized. However, this is the original version of trade-off theory as stated in MM theory (Chen & Chen, 2010)

The factor that debt had been existed since before the introduction of subsidized corporate tax on interest payments, given positive bankruptcy costs, authors argue that there must be other important aspect of capital structure that have not been identified before. Therefore, according to the subject of capital structure, two agency conflicts could be identified i.e. conflict between shareholders and managers on one hand and between shareholders and creditors on the other hand (Mallin, 2013; Muzir, 2011)

Due to divergence of interest between shareholders and managers in the corporation, conflicts of interests arise. Authors argue that, as far as manager has no full ownership and control of the company, which means that there are external owners, managers' objective should not be to maximize the value of the firm rather, to maximize their own action. Therefore, the less ownership the manager possess, the more the severity of divergence interests between the two

parties. The abovementioned agency conflict can be controlled by increasing the debt and with the constant actions of managers, which increases the action of the owners and the conflict related loss decreases. In addition, it has been argued that with more debt, corporations must pay more cash as interest and free cash flow will decrease. Therefore, cash available to managers to engage in some other activities that would negatively affect the profit maximization will also decrease (Mallin, 2013; TUDOSE, 2012; Zurigat, 2009)

Another conflict exists between creditors and shareholders for a loan agreement in a case of additional investment opportunities. Actually, when an investment results into great profits, shareholders can obtain the major part of earnings; however, when the investment fails, the creditors also suffer the risk of loss (Ghazouani, 2013). Therefore, shareholders may prefer to invest in high risky projects at the expense of debt issuers, thus authors argue that optimal capital structure can be achieved by finding the point where the total cost of agency is minimized. In addition, in a situation of bankruptcy, the shareholders have no incentive to contribute further capital to investments by increasing the value of investments because the yields will go to creditors while shareholders undertaking the whole cost, the remaining option is debt financing to create a sense of seriousness and reduce agency costs (Shahdila et al., 2015)

2.2.2.1. The dynamic Trade-Off theory

The central to this theory is the dynamic adjustment of capital structure. A common theme in the existing literature is that the optimal and real indebtedness cannot be equal at any time. Market practices such as transaction cost and financial market imperfections usually prevent optimal level from happening. Further, authors emphasize the role of agency costs of debt by determining the optimal debts, they emphasize that the adjustment costs are not a prime interest in the context of the above mentioned static trade-off theory. Furthermore, firms can not eliminate random events that deviate from the optimum (Ghazouani, 2013).

To summarize the tradeoff theory; generally, it states that debt is taken up to the point at which the tax benefits of debt are balanced against the bankruptcy costs, it focuses on the tradeoff between the cost of debt and the benefit of debt (Rajdev & Bhatt, 2016; Ritter, 2004) the level of debt financing therefore, is determined by balancing the tax benefits of using debt against costs of financial distress that may arise as debt/equity increases (Khanna et al., 2014; Shahdila et al., 2015) Financial distress occurs when the creditors' claims are broken or honored with difficulty and this could end up with bankruptcy filing, therefore, indirect costs incurred by a lending

institution in financial distress to avoid bankruptcy is called the cost of financial distress thus the value of the firm will decrease because of financial distress. On the other hand, financial distress refers to the costs of bankruptcy or reorganization, and also to the agency costs that arise when the firm's creditworthiness is in doubt and probability of default is greater than zero. the tradeoff theory weights the benefits of debt as tax advantage against the costs of financial distress associated with debt financing (Aasted, 2013; Ghazouani, 2013; Shahdila et al., 2015).

The trade-off theory argues that firms have optimal debt ratios based on the trade-off between the tax deductibility of interest expenses and the costs of financial distress and suggests that firms would select an optimal capital structure by trading off the two (Shahdila et al., 2015) however, beside the cost of financial distress, there are some other disadvantages of debt financing includes agency cost, where managers might engage in unethical behavior such as shifting investment to riskier assets and the costs are incurred by the debt holders, they may also borrow more and pay out to the shareholders, and excessive debt could affect investment policy in that many good projects may be denied since no more debt can be issued at time due to the excessive debts (Ghazouani, 2013; Khanna et al., 2014; Shahdila et al., 2015)

2.2.3. The pecking order theory

The above mentioned tradeoff theory attempt to indicate the exposure of the firm to the risk of bankruptcy and agency cost vis-à-vis tax benefits associated with debt capital. Bankruptcy cost explained as a cost incurred when the perceived probability of firm's default on borrowed funds is greater than zero. Existing bankruptcy costs including cost related to liquidation, which represents the loss of value while liquidating the net assets of the firm; and distress cost, which is the cost a firm incurs if stakeholders believe that the firm will not continue. Thus, the fundamental idea behind trade off theory is that companies expected to look for an optimal debt ratio (Chen & Chen, 2010; Ritter, 2004; Shahdila et al., 2015).

The pecking order theory set forth the idea on how a firm should acquire capital funds by suggesting the order and benefits of each and every source. It suggests that firms will initially deploy internally generated funds, i.e. undistributed earnings, and if external finance is required they issue debt first and then equity as a last resort due to asymmetric information that arises because the managers know more than outside investors about the profitability and prospects of the firm, due to the factor that investors are willing to invest in risky securities if they are underpriced (Ritter, 2004) However, the pecking theory does not suggest an optimal capital

structure, rather introduced the matter of conflict between insiders and outsiders as a seed of asymmetric information (Adair & Adaskou, 2015; Chen & Chen, 2010; Shahdila et al., 2015) this theory also consider signaling effect and argue that the level of debt ratios in capital structure is determined by the forces of demand and supply factors such as dividend policy, government regulations and other microeconomic variables (Magistrale & Tesi, 2012).

Empirical studies on corporate finance assert that profitable firms generally borrow less because they use undistributed earnings. Nonetheless, firms maximize their value by choosing to finance their new investments with cheapest available sources of finance (Khanna et al., 2014; Shahdila et al., 2015) however, variables such as tax rate, financial distress, and agency costs each on its own may influence MFIs while acquiring these funds(Osmond, 2011). Further, it has been noted that each stage in life cycle of MFI (considering the factor that size changes with changes in stages of life cycle of MFI) requires its specific source of finance; however, empirical study revealed that profitability and growth opportunities play an important role in firm's capital structure determination by forcing the firm to acquire external finance (Chen & Chen, 2010). literature also recognizes managerial behavioral biases on financing decisions and the effect of Islamic financing behavior, where managers in Islamic MFIs seem to be irrational while making financing decisions which can negatively affect investors (Marwa & Aziakpono, 2015)

2.2.4. The agency theory

Agency theory identifies the agency relationship arises when one party delegates work to another party (the principal-agent relationship). According to Christine mallin (2013) the agency relationship can have a number of disadvantages usually in relation to the opportunism and/or self-interest of the agent. Agency problem happens when agent not act in the best interests of the principal, or act only partially in the best interests of the principal. There is a number of dimensions of agency problem, including, misuse of power for pecuniary or other advantage, and not taking appropriate the risks in pursuance of the principal's interests because he/she view those risks as not being appropriate. Information asymmetry is also an example whereby the agent has superior information; in practice, this means that the principal is at a disadvantage because the agent will have more information over the principal. The agency theory argues that once managers of the firm are not the owners, they tend to pursue the profits of the firms they manage to their own personal gains at the expense of the owners (Mallin, 2013). Conflict of interests that may arise between managers and shareholders and between managers and creditors is called agency costs (Lislevand, 2012) agency theory therefore, assumes an optimal capital

structure to be the point when costs arising from the conflicts between the parties involved are at minimum. AT maintains that if companies are approaching financial distress, shareholders push management to take decisions to obtain funds from creditors, who will on the other hand ask for higher return as an opportunity cost of their potential wealth transfer to the firm. thus, debt and interest payments are likely to reduce agency costs and the optimality of capital structure can be achieved by reducing agency cost (AL-Mutairi & Naser, 2015) agency costs seem to be high in relatively small business, and the reason given by researchers is that larger business firms have are likely to be more diversified and because of such diversification have less chance of failure (Kamran, 2015)

2.2.5. The Life cycle theory

Life cycle theory has been applied in various academic fields such as marketing; strategy formulation, financing strategies and firm development etc in trying to explain the different stages that a business firm or a product/product line pass through from its introduction up to its death. However, its application in MFIs is not popular (Bayai & Ikhide, 2016) LCT states that life cycle of MFIs can explain the level of its financial sustainability where by at its maturity stage (above 9 years of existence) when it becomes large and stable, it becoming financially sustainable. The theory suggests that at its early stage (before five years) MFI may be characterized by higher operating expenses, lower productivity and higher cash outlay and depending on external source of funding, such as subsidies, grants and soft loans (Fersi & Boujelbène, 2017); while approaching its Growth Stage, MFI focuses on aspects that are crucial for microfinance institution to gain experience, and improvements on the main operational activities should be a priority. Then at its maturity stage, an MFI can be able to cover total costs incurred from its operation and all activities (Masseele & Fengju, 2016). However, this theory is unsupported from existing literature; thus, it cannot employed to explain financial sustainability of MFIs (Bayai & Ikhide, 2016; V. L. Bogan, 2012)

2.2.6. Market timing theory

Market timing theory is a more recent capital structure theory that built on today's development in capital market and firms' practice where firms issue equity securities at a high price and repurchase them at a lower price. Market timing theory assert that financing decision and firm's capital structure based managers' discretion and their perception on equity market conditions (TUDOSE, 2012) according to this theory, the role of managers in shareholders' value creation is to issue overvalued equity securities, however financing behavior is different between levered

and unlevered firms. Further, this theory assumes two opposing market situations; in the first situation, economic agents (investors vs borrowers) are rational while in the second situation are irrational (Muhammad & Iqbal, 2014). Furthermore, this theory is also limited in that it assumes managers to time the security market, but studies revealed that actually, managers cannot easily distinguish between mispricing of equity securities and asymmetric information about their companies(Muhammad & Iqbal, 2014; TUDOSE, 2012)

2.3. Financial sustainability and MFIs

Recent debate on financial sustainability of MFIs is dominated by the welfare and institutional schools of thoughts on whether it should be the best performance indicator or not, despite the disagreement between the two views, recent discussion among scholars in microfinance sector is oriented towards financial viability and sustainability of MFIs, the argument is that a sustainable MFI can be able to remain offering services without relying on donors or government funds (Marwa & Aziakpono, 2015). The argument is that recently, MFIs are shifting from the old paradigm of grants and social oriented to the new fashion of regulated commercial organizations and institutional viability which has created essence of accountability, transparency, efficiency, and have freedom of interest rate setting, capital mobilization and appropriate management remuneration (Bayai & Ikhide, 2016). Therefore, from banking point of view, sustainability of MFI includes both financial viability and institutional sustainability of any lending oriented institution (Wangechi, 2008). Thus, in this regard, like any other lending institutions, financial sustainability of MFIs can be estimated by using operational self-sufficiency (OSS); financial self-sufficiency (FSS) as well as return on assets (ROA) (Aveh, Krah, & Dadzie, 2013; Bayai, 2017; V. L. Bogan, 2012; Marwa & Aziakpono, 2015; Njenga, 2014; Rao, Kumar, & Pathrudu, 2016).

2.3.1. Operational self-sufficiency (OSS)

In microfinance, OSS indicates the viability of credit operations. It deals with the ability of an institution to cover its operational costs. Financial sustainability therefore, refers to the ability of MFI to cover all administrative costs, financing, and operating costs from the operating income (Aveh et al., 2013). It is argued that OSS is more related to the definition of profitability in a sense that it takes into account revenues and their associated expenses which helps to determine whether an MFI is able to cover the costs incurred in its regular/ usual operations (Yoshi Fukasawa & Schafer, 2011). OSS considers operating costs which incurred while providing financial services includes personnel, and financial revenues such as interests charged on loans.

Loss on loan and other financial expenses are also directly related to normal operations in microfinance. Considering financial sustainability, OSS indicates if an MFI is able to continue its operations without external subsidies or not. OSS can be estimated as follows:

$$\frac{\text{Total Operating Revenues}}{\text{Financial Expenses} + \text{operational costs} + \text{loss on loan expenses}}$$

OSS < 100% implies unsustainable MFI; 100% < OSS < 110% tells us that MFI's operational position is sustainable; and OSS = 100% = MFI's operation is at break-even point. OSS ratio that is less than 100% means that eventually, losses will reduce fund capital till additional subsidies are being raised to cover operating shortfalls. In other words, there should be less funds to loan to borrowers and which may results in the closing of the organization once the funds run out (Bayai & Ikhide, 2016; V. L. Bogan, 2012; Yoshi Fukasawa & Schafer, 2011).

2.3.2. Financial self-sufficiency (FSS)

Due to the limitations of unadjusted traditional financial ratios in measuring MFI sustainability, the FSS ratio has been developed to assess the subsidy dependence of MFIs. FSS is a popular assessment method used by many MFIs as well as by some rating agencies of MFIs; More specifically FSS helps to measure the extent to which the unsubsidized business operating revenue of an MFI, covers its adjusted costs (Yaron & Manos, 2007). FSS measures the MFI's self-capacity to cover its total costs; it indicates whether or not enough revenue is earned to cover all the operating, financial and loan loss expenses as well as maintain the value of the equity and other costs in relation to inflation and other capital costs. It is given by the ratio of adjusted operating income to the adjusted operating expenses. The importance of this adjustment is to show up the financial picture of an unsubsidized MFI; the assumption is that funds would be raised on the commercialized financial markets, rather than through grants or subsidies from donors or/and government. Customer deposits and debts must also be adjusted to reflect market rates on loans and deposits. Financial Self Sufficiency (FSS) is the appropriate measure of Financial Sustainability of MFI which receives donations, grants and/or subsidies (Bayai, 2017; V. L. Bogan, 2012; Fersi & Boujelb  ne, 2017; Marwa & Aziakpono, 2015).

further, it has been argued that, FSS is the best measure of financial sustainability in that; it offers a more complete summary of relationship between inputs and outputs than standard financial ratios such as ROA or ROE (Beg, 2016). Therefore, FSS can be estimated as follows:

$$FSS = \frac{\text{Adjusted financial revenues}}{\text{Adjusted(financial expenses+net loan loss provision expenses+operating expenses)}} \quad (\text{Yaron} \quad \& \\ \text{Manos, 2007})$$

To simplify the above formula, we can state it as: $FSS = \frac{\text{Revenues} - (\text{Grants+extra-ordinary items})}{\text{operating Expenses+CFA+ISA+IA}}$

Where: CFA= *subsidized cost of funds adjustment*; ISA= *in kind subsidy adjustment*, and IA= *inflation adjustment*, FSS $\geq 100\%$ implies that MFI is financially sustainability, whilst FSS that is less than 100% actually indicates un-sustainability of MFI. Authors asset that unless 100% Financial Self-Sufficiency is reached, the provision of credit services in the long-term is undermined by the continued necessity to rely on donor funds (Bayai & Ikhide, 2016; Marwa & Aziakpono, 2015) in the above formula we can observe that “revenues-grants and extra-ordinary items” is equivalent to operating revenues.

Adjustment for inflation is done to adjust the monetary value of assets and real value of equity that has been eroded by inflation. The FSS methodology charges an inflation cost that is calculated as the annual inflation rate multiplied by the difference between equity and fixed assets; further, FSS measures the adjusted income in relation to adjusted costs of MFI and adjusted income lower than adjusted costs, means that MFI is subsidy dependent. Adjustment for subsidized loans is also done to consider the real economic cost of subsidies embedded in such loans. *Hence, to adjust for concessionary loans, the difference between a proxy for the market deposit rate and the average annual concessionary borrowing rate is multiplied by the value of the average annual concessionary borrowings. This cost is added to the financial costs recorded on the income statement* (Yaron & Manos, 2007). other subsidies includes cash donations, technical assistance extended at below market cost and so forth, are also adjusted to reflect the open market conditions (Bayai, 2017; V. L. Bogan, 2012).

2.3.3 Return on asset (ROA)

Return on assets (ROA) also usually called return on investment (ROI). It measures how effectively and efficiently the management employed the available resources to generate profits after payment of interests and corporate tax (Lawrence J.Gitman, 2013). (ROA) is a measure that indicates how well an institution is managing its assets to optimize its profitability. In MFIs, it indicates the rate of return earned on total asset, the ratio considers not only the return on the portfolio, but also all other revenue generated from investments and other operating activities. Chikalipah (2017) conducted a study on determinants of financial sustainability among 324 MFIs

in 33 sub-Saharan African countries covering 2003 to 2014. The results revealed that return on assets (ROA) is the major determinant of financial sustainability of MFIs in sub-Saharan Africa; and concluded that higher net income as a result of best practices in credit risk management process is the critical factor for achieving financial sustainability (Chikalipah, 2017). Further, it is arguable that ROA ratio is the major tools in performance analysis, and the major determinant of financial sustainability of microfinance institutions (Rao et al., 2016). The return on total assets is estimated as follows:

$$ROA = \frac{NET\ Operating\ profits}{Total\ assets}$$

As the above formula indicates, ROA reflects financial outcome of a for-profit organization that operates under commercial constraints in a competitive market place. however, researchers argue that as far as MFI is concerned, the unadjusted ROA, may reflect the administrative decision on the cost of borrowed funds and subsidies, hence ROA constitutes also residual value of the subsidies received by the MFI (Yaron & Manos, 2007).

2.4. Effect of capital structure on OSS.

Existing empirical studies revealed a diverse of results in respect of relationship between sources of capital and operational self-sufficiency. Empirical research employed multiple regression models and covered a period of 10years from 2006 to 2015, revealed that, debts and retained earnings positively affected OSS. however, ordinary share and preferred share negatively affected OSS, , in deposit taking MFIs in Kenya (WAMBUA & A, 2018). further, Vicki L. Bogan investigated the optimal capital structure for MFIs, he used panel data on MFIs in Africa, East Asia, Eastern Europe, Latin America, the Middle East, and South Asia for the years 2003 and 2006 and found out that grants, subsidized funds, and equity capital negatively affect OSS (V. L. Bogan, 2012). By studying the factors that determine MFIs' operational self-sufficiency (OSS); Schäfer and Fukasawa examined 500 MFIs worldwide. Ordinary least squares regression method was used and data from the MIX based on the MIX Global Composite Ranking in 2006 and 2008, but data used was only for financial year 2008 and found no significant relationship between depositors/borrowers ratio or deposits/gross loan portfolio ratio and OSS even though there was a significant variation in regions (Yoshi Fukasawa & Schafer, 2011).

2.5. Effect of capital structure on FSS

Tilahun Aemiro Tehulu empirically investigated the determinants of financial sustainability of microfinance institutions in East Africa. Using unbalanced panel data collected from 23

microfinance institutions (MFIs) in East Africa from 2004 to 2009, the study reveal debt/equity ratio is significant negatively affect FSS of MFIs in EAC. Thus he concluded that in case that MFI does not pay dividends makes equity a relatively cheap source of finance compared to debt capital (Tehulu, 2013).

2.6. Effect of capital structure on ROA

The study adopted causal relationship research design, and using the panel data regression estimation; tried to investigate the effect of capital structure on ROA in Kenyan Deposit Taking MFIs, revealed that the deposit to asset ratio had a positive and significant effect on the MFIs' ROA. the above mentioned study concluded that the higher deposits in relation to total assets is associated with improved financial sustainability of MFI as *one percentage change in the deposit to asset ratio led to a 0.362 percentage change in the return on asset* (Mwangi & Muturi, 2015). A study on determinants of financial sustainability among 324 MFIs in 33 sub-Saharan African countries, covering 2003 to 2014 revealed that return on assets (ROA) as the major determinant of financial sustainability of MFIs in sub-Saharan Africa; has been negatively affected by debt. this is probably because cost of debts wiped out the financial revenues (Chikalipah, 2017).

2.7. Critical review

From the above literature, it has been noted that since 1958 when Modigliani and Miller developed a theory on firm's capital structure, critical and empirical researches in the area of microfinance sector have analyzed the theorem and concluding that the theorem is to be given little consideration while analyzing the financing structure, profitability and sustainability of MFI (V. L. Bogan, 2012; Sekabira, 2013). Further, financing strategies of lending institutions became more prominent in corporate finance studies since the time of financial crisis where the question was what could be the best capital structure to ensure MFIs' solvency and sustainability (Boateng & Abdulrahman, 2013; V. L. Bogan, 2012; Kamran, 2015)

It has also been noted that since 1990's the old fashion of microfinance has been modified from helping poor farmers in group lending methods and helping them to improve their productivity, recently, MFIs are becoming more commercialized formal regulated financial institutions, and a wide range of financial services extended to more comprehensive services, including savings and insurance rather than just granting micro credits to poor (Yoshi Fukasawa & Schafer, 2011) further, more attention has been invested in MFIs' long term aspect in developing economies due to the factor that the health of MFIs is very critical to ensure sustainable microfinance services

(Tehulu, 2013); in addition to this, researchers on microfinance Institutions revealed that, formal MFIs in East Africa (Tanzania, Kenya, Uganda, Rwanda and Burundi) are sustainable compared to semi-formal and SACCOs (Kipesha, 2012).

However, the abovementioned theories and empirical studies have not been clearly and exhaustively established a model that explains the effect of debt-equity mix on financial sustainability of MFIs. Further, existing empirical studies have not been able to demonstrate the extent to which capital structure affect financial sustainability of MFIs. Considering this gap in existing literature; this study aims at contributing to the existing body of knowledge by assessing the effect of financing structure on financial sustainability MFIs, and establish the explains the extent to which the capital structure of MFI affect its financial sustainability.

2.8. Conceptual Framework

Conceptual framework helps to understand the place and direction of research project, it serves as a map that will guide the researcher towards his objectives (Magher, 2017) It is a network of interlinked concepts that together provide a comprehensive understanding of a phenomenon, as well as the process of assessing what it tells us about the real world. It is therefore a process of theorization, which uses grounded theory methodology rather than a description of the data and the targeted phenomenon (Jabareen, 2009) in this study, component in financing structure of MFIs as independent variables are linked with operational self-sufficiency and financial self-sufficiency as the indicators of financial sustainability and the study is to investigate the impact of the former to the later and to what extent even though there might be the external influence.

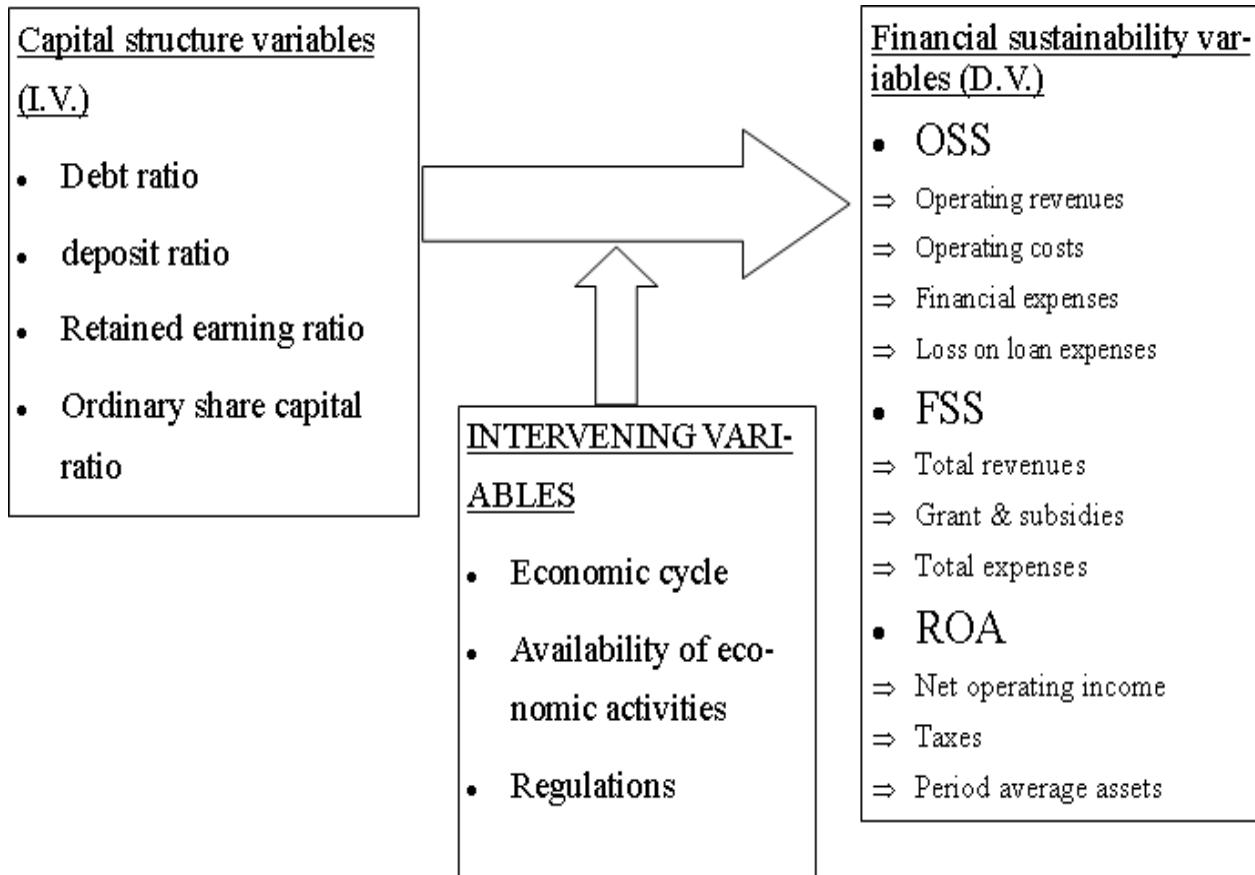


Figure 1: conceptual frame work

Source: My own construction according to literature review.

Note: operating revenues in MFIs/SACCOs is the same as financial revenues, it is the income earned from lending activities (loan portfolio). While total revenues include other revenues such as commission and so forth.

Considering this study, dependent variable is financial sustainability, its proxies are operational self-sufficiency and financial self-sufficiency and its prediction factors adopted are, Debt ratio, Deposits, Retained earnings ratio, Ordinary share capital and preferred share capital. Debt ratio (DBTR) is the amount of Debt in capital composition; Deposits (DPSIT) are the amount on the clients' deposits accounts; Retained earnings ratio (RTERNG) is the amount of undistributed profits that are being utilized in financing structure; ordinary share capital (ORDS) is the amount of owners' contribution that is being employed in capital structure.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Research methodology refers to how scientifically research is done. It means how data are obtained, organized, analyzed and presented by researcher. It is all about decisions, and such decisions depend on the nature of research objectives and research questions (Kothari, 2004)

3.2 Research design

Research design refers to the decision about what is going to be done and how to do it so that research purpose will be scientifically as well as economically achieved (Kothari, 2004). This research is descriptive, and quantitative in nature, and triangulation in that it covers a period of five years from 2012 to 2017, designed to analyze the effect of source of fund in structure on financial sustainability of MFIs in Rwanda and extent to which MFI's capital structure affect its financial sustainability.

3.3 Data collection

For the purpose of this study, Secondary data will be used. Secondary data are those which have already been collected by third party and have already been passed through the statistical process (Kothari, 2004); these data therefore will be extracted from MFIs' Audited financial statements as reported to MNR, AMIR and RCA for cooperative MFIs.

3.3.1 Population of the study

This study aims at assessing the effect of financing structure on financial sustainability of MFIs in Rwanda (2012-1017) therefore; Population of interest is the MFIs that were in business of microfinance at least in 2012. According to BNR, the identified MFIs that were operating in Rwanda in 2012 and before are: 11 MFIs ltd, 31 non U-SACCOs and 416 U-SACCOs. The total number of MFIs under study is 458 MFIs (BNR, 2016)

3.3.2 Sampling design

For the purpose of this research, multistage sampling design employed. Researchers argue that not necessarily using random sampling or select a big large number of participants, but the important is that participants might include the four elements, the setting, the actor, the event and the process (Kothari, 2004) Multistage (three stage random design) sampling was used as follow: 1st stage was to classify MFIs as ltd or Umurenge SACCOs; second stage was to classify MFIs according to geographical region, where province was used as a geographical unit; and last stage was to select sample from determined clusters. Authors assert that ordinarily multistage sampling

is applied in big inquiries extending to a considerable large geographical area; Therefore this sampling design is suitable in this research since it covers the whole country. This type of sampling design is easier to administer due to the fact that sampling frame under multistage sampling is developed in partial units; and a large number of units can be sampled for a given cost under multistage sampling because of sequential clustering, whereas this is not possible in most of other simple sampling designs (Kothari, 2004).

3.3.3 Sample size

A sample size of 3 MFIs and 8 SACCOs was used in this study due to limitations in getting data from MFIs.

3.3.4 Data source

Secondary was the source of information, and audited balance sheet and income statement of sampled MFIs employed to ascertain MFIs' capital structure i.e Debt ratio, Deposits, Retained earnings ratio and ordinary share capital (paid up capital) ratio.

3.3.5 Data collection instruments

Data was extracted from financial statements (Audited balance sheet and income statements) of MFIs and SACCOs, and a summary table was drafted there from.

3.4 processing and analysis of Data

Linear regression model with its general form " $Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$ " is currently being used in most of explanatory studies(Aveh et al., 2013; V. L. Bogan, 2012; Tehulu, 2013; WAMBUA & A, 2018). Therefore, this model used to analyze the effects of capital structure variables on financial sustainability variables in MFIs, as per the following regression model:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$$

Where: X_1 = Proportion of debt, X_2 = Proportion of deposits, X_3 = Proportion retained earnings, and X_4 = Proportion of ordinary share capital, (all are independent variables) While β_1 , β_2 , β_3 , and β_4 , are coefficients of determination and ϵ is the error term. SPSS (statistical package for social sciences version 20) was used for data processing such as producing tables and figures; and finally results were discussed; variance inflation factors (VIF) as well as Durbin-Watson also will be computed to test if there is presence of multi-collinearity and autocorrelation respectively in data set.

3.5 Data reliability

The reliability of data can be tested by finding out things about the said data such as who collected the data, what were the sources of data, were they collected by using proper methods at what time were they collected to avoid data bias (Kothari, 2004). In this regard, sample was strategically selected and examined exhaustively; Secondary data was obtained from Audited reports of MFIs/SACCOs. In addition to this, Data used in this research has been reported to BNR the regulatory body, which increases the level of trustworthiness.

3.6. Limitations of the study

Due to limited time and resources, sampling was the alternative, therefore at first, the sample size was 30 MFIs and is also limited to period between 2012 and 2017 from which other period might give different results; therefore, while interpreting results drawn here with by researcher, considering time period is recommended. Further, financial data always seem to be confidential, thus, while conducting this research, a limitation of getting data also was encountered to the extent that only data from 3MFIs Ltd and 8 SACCOs was obtained.

3.6. Contribution to new knowledge

This study contributes to new knowledge by establish models that would guide MFIs Ltd as well as SACCOs while constructing their capital structure hoping to be financially sustainable by taking into consideration the available source of capital.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION OF FINDINGS

4.1. Introduction

This section presents findings from the analyzed secondary data. The data analysis was done by the use of Statistical Package for Social Sciences (SPSS) version 20. However, some table in excel spreadsheets have also been used for example in presentation of sample's characteristics. Further, data analysis, such as regression analysis, residual analysis as well as interpretation are also presented here. The data was gotten from selected MFIs and SACCOs in Rwanda. All the data presented here with, was gotten by a written request to managers and/or CEO of individual MFI Ltd/SACCO. Data from three (3) MFIs and eight (8) Sacco's was analyzed to help us to analyze the effect of individual source of funds on financial sustainability of MFIs/SACCOs in Rwanda. In determination of the proportion of each capital source, the component was divided by total assets. Components of capital structure as well as the summary of dependent variables in selected MFIs/SACCOs in relation to assets are presented in table1.

MFIs/SACCOs	Debt ratio	Deposits ratio	Retained earnings ratio	Share capital ratio	OSS	FSS	ROA
RIM FINANCE Ltd	0.01	0.76	-0.01	0.19	101%	92%	0%
CCP INEZA	0.09	0.69	0.11	0.09	107%	150%	4%
GOSHEN FINANCE Ltd	0.13	0.72	-0.01	0.14	86%	196%	-1%
DUTERIMBERE Ltd	0.17	0.48	0.05	0.08	88%	110%	-1%
UMUTUZO SACCO	0.22	1.44	0.39	0.00	126%	111%	12%
SACCO NYAMATA	0.00	0.66	0.20	0.06	125%	201%	10%
URUMURI..NTYAZO SACCO	0.00	1.91	0.37	0.11	71%	-84%	-25%
IMBARUTSO SACCO GITI	0.00	2.43	0.52	0.00	82%	178%	3%
ISANGE SACCO NGOMA	0.00	0.73	0.15	0.10	87%	170%	9%
SACCO KANOMBE	0.03	0.73	0.17	0.07	163%	237%	10%
SHANGASHA SACCO	0.03	1.17	0.34	0.00	151%	105%	13%

Table 1: Summary of MFIs Ltd/SACCOs and variables of the study

Source: own calculation from financial statements, Field work 2018

Table 1 presents the financial sustainability behavior in MFIs and SACCOs in Rwanda. From the findings, we can observe that capital structure among MFIs Ltd/SACCOs, Debt, deposits, Retained earnings and paid up capital are the major sources of funds. This funding structure in Rwandan MFIs and Sacco's is different from capital structure among MFIs in east Africa were Preferred share capital is among components of capital structure (Mwongeli & Ariemba, 2018).

4.2. Comparison of capital structure between MFIs Ltd and SACCOs

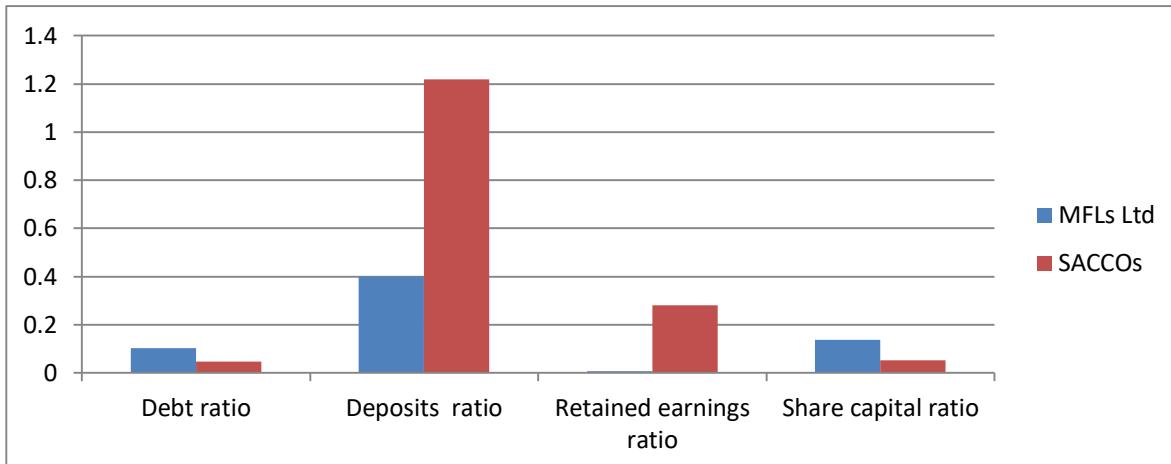


Figure 2: Comparison of capital structure between MFIs Ltd and SACCOs

Source: own calculation from financial statements, Field work 2018

Figure 2 presents the components of capital structure between MFIs and SACCOs in Rwanda. Thus; from the findings, we can observe that deposits are very high in SACCOs, while in MFIs Ltd is very low. Debt is high in MFIs Ltd and low in SACCOs; SACCOs have also huge retained earnings due to the factor that they have not yet started distributing dividends, while in MFIs retained earnings is low and finally share capital is high in MFIs Ltd and low in SACCOs probably because of low contribution provided by members. Further, research revealed that funding structure in Rwandan MFIs is different from capital structure among MFIs in east Africa where Preferred share capital is also among components of capital structure (WAMBUA & A, 2018)

4.3. Summary statistics among MFIs Ltd

	OSS	FSS	ROA	DBTR	DPSIT	RTERNG	SHCPT
N	Valid	3	3	3	3	3	3
	Missing	0	0	0	0	0	0
Mean	.9135	1.3263	-.0090	.1030	.6535	.0076	.1384
Std. Deviation	.08181	.55939	.00503	.08267	.15147	.03325	.05480
Variance	.007	.313	.000	.007	.023	.001	.003
Minimum	.86	.92	-.01	.01	.48	-.01	.08
Maximum	1.01	1.96	.00	.17	.76	.05	.19

Table 2: Summary statistics MFIs

Source: own calculation from financial statements, Field work 2018

4.3. Summary statistics among SACCOs

	OSS	FSS	ROA	DBTR	DPSIT	RTERNG	SHCPT
N Valid	8	8	8	8	8	8	8
N Missing	0	0	0	0	0	0	0
Mean	1.1415	1.3365	.0449	.0466	1.2203	.2807	.0524
Std. Deviation	.33151	.98261	.12456	.07593	.66350	.14387	.04656
Variance	.110	.966	.016	.006	.440	.021	.002
Minimum	.71	-.84	-.25	.00	.66	.11	.00
Maximum	1.63	2.37	.13	.22	2.43	.52	.11

Table 3: Summary statistics SACCOs

Source: own calculation from financial statements, Field work 2018

The above tables show the summary statistics of variables among MFIs and SACCOs. OSS ranges from 71% to 163% with mean and standard deviation of 1.1415 and 0.9826 respectively. OSS in MFIs ranges between 86% to 101% with mean of 0.9135 and standard deviation of 0.0818. This indicates that generally, SACCOs are approaching operational sustainability than MFIs even though the practice is not uniformly among SACCOs. FSS in SACCOs ranges between negative to 237% with mean of 1.3365 and standard deviation of 0.9826. In MFIs Ltd this variable ranges between 92% and 196% with mean of 1.3263 and standard deviation of 0.5594 meaning that MFIs Ltd are financially self-sustainable than SACCOs. Further, we can observe that ROA is negative in MFIs while is positive in some SACCOs which indicates that OSS is more related to profitability than FSS.

4.4. Data analysis

Data model analysis involves various aspects of the data distribution and predicted response due to the nature of the underlying correlation among independent and dependent variables of the study. This study employs linear regression model of analysis to test correlation and association among variables. Test includes correlation, normality, linearity and homoscedasticity tests.

		DBTR	DPSIT	RTERNG	SHCPT	ROA	OSS	FSS
DBTR	Pearson Correlation	1	-.799	.722	-.965	-.975	-.922	.389
	Sig. (2-tailed)		.411	.486	.169	.143	.254	.746
	Sum of Squares and Cross-products	.014	-.020	.004	-.009	-.001	-.012	.036
	Covariance	.007	-.010	.002	-.004	.000	-.006	.018
	N	3	3	3	3	3	3	3
DPSIT	Pearson Correlation	-.799	1	-.993	.929	.912	.503	.244
	Sig. (2-tailed)	.411		.075	.242	.268	.665	.843
	Sum of Squares and Cross-products	-.020	.046	-.010	.015	.001	.012	.041
	Covariance	-.010	.023	-.005	.008	.001	.006	.021
	N	3	3	3	3	3	3	3
RTNER NG	Pearson Correlation	.722	-.993	1	-.879	-.858	-.398	-.356
	Sig. (2-tailed)	.486	.075		.317	.343	.740	.768
	Sum of Squares and Cross-products	.004	-.010	.002	-.003	.000	-.002	-.013
	Covariance	.002	-.005	.001	-.002	.000	-.001	-.007
	N	3	3	3	3	3	3	3
SHCPT	Pearson Correlation	-.965	.929	-.879	1	.999*	.788	-.134
	Sig. (2-tailed)	.169	.242	.317		.026	.423	.915
	Sum of Squares and Cross-products	-.009	.015	-.003	.006	.001	.007	-.008
	Covariance	-.004	.008	-.002	.003	.000	.004	-.004
	N	3	3	3	3	3	3	3
ROA	Pearson Correlation	-.975	.912	-.858	.999*	1	.812	-.175
	Sig. (2-tailed)	.143	.268	.343	.026		.396	.888
	Sum of Squares and Cross-products	-.001	.001	.000	.001	.000	.001	-.001
	Covariance	.000	.001	.000	.000	.000	.000	.000
	N	3	3	3	3	3	3	3
OSS	Pearson Correlation	-.922	.503	-.398	.788	.812	1	-.716
	Sig. (2-tailed)	.254	.665	.740	.423	.396		.492
	Sum of Squares and Cross-products	-.012	.012	-.002	.007	.001	.013	-.066
	Covariance	-.006	.006	-.001	.004	.000	.007	-.033
	N	3	3	3	3	3	3	3
FSS	Pearson Correlation	.389	.244	-.356	-.134	-.175	-.716	1
	Sig. (2-tailed)	.746	.843	.768	.915	.888	.492	
	Sum of Squares and Cross-products	.036	.041	-.013	-.008	-.001	-.066	.626
	Covariance	.018	.021	-.007	-.004	.000	-.033	.313
	N	3	3	3	3	3	3	3

*. Correlation is significant at the 0.05 level (2-tailed).

Table 4: correlations between variable in MFIs Ltd

Source: own calculation from financial statements, Field work 2018

4.4.1. Analysis of correlation between study variable in MFIs Ltd

Correlation is the relationship between two or more variables; this part of the study used Pearson correlation coefficient to determine the relationship between source of capital and financial sustainability indicators. And the summary of analysis of regression between variables in MFIs Ltd is shown in the table 4 above.

4.4.2. Capital structure and OSS in MFIs Ltd

The summary of the variables relationship, magnitudes and the direction of the relationship revealed strong positive correlation ($r=.788$) between OSS and paid up capital in MFIs Ltd, deposits follows with $r=.503$, at 5% level of significant. However, other source of capital have a negative relationship with OSS i.e. debt $r=-.922$ and retained earnings with $r=-.39$

4.4.3. Capital structure and FSS in MFIs Ltd

From the table4, testing the effect of source of capital on financial sustainability using financial self-sufficiency as dependent variable, where its predictor did not change; we can observe that debt has a positive relationship ($r=.389$) with FSS, Followed by Deposits ($r=.244$). However, the remaining sources have negative relationship with FSS in MFIs Ltd i.e. retained earnings ($r=-.356$) and paid up capital ($r=-.134$).

4.4.4. Capital structure and ROA in MFIs Ltd

In MFIs Ltd, some commercial source capital has a very strong relationship with ROA while others have a negative relationship. Paid up capital has a very strong relationship ($r=.999$), deposits $r=.912$, while debt $r=-.975$ and retained earnings $r=-.858$.

Correlations							
	DBTR	DPSIT	RTERNG	SHCPT	ROA	OSS	FSS
DBTR	Pearson Correlation	1	-.051	.088	-.383	.305	.262
	Sig. (2-tailed)		.905	.836	.349	.462	.531
	Sum of Squares and Cross-products	.040	-.018	.007	-.009	.020	.046
	Covariance	.006	-.003	.001	-.001	.003	.007
	N	8	8	8	8	8	8
DPSIT	Pearson Correlation	-.051	1	.940**	-.395	-.486	-.531
	Sig. (2-tailed)	.905		.001	.333	.222	.176
	Sum of Squares and Cross-products	-.018	3.082	.628	-.085	-.281	-.817
	Covariance	-.003	.440	.090	-.012	-.040	-.117
	N	8	8	8	8	8	8
RTERNG	Pearson Correlation	.088	.940**	1	-.639	-.258	-.292
	Sig. (2-tailed)	.836	.001		.088	.537	.483
	Sum of Squares and Cross-products	.007	.628	.145	-.030	-.032	-.097
	Covariance	.001	.090	.021	-.004	-.005	-.014
	N	8	8	8	8	8	8
SHCPT	Pearson Correlation	-.383	-.395	-.639	1	-.528	-.382
	Sig. (2-tailed)	.349	.333	.088		.179	.350
	Sum of Squares and Cross-products	-.009	-.085	-.030	.015	-.021	-.041
	Covariance	-.001	-.012	-.004	.002	-.003	-.006
	N	8	8	8	8	8	8
ROA	Pearson Correlation	.305	-.486	-.258	-.528	1	.665
	Sig. (2-tailed)	.462	.222	.537	.179		.072
	Sum of Squares and Cross-products	.020	-.281	-.032	-.021	.109	.192
	Covariance	.003	-.040	-.005	-.003	.016	.027
	N	8	8	8	8	8	8
OSS	Pearson Correlation	.262	-.531	-.292	-.382	.665	1
	Sig. (2-tailed)	.531	.176	.483	.350	.072	
	Sum of Squares and Cross-products	.046	-.817	-.097	-.041	.192	.769
	Covariance	.007	-.117	-.014	-.006	.027	.110
	N	8	8	8	8	8	8
FSS	Pearson Correlation	-.018	-.475	-.392	-.240	.818*	.495
	Sig. (2-tailed)	.966	.234	.337	.567	.013	.212
	Sum of Squares and Cross-products	-.010	-2.168	-.388	-.077	.701	1.129
	Covariance	-.001	-.310	-.055	-.011	.100	.161
	N	8	8	8	8	8	8

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 5: correlation between study variable in SACCOs

Source: own calculation from financial statements, Field work 2018

4.4.5. Analysis of correlation between study variable in MFIs Ltd

Correlation is the relationship between two or more variables; this part of the study used Pearson correlation coefficient to determine the relationship between source of capital and financial sustainability indicators. And the summary of analysis of regression between variables in MFIs Ltd is shown in the table 5 above.

4.4.6. Capital structure and OSS in SACCOs

The effect of capital structure on OSS in MFIs Ltd is far different from SACCOs where only Debts have a positive relationship ($r=.262$) with OSS. Paid up capital is negatively ($r=-.382$) relates to OSS; deposits $r=-.531$, and retained earnings ($r=-.292$) both at 5% level of significant

4.4.7. Capital structure and FSS in SACCOs

Surprisingly, commercial source of capital negatively affect FSS of SACCOs; however, this negative relationship is relatively weak. Deposits have a negative relationship with FSS $r=-.475$, followed by retained earnings $r=-.392$, paid up capital $r=-.240$ and finally Debt $r=-.018$.

4.4.8. Capital structure and ROA in SACCOs

Relationship between source of capital and ROA in SACCOs is different from that of MFIs. Where only debt capital has a positive relationship ($r=.305$) with ROA. Other sources of capital have a negative relationship with ROA. Ordinary share capital is strongly negatively ($r=-.528$) relates to ROA; deposits $r=-.486$, and retained earnings ($r=-.258$) at 5% level of significant.

4.5. The Analysis of Variance

This analysis of variance conducted to compare the variability in financial sustainability of MFIs due to different sources of capital. The F test which represents the variance between the groups of individuals, divided by the variance within the groups, a significant F test indicates that there is variability between the independent variables which is source of capital in this study.

4.5.1. The Analysis of Variance in MFIs Ltd.

Model Summary^b

Mod el	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin- Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	1.000 ^a	1.000	.	.	1.000	.	2	0	.	.232

a. Predictors: (Constant), Share capital ratio, Retained earnings ratio

b. Dependent Variable: FSS

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression .013	2	.007	.	^b
	Residual .000	0	.		
	Total .013	2			

a. Dependent Variable: OSS

b. Predictors: (Constant), Share capital ratio, Retained earnings ratio

Table 6: The Analysis of Variance in MFIs Ltd.

Source: own calculation from financial statements, Field work 2018

The above analysis of variance table indicated that the influence statistics of the independent variables (Share capital, Debts, Deposits, and Retained earnings) cannot be computed because the fit is perfect at 0.05 level of significance.

4.5.2. The Analysis of Variance in SACCOs

Model Summary b

Mode l	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.843 ^a	.711	.326	.27207	.711	1.848	4	3	.321	2.540

a. Predictors: (Constant), Share capital ratio, Debt ratio, Deposits ratio, Retained earnings ratio

b. Dependent Variable: OSS

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression .547	4	.137	1.848	^b
	Residual .222	3	.074		
	Total .769	7			

a. Dependent Variable: OSS

c. Predictors: (Constant), Share capital ratio, Debt ratio, Deposits ratio, and Retained earnings ratio

Table 7: The Analysis of Variance in SACCOs

Source: own calculation from financial statements, Field work 2018

The above analysis of variance table indicates that Share capital ratio, Debt ratio, Deposits ratio, and Retained earnings ratio as independent variables insignificantly influenced the dependent

variable (OSS) since the tabled F-test value was 1.848 with a p-value of .321 which is greater than the critical value (.05).

ANOVA ^a					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4.811	4	1.203	1.853	.320 ^b
1 Residual	1.947	3	.649		
Total	6.759	7			

a. Dependent Variable: FSS b) Predictors: (Constant), Share capital ratio, Debt ratio, Deposits ratio, Retained earnings ratio.

Table 8: The Analysis of Variance in SACCOs

Source: own calculation from financial statements, Field work 2018

The above ANOVA table indicates that Share capital ratio, Debt ratio, Deposits ratio, and Retained earnings ratio as independent variables insignificantly influenced the dependent variable (FSS) since the tabled F-test value was 1.853 with a p-value of .320 which is greater than the critical value (.05)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.096	4	.024	5.583	.095 ^b
1 Residual	.013	3	.004		
Total	.109	7			

a. Dependent Variable: ROA

Table 9: The Analysis of Variance in SACCOs

Source: own calculation from financial statements, Field work 2018

The above ANOVA table indicates that Share capital ratio, Debt ratio, Deposits ratio, and Retained earnings ratio as independent variables insignificantly influenced the dependent variable (ROA) since the tabled F-test value was 5.583 with a p-value of .095 which is greater than the critical value (.05).

4.6. Model Coefficients determination

In this study, regression model was used to establish the relationship between independent variables and the dependent variables. Therefore, as a results, coefficient of determination explains the extent to which dependent variables can be explained the independent variables in other words, it explains the percentage of change in dependent variables (OSS, FSS, and ROA) that is explained by Debt, retained earnings, ordinary share capital and deposits. Therefore, this

sub-section explains the responsiveness of dependent variables on predictor. The multiple regression equation of MFIs' financial sustainability as predicted by the Debts, ordinary share capital, Deposits and retained earnings all put together was run in SPSS version 20.

4.6.1. Model of Coefficients determination For MFIs Ltd

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error				Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant) .493	.000		.	.	.493	.493		
	Retained earnings ratio 3.175	.000	1.290	.	.	3.175	3.175	.228	4.384
	Share capital ratio 2.868	.000	1.921	.	.	2.868	2.868	.228	4.384

a. Dependent Variable: OSS

Table 10: The Analysis of Variance in SACCOs

Source: own calculation from financial statements, Field work 2018

In MFIs Ltd, according to the table above, the variability of two variables can be measured other two are perfectly fit ($x=1$). Thus, retained earnings (X_3 , $B=1.290$), share capital (X_4 , $B=1.921$). However, all variables are statistically. Therefore, multiple regression of financial sustainability in MFIs in terms of OSS = $0.493 + X_1 + X_2 + 1.290X_3 + 1.921X_4 + \varepsilon$.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error				Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	4.356	.000		.	.	4.356	4.356		
1 Retained earnings ratio	-34.917	.000	-2.075	.	.	-34.917	-34.917	.228	4.384
Share capital ratio	-19.975	.000	-1.957	.	.	-19.975	-19.975	.228	4.384

a. Dependent Variable: FSSS

Source: own calculation from financial statements, Field work 2018

In MFIs Ltd, as we have stated earlier, debt (X1, B=1), Deposits (X2, B= 1). Retained Earnings (X3, B=-2.075), Ordinary share capital (X4, B= -1.957), Therefore, the multiple regression analysis becomes: $Y=4.356 + X1 + X2 - 2.075X3 - 1.957X4 + \varepsilon$.

4.6.2. Model of Coefficients determination For SACCOS

4.6.2.1. Model of Coefficients determination For SACCOS analysis for OSS

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error				Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	1.764	.575		3.070	.055	-.065	3.593		
1 Debt ratio	-.286	1.512	-.066	-.189	.862	-5.097	4.524	.803	1.246
Deposits ratio	-.663	.729	-1.326	-.909	.430	-2.983	1.657	.045	22.124
Retained earnings ratio	1.424	3.998	.618	.356	.745	-11.299	14.146	.032	31.283
Share capital ratio	-3.820	4.699	-.536	-.813	.476	-18.773	11.134	.221	4.525

a. Dependent Variable: OSS

Table 11: Model of Coefficients determination For SACCOS

Source: own calculation from financial statements, Field work 2018

In SACCOs, according to the findings in the table above, debt (X1, B=-0.066), Deposits (X2, B= -1.326). Retained Earnings (X3, B=0.618), Ordinary share capital (X4, B= -0.536), and Debt, deposits, retained earnings, and ordinary share capital are all statistically insignificant since their p-value are greater than 0.05. Therefore, financial sustainability in SACCOs, the multiple regression analysis of OSS becomes: $Y=1.764 -.066X1 -1.326X2+ 0.618X3 - 0.536X4 + \epsilon$

4.6.2.2. Model of Coefficients determination For SACCOs analysis for FSS

Model	Unstandardized Coefficients		Standar dized Coeffici ents	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error				Lower Bound	Upper Bound	Toler ance	VIF
1	(Constant)	5.520	1.702	3.24 4 -.820 .866 1.42 1 -2.463 -1.423	.048	.104	10.935		
	Debt ratio	-3.670	4.476		.472	-17.916	10.575	.803	1.246
	Deposits ratio	1.870	2.159		.450	-5.000	8.739	.045	22.124
	Retained earnings ratio	-	11.838		.250	-54.491	20.854	.032	31.283
	Share capital ratio	-	30.033		.120	-74.313	14.246	.221	4.525

a. Dependent Variable: FSS

Source: own calculation from financial statements, Field work 2018

According to the findings in the table above, debt (X1, B=-.284), Deposits (X2, B= 1.262). Retained Earnings (X3, B=-2.463), Ordinary share capital (X4, B= -1.423), and Debt, deposits, retained earnings, and ordinary share capital are all statistically insignificant since their p-value are greater than 0.05. Therefore, the multiple regression analysis for FSS becomes: $Y=5.520-.284X1+1.262X2-2.463X3-1.159X4 + \epsilon$

4.6.2.3. Model of Coefficients determination For SACCOS analysis for ROA

Model	Unstandardized Coefficients		Standar dized Coeffici ents	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error				Lower Bound	Upper Bound	Toler ance	VIF
1	(Constant)	.457	.138	3.30 7	.045	.017	.898		
	Debt ratio	-.116	.364			-.320	.770	-1.274	1.041
	Deposits ratio	-.021	.175			-.120	.912	-.579	.537
	Retained earnings ratio	-.774	.962			-.894	-.805	.480	.045
	Share capital ratio	-3.132	1.131			-1.171	2.77 0	-6.731	22.124

a. Dependent Variable: ROA

Table 12: Model of Coefficients determination For SACCOS

Source: own calculation from financial statements, Field work 2018

Further, According to the findings in the table above, debt (X1, B=-.071), Deposits (X2, B=-.112). Retained Earnings (X3, B=-.894), Ordinary share capital (X4, B= -1.171), and Debt, deposits, retained earnings, and ordinary share capital are all statistically insignificant since their p-value are greater than 0.05. Therefore, the multiple regression analysis for ROA becomes: $Y=0.457-0.071X_1-0.112X_2-0.894X_3-1.171X_4 + \epsilon$. This model suggests that for SACCOS

CHAPTER FIVE: DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

The aim of this study was to examine the effect of common components of capital structure in MFIS (debt, retained earnings, ordinary share capital and deposits) on the three stated indicators of financial sustainability (OSS, FSS, and ROA) in Rwanda. This study is more detailed compared to previous studies in that it takes into consideration the difference that exist between MFIs Ltd and SACCOs, while most of existing researchers have not distinguished the two; therefore, on the basis of study findings, we can discuss results as follow:

5.2. Effect of Debt on the Financial Sustainability indicators

The findings revealed that debt has not uniformly affected financial sustainability variables among MFIs Ltd and SACCOs between 2013 and 2017. In MFIs, debt negatively affected OSS, and ROA. However, it has been positively affected FSS. In SACCOs, debt has positively affected OSS, and ROA while negatively affected FSS. A number of researchers in domain of capital structure and sustainability of MFIs revealed a diverse of results and existing literature on Debt as a source of capital is not yet conclusive. Thus, the idea that managers should consider the advantages of debt in the capital structure (Mwongeli & Ariemba, 2018); this study revealed that debts can help SACCOs to be operationally self-sustainable than MFIs Ltd. The argument is tax shield normally reduces the cost of capital, however, this only happens if tax benefits is greater than costs of debts (Tehulu, 2013). Therefore, this positive relationship in SACCOs would increase operational sustainability with the same proportionate increase in debt when other sources of capital are not change.

5.3. The effect of deposits on the Financial Sustainability indicators

This study found that between 2013 and 2017 In MFIs Ltd, deposits but different levels of magnitude, significantly affected all indicators of financial sustainability i.e. OSS, FSS and ROA. In contrast however, in SACCOs, deposits have negatively affected OSS, FSS and ROA. These results indicate that deposit is probably a cheap source of capital in MFIs Ltd, but the most expensive in SACCOs, thus, it can help MFIs Ltd to be financially self-sustainable while in SACCOs deposits negatively affect financial sustainability. Thus, this negative relationship also indicates suboptimal capital structure with a big proportion of deposits compere to assets in SACCOs. In addition, since deposits are liabilities to MFIs/SACCOs, it should increases costs of capital if interest rate differential is negative. The findings in this study has contrasted to the literature that deposits insignificantly affected financial sustainability in east Africa (Tehulu,

2013). however, some studies revealed that in some African region deposits surpass loan portfolio (Bayai & Ikhide, 2016) which might forces interest rate differentials to be negative, thus, proper management and exploitation of savings would increase financial sustainability when other sources of capital are not change.

5.4. The effect of retained earnings on the Financial Sustainability indicators

Based on research findings, retained earnings significantly affected all indicators of financial sustainability i.e. OSS, FSS and ROA in MFIs in the year of 2013 to 2014. further, by the same period in SACCOs, retained earnings also negatively affected OSS, FSS and ROA even though at different level of magnitude. These results indicate that deposit is probably the most expensive source of capital in MFIs Ltd as well as in SACCOs in Rwanda. And this is contrary to previous research (Mwongeli & Ariemba, 2018; Sekabira, 2013). Thus, MFIs in Rwanda should be carefully when employing retained earnings and probably consider other source of capital. This negative relationship also explained by the *efficiency risk hypothesis* that suggests the low proportion of equity capital in MFIs (Tehulu, 2013). This negative relationship between retained earnings and financial sustainability indicators can also be explained by agency cost theory and profit incentive theory which suggest the use of loans to increase commitment of managers (V. L. Bogan, 2012).

5.5. The effect of ordinary share capital on the Financial Sustainability indicators

The factor that ordinary share capital like retained earnings is a part of equity capital, it has been insignificantly affected all indicators of financial sustainability i.e. OSS, FSS and ROA in SACCOs in 2013 to 2014; equally important, it had also negatively affected FSS in MFIs Ltd. The results indicate that like retained earnings, ordinary share capital is not advisable source of capital in MFIs in Rwanda. And this is in line with previous research (Mwongeli & Ariemba, 2018; Sekabira, 2013). Thus, MFIs in Rwanda should be carefully when employing ordinary share capital and probably consider other source of capital because even in MFIs Ltd where it positively affects OSS and ROA, it is hampers FSS which is very important indicator of tomorrow's sustainable MFIs that would survive when grants and subsidies stops. Thus, much like retained earnings, *efficiency risk hypothesis* and agency cost theory explain the advantages of external source of capital and the reason of employing low proportion of equity capital in MFIs (Tehulu, 2013) (V. L. Bogan, 2012).

5.6. Conclusion

Literature in domain of source of capital and financial sustainability is scarce, further, the little information available is started (Bayai & Ikhide, 2016). Objectives of this study were to assess the effect of sources of capital on financial sustainability of MFIs, and determine the extent on which capital structure affect financial sustainability of MFIs in Rwanda. This study attempts to establish the differences in the impact of those sources of capital on financial sustainability and assess the extent to which capital structure affect financial sustainability between MFIs Ltd and SACCOs. Therefore, the study concludes that the effect of debt, retained earnings, deposits and ordinary share capital on financial sustainability indicators differ between MFIs Ltd and SACCOs. Based on research findings, the study also concludes that, capital structure influences financial sustainability of MFIs in Rwanda to the extent of 72% on average and other factors that have not been considered in this research influence about 28%.

5.7. Recommendation

Based on the findings of this study, I recommend that a large proportion of debt should be employed to amplify OSS and ROA in SACCOs. Further, the factor that in Sacco's, deposits has negative effect on financial sustainability indicators; indicates that, deposits are not efficiently converted into revenues probably through sub optimal loan portfolio in SACCOs. Therefore, optimal exploitation of deposits to enhance financial sustainability is needed. In addition, the concerned parties such as BNR and local government should give trainings to SACCOs' managing team including credit officers as well as local population on local available investment opportunities so that those unused money should be properly invested. By contrast, fewer deposits in MFIs Ltd should be one of the causes of operationally unsustainable. Thus, I recommend MFLs Ltd to attract more deposits so that financial cost would be reduced to enhance financial sustainability.

5.7. Recommendation for further research

The factor that time and other resources are limited more especially to students, further, availability of financial data specifically from MFIs is quit difficulty, therefore, my recommendation to future researchers is that a big sample is needed in order to make an inference that is more reliable. Further research is also necessary in financial sector to include banking and non-banking financial institutions to analyze the sustainability behavior and its relationship with capital structure. Furthermore, the factor that governance in SACCOs follow the principle of cooperative governance, while in MFIs Ltd it follows the low governing Ltd

companies and corporate governance principles that govern Ltd corporations; research should be carried out in corporate governance among those MFIs in order to determine the role of governance in financial sustainability of MFIs.

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